ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA–HQ–OAR–2010–0786; FRL–9237–1]

RIN 2060–AQ42

National Emission Standards for Shipbuilding and Ship Repair (Surface Coating); National Emission Standards for Wood Furniture Manufacturing Operations

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: This action proposes how EPA will address the residual risk and technology review conducted for two industrial source categories regulated by separate national emission standards for hazardous air pollutants. It also proposes to address provisions related to emissions during periods of startup, shutdown, and malfunction.

DATES: *Comments.* Comments must be received on or before February 22, 2011. Under the Paperwork Reduction Act, comments on the information collection provisions are best assured of having full effect if the Office of Management and Budget receives a copy of your comments on or before January 20, 2011.

Public Hearing. If anyone contacts EPA requesting to speak at a public hearing by January 5, 2011, a public hearing will be held on January 20, 2011.

ADDRESSES: Submit your comments, identified by Docket ID Number EPA–HQ–OAR–2010–0786, by one of the following methods:

- *http://www.regulations.gov:* Follow the on-line instructions for submitting comments.
- *E-mail: a-and-r-docket@epa.gov,* Attention Docket ID Number EPA–HQ–OAR–2010–0786.
- *Facsimile:* (202) 566–9744. Attention Docket ID Number EPA–HQ–OAR–2010–0786.
- *Mail:* U.S. Postal Service, send comments to: EPA Docket Center, EPA West (Air Docket), Attention Docket ID Number EPA–HQ–OAR–2010–0786, U.S. Environmental Protection Agency, Mailcode: 2822T, 1200 Pennsylvania Ave., NW., Washington, DC 20460. Please include a total of two copies. 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, *Attn:* Desk Officer for EPA, 725 17th Street, NW., Washington, DC 20503.
- *Hand Delivery:* U.S. Environmental Protection Agency, EPA West (Air Docket), Room 3334, 1301 Constitution Ave., NW., Washington, DC 20004. Attention Docket ID Number EPA–HQ–OAR–2010–0786. 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 Number EPA–HQ–OAR–2010–0786. EPA's policy is that all comments received will be included in the public docket without change and may be made available on-line at *http://www.regulations.gov,* including any personal information provided, unless the comment includes information claimed to be confidential business information or other information whose disclosure is restricted by statute. Do not submit information that you consider to be confidential business information or otherwise protected through *http://www.regulations.gov* or e-mail. The *http://www.regulations.gov* Web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through *http://www.regulations.gov,* your e-mail 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, 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 EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about EPA's public docket, visit the EPA Docket Center homepage at *http://www.epa.gov/epahome/dockets.htm.*

Docket. The EPA has established a docket for this rulemaking under Docket ID Number EPA–HQ–OAR–2010–0786. 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.,* confidential business information 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 *http://www.regulations.gov* or in hard copy at the EPA Docket Center, EPA West, Room 3334, 1301 Constitution Ave., 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 held, it will begin at 10 a.m. on January 20, 2011 and will be held at EPA's campus in Research Triangle Park, North Carolina, or at an alternate facility nearby. For information on the status of the public hearing, go to *http://www.epa.gov/ttn/atw/rrisk/rtrpg.html.* Persons interested in presenting oral testimony or inquiring as to whether a public hearing is to be held should contact Ms. Joan Rogers, Office of Air Quality Planning and Standards, Sector Policies and Programs Division, Natural Resources and Commerce Group (E143–01), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; *telephone number:* (919) 541–4487.

FOR FURTHER INFORMATION CONTACT: For questions about this proposed action, contact Ms. J. Kaye Whitfield, Sector Policies and Programs Division (E143–01), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, telephone (919) 541–2509; *facsimile number:* (919) 541–3470; and *e-mail address: whitfield.kaye@epa.gov*. For specific information regarding the risk modeling methodology, contact Ms. Elaine Manning, 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) 541–5499; *facsimile number:* (919) 541–0840; and *e-mail address: manning.elaine@epa.gov*. For information about the applicability of these two National Emissions Standards for Hazardous Air Pollutants to a particular entity, contact the appropriate person listed in Table 1 to this preamble.

TABLE 1—LIST OF EPA CONTACTS FOR THE NATIONAL EMISSIONS STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP) ADDRESSED IN THIS PROPOSED ACTION

NESHAP for:	OECA Contact [1]	OAQPS Contact [2]
Shipbuilding and Ship Repair (Surface Coating)	Mr. Leonard Lazarus, (202) 564–6369, *lazarus.leonard@epa.gov*.	Ms. J. Kaye Whitfield, (919) 541–2509, *whitfield.kaye@epa.gov*
Wood Furniture Manufacturing Operations	Mr. Leonard Lazarus, (202) 564–6369, *lazarus.leonard@epa.gov*.	Ms. J. Kaye Whitfield, (919) 541–2509, *whitfield.kaye@epa.gov*

[1] OECA stands for EPA's Office of Enforcement and Compliance Assurance.
[2] OAQPS stands for EPA's Office of Air Quality Planning and Standards.

SUPPLEMENTARY INFORMATION:

I. Preamble Acronyms and Abbreviations

Several acronyms and terms used to describe industrial processes, data inventories, and risk modeling are included in this preamble. While this may not be an exhaustive list, to ease the reading of this preamble and for reference purposes, the following terms and acronyms are defined here:

ACA American Coatings Association
ACGIH American Conference of Governmental Industrial Hygienists
ADAF Age-dependent Adjustment Factors
AEGL Acute Exposure Guideline Levels
AERMOD The air dispersion model used by the HEM–3 model
AHFA American Home Furnishings Alliance
ANPRM Advance Notice of Proposed Rulemaking
APA Administrative Procedure Act
ATSDR Agency for Toxic Substances and Disease Registry
BACT Best Available Control Technology
BIFMA Business and Institutional Furniture Manufacturer's Association
CalEPA California Environmental Protection Agency
CAA Clean Air Act
CBI Confidential Business Information
CEEL Community Emergency Exposure Levels
CEMS Continuous Emissions Monitoring System
CFR Code of Federal Regulations
CIIT Chemical Industry Institute of Toxicology
DGBE Diethylene Glycol Monobutyl Ether
EGME Ethylene Glycol Monomethyl Ether
EJ Environmental Justice
EPA Environmental Protection Agency
ERPG Emergency Response Planning Guidelines
HAP Hazardous Air Pollutants
HI Hazard Index
HEM–3 Human Exposure Model version 3
HON Hazardous Organic National Emissions Standards for Hazardous Air Pollutants
HQ Hazard Quotient
ICR Information Collection Request
IRIS Integrated Risk Information System
KCMA Kitchen Cabinet Manufacturing Association
Kg Kilogram
Km Kilometer
LAER Lowest Achievable Emission Rate
MACT Maximum Achievable Control Technology
MACT Code Code within the NEI used to identify processes included in a source category
MIR Maximum Individual Risk
MRL Minimum Risk Level
NAC/AEGL Committee National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances
NAICS North American Industry Classification System
NAS National Academy of Sciences
NATA National Air Toxics Assessment
NESHAP National Emissions Standards for Hazardous Air Pollutants
NEI National Emissions Inventory
NIOSH National Institutes for Occupational Safety and Health
NOAEL No Observed Adverse Effects Level
NO_X Nitrous Oxide
NRC National Research Council
NTTAA National Technology Transfer and Advancement Act
OAQPS EPA's Office of Air Quality Planning and Standards
OECA EPA's Office of Enforcement and Compliance Assurance
OMB Office of Management and Budget
PB–HAP Hazardous air pollutants known to be persistent and bio-accumulative in the environment
POM Polycyclic Organic Matter
PPRTV Provisional Peer Reviewed Toxicity Value
PRA Paperwork Reduction Act
RACT Reasonably Available Control Technology
RBLC RACT/BACT/LAER Clearinghouse
REL CalEPA Reference Exposure Level
RFA Regulatory Flexibility Act
RfC Reference Concentration
RfD Reference Dose
RTO Regenerative Thermal Oxidizer
RTR Residual Risk and Technology Review
SAB Science Advisory Board
SBA Small Business Administration
SCC Source Classification Codes
SF3 2000 Census of Population and Housing Summary File 3
SOP Standard Operating Procedures
SSM Startup, Shutdown, and Malfunction
TOSHI Target Organ-Specific Hazard Index
TPY Tons Per Year
TRIM Total Risk Integrated Modeling System
TRIM.FaTE A spatially explicit, compartmental mass balance model that describes the movement and transformation of pollutants over time, through a user-defined, bounded system that includes both biotic and abiotic compartments
TTN Technology Transfer Network
UF Uncertainty Factor
UMRA Unfunded Mandates Reform Act
URE Unit Risk Estimate
VCS Voluntary Consensus Standards
VHAP Volatile Hazardous Air Pollutants
VOC Volatile Organic Compounds
VOHAP Volatile Organic Hazardous Air Pollutants
WWW Worldwide Web

Organization of This Document. The following outline is provided to aid in locating information in this preamble.

II. General Information

A. Does this action apply to me?

The regulated industrial source categories that are the subject of this proposal are listed in Table 2 of this preamble. Table 2 is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by the proposed action for the source categories listed. These standards, and any changes considered in this rulemaking, would be directly applicable to sources as a federal program. Thus, federal, state, local, and tribal government entities are not affected by this proposed action. The regulated categories affected by this proposed action are shown in Table 2.

TABLE 2—NESHAP AND INDUSTRIAL SOURCE CATEGORIES AFFECTED BY THIS PROPOSED ACTION

NESHAP and source category	NAICS code [1]	MACT code [2]
Shipbuilding and Ship Repair (Surface Coating)	336611	0715–2
Wood Furniture Manufacturing Operations	3371, 3372, 3379	0716

[1] North American Industry Classification System.
[2] Maximum Achievable Control Technology.

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 proposal will also be available on the WWW through the EPA's TTN. Following signature by the EPA Administrator, a copy of this proposed action will be posted on the TTN's policy and guidance page for newly proposed or promulgated rules at the following address: *http://www.epa.gov/ttn/atw/rrisk/rtrpg.html.* The TTN provides information and technology exchange in various areas of air pollution control.

Additional information is available on the RTR web page at *http://www.epa.gov/ttn/atw/rrisk/rtrpg.html.* This information includes the most recent version of the rule, source category descriptions, detailed emissions, and other data that were used as inputs to the risk assessments.

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

Submitting CBI. Do not submit information containing CBI to EPA through *http://www.regulations.gov* or e-mail. 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 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 comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted 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 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 CFR part 2. Send or deliver information identified as CBI only to the following address: Roberto Morales, OAQPS Document Control Officer (C404–02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention Docket ID Number EPA–HQ–OAR–2010–0786.

III. 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 EPA has identified categories of sources emitting one or more of the HAP listed in section 112(b) of the CAA, section 112(d) of the CAA calls for us to promulgate NESHAP for those sources. "Major sources" are those that emit or have the potential to emit 10 TPY or more of a single HAP or 25 TPY or more of any combination of HAP. For major sources, these technology-based standards must reflect the maximum degree of emission reductions of HAP achievable (after considering cost, energy requirements, and nonair quality health and environmental impacts) and are commonly referred to as MACT standards.

MACT standards must reflect application of measures, processes, methods, systems, or techniques, including, but not limited to, measures which, (A) Reduce the volume of or eliminate pollutants through process changes, substitution of materials or other modifications; (B) enclose systems or processes to eliminate emissions; (C) capture or treat pollutants when released from a process, stack, storage, or fugitive emissions point; (D) are design, equipment, work practice, or operational standards (including requirements for operator training or certification); or (E) are a combination of the above. CAA section 112(d)(2)(A)-(E). The MACT standards may take the form of design, equipment, work practice, or operational standards where EPA first determines either that, (A) a pollutant cannot be emitted through a conveyance designed and constructed to emit or capture the pollutants, or that any requirement for, or use of, such a conveyance would be inconsistent with law; or (B) the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations. CAA sections 112(h)(1)–(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 emission control that is achieved in practice by the best-controlled similar source. The MACT floors for existing sources can be less stringent than floors for new sources, but they cannot be 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, we must also consider control options that are more stringent than the floor. We may establish standards more stringent than the floor

based on the consideration of the cost of achieving the emissions reductions, any nonair quality health and environmental impacts, and energy requirements.

The EPA is required to review these technology-based standards and to revise them "as necessary (taking into account developments in practices, processes, and control technologies)" no less frequently than every 8 years, under CAA section 112(d)(6). In conducting this review, EPA is not obliged to completely recalculate the prior MACT determination. *NRDC* v. *EPA,* 529 F.3d 1077, 1084 (DC Cir. 2008).

The second stage in standard-setting focuses on reducing any remaining "residual" risk according to CAA section 112(f). This provision requires, first, that 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, the means and costs of controlling them, the actual health effects to persons in proximity of emitting sources, and the recommendations regarding legislation of such remaining risk. EPA prepared and submitted this report (*Residual Risk Report to Congress,* EPA–453/R–99–001) in March 1999. Congress did not act in response to the report, thereby triggering EPA's obligation under CAA section 112(f)(2) to analyze and address residual risk.

Section 112(f)(2) of the CAA requires us to determine, for source categories subject to certain MACT standards, whether the emissions standards provide an ample margin of safety to protect public health. 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 1-in-1 million," 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, EPA may adopt standards equal to existing MACT standards if EPA determines that the existing standards are sufficiently protective. As stated in *NRDC* v. *EPA,* 529 F.3d 1077, 1083 (DC 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." CAA section 112(f)(2) further states that EPA must also adopt more stringent standards if required, "to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect." [1]

When Section 112(f)(2) of the CAA was enacted in 1990, it expressly preserved our use of the two-step process for developing standards to address any residual risk and our interpretation of "ample margin of safety" developed in the *National Emission 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 first step in this process is the determination of acceptable risk. The second step provides for an ample margin of safety to protect public health, which is the level at which the standards are set (unless a more stringent standard is required to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect).

The terms "individual most exposed," "acceptable level," and "ample margin of safety" are not specifically defined in the CAA. However, CAA section 112(f)(2)(B) preserves the interpretation set out in the Benzene NESHAP, and the Court (in *NRDC* v. *EPA*) concluded that EPA's interpretation of subsection 112(f)(2) is a reasonable one. *See NRDC* v. *EPA,* 529 F.3d 1077, 1083 (DC Cir. 2008), which says "[S]ubsection 112(f)(2)(B) expressly incorporates 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,* volume 1, p. 877 (Senate debate on Conference Report). We notified Congress in the *Residual Risk Report to Congress* that we intended to use the Benzene NESHAP approach in making CAA section 112(f) residual risk determinations (EPA–453/R–99–001, p. ES–11).

In the Benzene NESHAP, we stated as an overall objective:

> * * * in protecting public health with an ample margin of safety, we strive 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 facility would have if he or she were exposed to the maximum pollutant concentrations for 70 years.

The EPA also stated that, "The 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 risk 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." The EPA went on to conclude, "estimated incidence would be weighed along with other health risk information in judging acceptability." As explained more fully in our *Residual Risk Report to Congress,* EPA does not define "rigid line[s] of acceptability," but considers rather broad objectives to be weighed with a series of other health measures and factors (EPA–453/R–99–001, p. ES–11). 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" (*Residual Risk Report to Congress,* p. 178, quoting the Vinyl Chloride decision at 824 F.2d 1165) 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 1-in-10 thousand, that risk level is considered acceptable." 54 FR 38045. We discussed the maximum individual lifetime cancer risk 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 acknowledge 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 maximum individual lifetime cancer risk as a metric for determining acceptability, we acknowledged in the 1989 Benzene NESHAP that "consideration of maximum individual risk * * * must take into account the strengths and weaknesses of this measure of risk." *Id.* Consequently, the

[1] "Adverse environmental effect" is defined in CAA section 112(a)(7) as any significant and widespread adverse effect, 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.

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.

The EPA also explained in the 1989 Benzene NESHAP the following: "In establishing a presumption for MIR [maximum individual cancer risk], 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.*

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 explained in the Benzene NESHAP, "[e]ven though the risks judged "acceptable" by EPA in the first step of the Vinyl Chloride inquiry are already low, 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." In the ample margin of safety decision process, the EPA again considers all of the health risks 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 costs and economic impacts of controls, technological feasibility, uncertainties, and any other relevant factors. Considering all of these factors, the EPA 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.

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

As discussed in section III.A of this preamble, we apply a two-step process for developing standards to address residual risk. In the first step, EPA determines if risks are acceptable. This determination "considers all health information, including risk estimation uncertainty, and includes a presumptive limit on MIR [2] of approximately 1-in-10 thousand [*i.e.,* 100-in-1 million]." 54 FR 38045. In the second step of the process, EPA sets the standard at a level that provides 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.*

In past residual risk determinations, EPA presented a number of human health risk metrics associated with emissions from the category under review, including: The MIR; the numbers of persons in various risk ranges; cancer incidence; the maximum non-cancer HI; and the maximum acute non-cancer hazard (72 FR 25138, May 3, 2007; 71 FR 42724, July 27, 2006). EPA also discussed and considered risk estimation uncertainties. In our most recent proposal (75 FR 65068), EPA also presented and considered additional measures of health information to support our decision-making, including: Estimates of "total facility" risks (risks from all HAP emissions from the facility at which the source category is located); [3] demographic analyses (analyses of the distributions of HAP-related risks across different social, demographic, and economic groups living near the facilities); and estimates of the risks associated with emissions allowed by the MACT standards (75 FR 65068, October 21, 2010). EPA is providing this same type of information in support of the proposed actions described in this **Federal Register** notice.

The EPA is considering all available health information to inform our determinations of risk acceptability and ample margin of safety under CAA section 112(f). Specifically, 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 section 112 is best judged on the basis of a broad set of health risk measures and information." 54 FR 38044, 38046 (Sept. 14, 1989). Similarly, with regard to making the ample margin of safety determination, as stated in the Benzene NESHAP "[I]n the ample margin decision, the EPA 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 EPA acknowledges that flexibility is provided by the Benzene NESHAP regarding what factors EPA might consider in making determinations and how they might be weighed for each source category. In responding to comment on our policy under the Benzene NESHAP, EPA explained that: "The 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.'" 54 FR 38057.

For example, the level of the MIR is only one factor to be weighed in determining acceptability of risks. It is explained in the Benzene NESHAP "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 EPA 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, it is stated in the Benzene NESHAP that: "* * * EPA believes the relative weight of the many

[2] 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.

[3] EPA previously provided estimates of total facility risk in a residual risk proposal for coke oven batteries (69 FR 48338, August 9, 2004).

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.

EPA wishes to point out that certain health information has not been considered in these decisions. In assessing risks to populations in the vicinity of the facilities in each category, we present estimates of risk associated with HAP emissions from the source category alone (source category risk estimates) and HAP emissions from the entire facilities at which the covered source categories are located (facility-wide risk estimates). We do not attempt to characterize the risks associated with all HAP emissions impacting the populations living near the sources in these categories. That is, we have not presented estimates of total HAP inhalation risks from all sources in the vicinity of the covered sources (*e.g.,* the sum of the risks from ambient levels, emissions from the source category, facility-wide emissions, and emissions from other facilities nearby), nor have we attempted to include estimates of total HAP inhalation risks from indoor sources such as from cooking or degassing from consumer products.

The EPA 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. While such considerations are relevant to both cancer and non-cancer risk assessments, they can be particularly important when assessing cumulative non-cancer risks, where pollutant-specific risk-based exposure levels (*e.g.,* RfC) are based on the assumption that thresholds exist for adverse health effects. For example, the EPA 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 us "* * * 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." [4]

While 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. At this point, we believe that such estimates of total HAP risks will have significantly greater associated uncertainties than for the source category or facility-wide estimates, hence compounding the uncertainty in any such comparison. This is because we have not conducted a detailed technical review of HAP emissions data for source categories and facilities that have not previously undergone a RTR review or are not currently undergoing such review. We are requesting comment on whether and how best to estimate and evaluate total HAP exposure from outdoor sources in our assessments, and, in particular, on whether and how it might be appropriate to use information from EPA's NATA to support such estimates. We also request comment whether and how to estimate total HAP exposure from indoor sources in the context of these assessments. We are also seeking comment on how best to consider various types and scales of risk estimates when making our acceptability and ample margin of safety determinations under CAA section 112(f). Additionally, we are seeking comments and recommendations for any other comparative measures that may be useful in the assessment of the distribution of HAP risks across potentially affected demographic groups.

C. What other actions are we addressing in this proposal?

We are also proposing to revise requirements in these MACT standards related to emissions during periods of SSM. The United States Court of Appeals for the District of Columbia Circuit vacated portions of two provisions in EPA's CAA section 112 regulations governing the emissions of HAP during periods of SSM. *Sierra Club* v. *EPA,* 551 F.3d 1019 (DC Cir. 2008), *cert. denied, 130 S. Ct. 1735 (U.S. 2010).* Specifically, the Court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and 40 CFR 63.6(h)(1), that are part of a regulation, commonly referred to as the *General Provisions Rule,* that EPA promulgated under section 112 of the CAA. When incorporated into CAA section 112(d) regulations for specific source categories, these two provisions exempt sources from the requirement to comply with the otherwise applicable CAA section 112(d) emission standard during periods of SSM.

We are proposing the elimination of the SSM exemption in both of the MACT standards addressed in this proposal. Consistent with *Sierra Club* v. *EPA,* EPA is proposing standards in these rules that apply at all times. In proposing the standards in these rules, EPA has taken into account startup and shutdown periods, and, because operations and emissions do not differ from normal operations during these periods, has not proposed different standards for these periods. We are also proposing several revisions to the *General Provisions Applicability* table in both of the MACT standards. For example, we are proposing to eliminate the incorporation of the *General Provisions'* requirement that the source develop a SSM plan. We are also proposing to eliminate or revise certain recordkeeping and reporting requirements related to the SSM exemption. EPA has attempted to ensure that we have not included in the proposed regulatory language any provisions that are inappropriate, unnecessary, or redundant in the absence of the SSM exemption. We are specifically seeking comment on whether there are any such provisions that we have inadvertently incorporated or overlooked.

Periods of startup, normal operations, and shutdown are all predictable and routine aspects of a source's operations. However, by contrast, malfunction is defined as a "sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment or a process to operate in a normal or usual manner * * *" (40 CFR 63.2). EPA has determined that malfunctions should not be viewed as a distinct operating mode and, therefore, any emissions that occur at such times do not need to be factored into development of CAA section 112(d) standards, which, once promulgated, apply at all times. In *Mossville Environmental Action Now* v. *EPA,* 370 F.3d 1232, 1242 (DC Cir. 2004), the Court upheld as reasonable standards that had factored in variability of emissions under all operating conditions. However, nothing in CAA section 112(d) or in case law requires that EPA anticipate and

[4] 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*) 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.*

account for the innumerable types of potential malfunction events in setting emission standards. *See Weyerhaeuser* v. *Costle,* 590 F.2d 1011, 1058 (DC 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."). Further, it is reasonable to interpret CAA section 112(d) as not requiring EPA to account for malfunctions in setting emissions standards. For example, we note that CAA section 112 uses the concept of "best performing" sources in defining MACT, the level of stringency that major source standards must meet. Applying the concept of "best performing" to a source that is malfunctioning presents significant difficulties. The goal of best performing sources is to operate in such a way as to avoid malfunctions of their units. Moreover, even if malfunctions were considered a distinct operating mode, we believe it would be impracticable to take malfunctions into account in setting CAA section 112(d) standards for shipbuilding and ship repair (surface coating) and wood furniture manufacturing operations. As noted above, by definition, malfunctions are sudden and unexpected events, and it would be difficult to set a standard that takes into account the myriad different types of malfunctions that can occur across all sources in each source category. Malfunctions can also vary in frequency, degree, and duration, further complicating standard setting.

In the event that a source fails to comply with the applicable CAA section 112(d) standards as a result of a malfunction event, 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. EPA would also consider whether the source's failure to comply with the CAA section 112(d) standard was, in fact, "sudden, infrequent, not reasonably preventable" and was not instead "caused in part by poor maintenance or careless operation." 40 CFR 63.2 (definition of malfunction).

Finally, EPA recognizes that even equipment that is properly designed and maintained can sometimes fail and that such failure can sometimes cause or contribute to an exceedance of the relevant emission standard. (*See, e.g., State Implementation Plans: Policy Regarding Excessive Emissions During Malfunctions, Startup, and Shutdown* (September 20, 1999); *Policy on Excess Emissions During Startup, Shutdown, Maintenance, and Malfunctions* (February 15, 1983)). EPA is, therefore, proposing to add to the final rule an affirmative defense to civil penalties for exceedances of emission limits that are caused by malfunctions in both of the MACT standards addressed in this proposal. *See* 40 CFR 63.782 for sources subject to the Shipbuilding and Repair (Surface Coating) MACT standards, or 40 CFR 63.801 for sources subject to the Wood Furniture Manufacturing Operations MACT standards (defining "affirmative defense" to mean, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding). We also are proposing other regulatory provisions to specify the elements that are necessary to establish this affirmative defense; a source subject to the Shipbuilding and Ship Repair (Surface Coating) MACT standards must prove by a preponderance of the evidence that it has met all of the elements set forth in 40 CFR 63.781(d) and a source subject to the Wood Furniture Manufacturing Operations MACT standards must prove by a preponderance of the evidence that it has met all of the elements set forth in 40 CFR 63.800(h). (*See* 40 CFR 22.24.) The criteria ensure that the affirmative defense is available only where the event that causes an exceedance of the emission limit meets the narrow definition of malfunction in 40 CFR 63.2 (sudden, infrequent, not reasonably preventable and not caused by poor maintenance and or careless operation). For example to successfully assert the affirmative defense, the source must prove by a preponderance of evidence that excess emissions "[w]ere caused by a sudden, short, infrequent, and unavoidable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner. * * *" The criteria also are designed to ensure that steps are taken to correct the malfunction, to minimize emissions in accordance with 40 CFR 63.783(b)(1) for sources subject to the Shipbuilding and Ship Repair (Surface Coating) MACT standards, or 40 CFR 63.802(c) for sources subject to the Wood Furniture Manufacturing Operations MACT standards, and to prevent future malfunctions. For example the source must prove by a preponderance of evidence that "[r]epairs were made as expeditiously as possible when the applicable emission limitations were being exceeded* * *" and that "[a]ll possible steps were taken to minimize the impact of the excess emissions on ambient air quality, the environment and human health* * *" In any judicial or administrative proceeding, the Administrator may challenge the assertion of the affirmative defense and, if the respondent has not met its burden of proving all of the requirements in the affirmative defense, appropriate penalties may be assessed in accordance with section 113 of the CAA (*see also* 40 CFR 22.77).

IV. Analyses Performed

As discussed above, in this notice, we are taking the following actions: (1) we are proposing action to address the RTR requirements of CAA sections 112(d)(6) and (f)(2) for both the Shipbuilding and Ship Repair (Surface Coating) and the Wood Furniture Manufacturing Operations MACT standards; and, (2) we are proposing to revise the provisions in both of these MACT standards to address SSM to ensure that the SSM provisions are consistent with the Court decision in *Sierra Club* v. *EPA,* 551 F. 3d 1019. In this section, we describe the analyses performed to support the proposed decisions for the RTRs for each of these source categories.

A. How did we estimate risks posed by the source categories?

The EPA conducted risk assessments that provided estimates of the MIR posed by the HAP emissions from each source in a category, and, by each source category, the distribution of cancer risks within the exposed populations, cancer incidence, HI for chronic exposures to HAP with the potential to cause non-cancer health effects, HQ for acute exposures to HAP with the potential to cause non-cancer health effects, and an evaluation of the potential for adverse environmental effects. The risk assessments consisted of seven primary steps, as discussed below. The docket for this rulemaking contains the following documents which provide more information on the risk assessment inputs and models: *Draft Residual Risk Assessment for the Wood Furniture Manufacturing Operations Source Category,* and *Draft Residual Risk Assessment for the*

Shipbuilding and Ship Repair Source Category.

1. Establishing the Nature and Magnitude of Actual Emissions and Identifying the Emissions Release Characteristics

For the Shipbuilding and Ship Repair (Surface Coating) source category, we compiled preliminary datasets using readily-available information, reviewed the data, made changes where necessary, and shared these data with the public via an ANPRM. 72 FR 29287, March 29, 2007. The preliminary dataset was based on data in the *2002 National Emissions Inventory (NEI) Final Inventory, Version 1* (made publicly available on February 26, 2006).[5] The preliminary dataset was updated with information received in response to the ANPRM; data from the 2005 NEI, when that data became available; and additional data gathered by EPA. For more information see the *Memoranda Documenting Changes to the RTR Dataset for the Shipbuilding and Ship Repair (Surface Coating) Source Category,* dated November 22, 2010, which is available in the docket for this action. The updated dataset contains 85 facilities and was used to conduct the risk assessments and other analyses that form the basis for the proposed actions for the Shipbuilding and Ship Repair (Surface Coating) source category.

For the Wood Furniture Manufacturing Operations source category, we compiled preliminary datasets using the best data available, reviewed the data, and made changes where necessary. For this source category, we compiled the preliminary datasets using data in the 2005 NEI. After incorporation of changes to the dataset based on additional information gathered by EPA, an updated dataset was created. This updated dataset contains 385 facilities and was used to conduct the risk assessments and other analyses that form the basis for the proposed actions for the Wood Furniture Manufacturing Operations source category.

2. Establishing the Relationship Between Actual Emissions and MACT–Allowable Emissions Levels

The available emissions data in the NEI and from other sources typically represent the estimates of mass of emissions actually emitted during the specified annual time period. These "actual" emission levels are often lower than the emission levels that a facility might be allowed to emit and still 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. This represents the highest emissions level that could be emitted by the facility without violating the MACT standards.

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 HON 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 sources could emit and still comply with national emission standards. But 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. (54 FR 38044, September 14, 1989.) It is reasonable to consider actual emissions because sources typically seek to perform better than required by emission standards to provide an operational cushion to accommodate the variability in manufacturing processes and control device performance.

As described above, the actual emissions data were compiled based on the NEI, information gathered from companies, individual facilities, industry trade associations, states, and information received in response to the ANPRM. To estimate emissions at the MACT-allowable level, we developed a ratio of MACT-allowable to actual emissions for each emissions source type in each source category, based on the level of control required by the MACT standards compared to the level of reported actual emissions and available information on the level of control achieved by the emissions controls in use. For example, if there was information to suggest several facilities in the Shipbuilding and Ship Repair (Surface Coating) source category were using coatings that contain only 1 Kg of VOHAP compounds per Kg of coating solids (kg VOHAP/kg solids) while the MACT standards required coatings to contain no more than 2 kg VOHAP/kg solids, we would estimate that MACT-allowable emissions from emission points using these coatings could be as much as 2 times higher (VOHAP content of 2 kg/kg solids allowed compared with VOHAP content of 1 kg/kg solids actually used), and the ratio of MACT-allowable to actual would be 2:1 for the emission points using these coatings at the facilities in this source category. After developing these ratios for each emission point type in each source category, we next applied these ratios on a facility-by-facility basis to the maximum chronic risk estimates from the inhalation risk assessment to obtain facility-specific maximum risk estimates based on MACT-allowable emissions. The estimates of MACT-allowable emissions for the Wood Furniture Manufacturing Operations and Shipbuilding and Ship Repair (Surface Coating) source categories are described in section V of this preamble.

3. Conducting Dispersion Modeling, Determining Inhalation Exposures, and Estimating Individual and Population Inhalation Risks

Both long-term and short-term inhalation exposure concentrations and health risks from each of the source categories addressed in this proposal were estimated using the HEM (Community and Sector HEM–3 version 1.1.0). The HEM–3 performs three of the primary risk assessment activities listed above: (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 km of the modeled sources, and (3) estimating individual and population-level inhalation risks using the exposure estimates and quantitative dose-response information.

The dispersion model used by HEM–3 is AERMOD, which is one of EPA's preferred models for assessing pollutant concentrations from industrial facilities.[6] 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 one year of hourly surface and upper air observations for 130 meteorological stations, selected to provide coverage of the United States and Puerto Rico. A second library of United States Census Bureau census block[7] internal point

[5] The NEI is a database that contains information about sources that emit criteria air pollutants and their precursors, and HAP. The database includes estimates of annual air pollutant emissions from point, non-point, 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 three years.

[6] 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).

[7] A census block is generally the smallest geographic area for which census statistics are tabulated.

locations and populations provides the basis of human exposure calculations (Census, 2000). In addition, for each census block, the census library 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 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 concentration of each of the 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 an inhabited census block. 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) by its URE, which 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 EPA's IRIS. For carcinogenic pollutants without EPA IRIS values, we look to other reputable sources of cancer dose-response values, often using CalEPA URE values, where available. In cases where new, scientifically credible dose-response values have been developed in a manner consistent with EPA guidelines and have undergone a peer review process similar to that used by EPA, we may use such dose-response values in place of, or in addition to, other values, if appropriate.

Formaldehyde is a unique case. In 2004, EPA determined that the CIIT dose-response value for formaldehyde (5.5×10^{-9} µg/m^3) was based on better science than the IRIS dose-response value (1.3×10^{-5} µg/m^3), and we switched from using the IRIS value to the CIIT value in risk assessments supporting regulatory actions. This determination was based on a substantial body of research on the inhalation dosimetry for formaldehyde in rodents and primates by the CIIT Centers for Health Research (formerly the CIIT), with a focus on use of rodent data for refinement of the quantitative cancer dose-response assessment.[8] [9] [10] The CIIT's risk assessment of formaldehyde incorporated mechanistic and dosimetric information on formaldehyde. However, recent research published by EPA indicates that, when the CIIT's two-stage modeling assumptions are varied, resulting dose-response estimates can vary by several orders of magnitude.[11] [12] [13] [14] These findings are not supportive of interpreting the CIIT model results as providing a conservative (health-protective) estimate of human risk.[15] The recent EPA research also examined the contribution of the two-stage modeling for formaldehyde towards characterizing the relative weights of key events in the mode-of-action of a carcinogen. For example, in the EPA research, the model-based inference in the published CIIT study that formaldehyde's direct mutagenic action is not relevant to the compound's tumorigenicity was found not to hold under variations of modeling assumptions.[16] As a result of these findings, we no longer considered the CIIT URE value health protective, and we are again using the EPA's current value on IRIS, which was last revised in 1991, and which is more than 2000 times greater than the CIIT value. We note that a new IRIS re-assessment has been drafted and sent to the NAS for review. The NAS review is expected to be completed by March of 2011. We also note that POM, a carcinogenic HAP with a mutagenic mode of action, is emitted by some of the facilities in these two categories.[17] For this compound group,[18] the ADAF described in EPA's *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens*[19] were applied. This adjustment has the effect of increasing the estimated lifetime risks for POM by a factor of 1.6. In addition, although only a small fraction of the total POM emissions were not reported as individual compounds, EPA expresses carcinogenic potency for compounds in this group in terms of benzo[a]pyrene equivalence, based on evidence that carcinogenic POM has the same mutagenic mechanism of action as benzo[a]pyrene. For this reason, EPA's Science Policy Council[20] recommends applying the *Supplemental Guidance* to all carcinogenic polycyclic aromatic hydrocarbons for which risk estimates are based on relative potency. Accordingly, we have applied the ADAF to the benzo[a]pyrene equivalent portion of all POM mixtures.

Incremental individual lifetime cancer risks associated with emissions from the source category were estimated 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

[8] Conolly, RB, Kimbell, JS, Janszen, D, Schlosser, PM, Kalisak, D, Preston, J, and Miller, FJ. 2003. *Biologically Motivated Computational Modeling of Formaldehyde Carcinogencity in the F344 Rat.* Tox Sci 75: 432–447.

[9] Conolly, RB, Kimbell, JS, Janszen, D, Schlosser, PM, Kalisak, D, Preston, J, and Miller, FJ. 2004. *Human Respiratory Tract Cancer Risks of Inhaled Formaldehyde: Dose-Response Predictions Derived from Biologically-Motivated Computational Modeling of a Combined Rodent and Human Dataset.* Tox Sci 82: 279–296.

[10] Chemical Industry Institute of Toxicology (CIIT). 1999. *Formaldehyde: Hazard Characterization and Dose-Response Assessment for Carcinogenicity by the Route of Inhalation.* CIIT, September 28, 1999. Research Triangle Park, NC.

[11] U.S. EPA. *Analysis of the Sensitivity and Uncertainty in 2–Stage Clonal Growth Models for Formaldehyde with Relevance to Other Biologically-Based Dose Response (BBDR) Models. U.S. EPA, Washington, D.C., EPA/600/R–08/103, 2008.*

[12] Subramaniam, R; Chen, C; Crump, K; *et al.* (2008). *Uncertainties in Biologically-Based Modeling of Formaldehyde-Induced Cancer Risk: Identification of Key Issues.* Risk Anal 28 (4):907–923.

[13] Subramaniam RP; Crump KS; Van Landingham C; White P; Chen C; Schlosser PM (2007). *Uncertainties in the CIIT model for formaldehyde-induced carcinogenicity in the rat: A limited sensitivity analysis–I.* Risk Anal, 27: 1237–1254.

[14] Crump, K; Chen, C; Fox, J; *et al.* (2008). *Sensitivity Analysis of Biologically Motivated Model for Formaldehyde-Induced Respiratory Cancer in Humans.* Ann Occup Hyg 52:481–495.

[15] Crump, K; Chen, C; Fox, J; *et al.* (2008). *Sensitivity Analysis of Biologically Motivated Model for Formaldehyde-Induced Respiratory Cancer in Humans.* Ann Occup Hyg 52:481–495.

[16] Subramaniam RP; Crump KS; Van Landingham C; White P; Chen C; Schlosser PM (2007). *Uncertainties in the CIIT model for formaldehyde-induced carcinogenicity in the rat: A limited sensitivity analysis–I.* Risk Anal, 27: 1237–1254.

[17] U.S. EPA, 2005. Performing risk assessments that include carcinogens described in the *Supplemental Guidance* as having a mutagenic mode of action. *Science Policy Council Cancer Guidelines Implementation Work Group Communication II:* Memo from W.H. Farland, dated October 4, 2005.

[18] See the *Risk Assessment for Source Categories* document available in the docket for a list of HAP with a mutagenic mode of action.

[19] U.S. EPA, 2005. *Supplemental Guidance for Assessing Early-Life Exposure to Carcinogens.* EPA/630/R–03/003F. *http://www.epa.gov/ttn/atw/childrens_supplement_final.pdf.*

[20] U.S. EPA, 2006. *Science Policy Council Cancer Guidelines Implementation Workgroup Communication II:* Memo from W.H. Farland, dated June 14, 2006.

potential [21]) emitted by the modeled source. Cancer incidence and the distribution of individual cancer risks for the population within 50 km of any source were also estimated for the source category as part of these assessments by summing individual risks. A distance of 50 km is consistent with both the analysis supporting the 1989 Benzene NESHAP (54 FR 38044) and the limitations of Gaussian dispersion models, including AERMOD.

To assess 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 for chronic exposures is the estimated chronic exposure divided by the chronic reference level, which is either the EPA RfC, 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," or, in cases where an RfC from EPA's IRIS database is not available, EPA will utilize the following prioritized sources for our chronic dose-response values: (1) The *ATSDR* MRL, which is defined as "an estimate of daily human exposure to a substance that is likely to be without an appreciable risk of adverse effects (other than cancer) over a specified duration of exposure"; (2) the CalEPA Chronic REL, which is defined as "the concentration level at or below which no adverse health effects are anticipated for a specified exposure duration;" and (3) as noted above, in cases where scientifically credible dose-response values have been developed in a manner consistent with EPA guidelines and have undergone a peer review process similar to that used by EPA, we may use those dose-response values in place of, or in concert with other values.

Screening estimates of acute exposures and risks were also evaluated for each of the HAP at the point of highest off-site exposure for each facility (*i.e.,* not just the census block centroids) assuming that a person is located at this spot at a time when both the peak (hourly) emission rate and hourly dispersion conditions (1991 calendar year data) occur. The acute HQ is the estimated acute exposure divided by the acute dose-response value. In each case, acute HQ values were calculated using best available, short-term dose-response values. These acute dose-response values, which are described below, include the acute REL, AEGL, and ERPG for 1-hour exposure durations. As discussed below, we used conservative assumptions for emission rates, meteorology, and exposure location for our acute analysis.

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/acuterel.pdf*) is defined as "the concentration level at or below which no adverse health effects are anticipated for a specified exposure duration." Acute REL values are based on the most sensitive, relevant, adverse health effect reported in the medical and toxicological literature. Acute REL values are designed to protect the most sensitive individuals in the population by the inclusion of margins of safety. Since margins of safety are incorporated to address data gaps and uncertainties, exceeding the acute REL does not automatically indicate an adverse health impact.

Acute Exposure Guideline Levels values were derived in response to recommendations from the 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/opptintr/aegl/pubs/sop.pdf*),[22] "the NRC's previous name for acute exposure levels—community emergency exposure levels (CEEL)— 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." 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." The document lays out the purpose and objectives of AEGL by stating (page 21) that "the primary purpose of the AEGL program and the NAC/AEGL Committee is to develop guideline levels for once-in-a-lifetime, short-term exposures to airborne concentrations of acutely toxic, high-priority chemicals." In detailing the intended application of AEGL values, the document states (page 31) that "[i]t is anticipated that the AEGL values will be used for regulatory and nonregulatory purposes by United States 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."

The AEGL–1 value is then specifically defined as "the airborne concentration 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." The document also notes (page 3) that, "Airborne concentrations below AEGL–1 represent exposure levels that can produce mild and progressively increasing but transient and nondisabling odor, taste, and sensory irritation or certain asymptomatic, nonsensory effects." Similarly, the document defines AEGL–2 values as "the airborne concentration (expressed as ppm or mg/m^3) 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."

Emergency Response Planning Guidelines values are derived for use in emergency response, as described in the American Industrial Hygiene Association's document entitled, *Emergency Response Planning Guidelines (ERPG) Procedures and Responsibilities* (*http://www.aiha.org/1documents/committees/ERPSOPs2006.pdf*), which states that, "Emergency Response Planning Guidelines were developed for emergency planning and are intended as health based guideline concentrations

[21] 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.*

[22] National Academies of Science, 2001. *Standing Operating Procedures for Developing Acute Exposure Levels for Hazardous Chemicals,* page 2.

for single exposures to chemicals."[23] 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 one hour without experiencing other than mild transient adverse health effects or without perceiving a clearly defined, objectionable odor." 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."

As can be seen from the definitions above, the AEGL and ERPG values include the similarly-defined severity levels one and 2. For many chemicals, a severity level one value AEGL or ERPG has not been developed; in these instances, higher severity level AEGL–2 or ERPG–2 values are compared to our modeled exposure levels to screen for potential acute concerns.

Acute REL values for one 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, we developed estimates of maximum hourly emission rates by multiplying the average actual annual hourly emission rates by a factor to cover routinely variable emissions. We chose the factor based on process knowledge and engineering judgment and with awareness of a Texas study of short-term emissions variability, which showed that most peak emission events, in a heavily-industrialized 4-county area (Harris, Galveston, Chambers, and Brazoria Counties, Texas) were less than twice the annual average hourly emission rate. The highest peak emission event was 74 times the annual average hourly emission rate, and the 99th percentile ratio of peak hourly emission rate to the annual average hourly emission rate was 9.[24] This analysis is provided in Appendix 4 of the *Draft Residual Risk Assessment for Wood Furniture Manufacturing Operations,* and *Draft Residual Risk Assessment for Shipbuilding and Ship Repair (Surface Coating)* which are available in the docket for this action. Considering this analysis, unless specific process knowledge or data are available to provide an alternate value, to account for more than 99 percent of the peak hourly emissions, we apply a conservative screening multiplication factor of 10 to the average annual hourly emission rate in these acute exposure screening assessments. For the Shipbuilding and Ship Repair (Surface Coating) source category, this factor of 10 was applied. For the Wood Furniture Manufacturing Operations source category, a factor of 4 was applied, based on emissions data provided by industry. More information supporting the use of this factor for Wood Furniture Manufacturing Operations is presented in the memorandum, *Acute Effects Factor for Wood Furniture Manufacturing Operations,* dated November 23, 2010, which is available in the docket for this action. We solicit comment on this factor and the data used to calculate it.

In cases where all acute HQ values from the screening step were less than or equal to 1, acute impacts were deemed negligible and no further analysis was performed. In the 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. The data refinements employed for these source categories consisted of using the site-specific facility layout to distinguish facility property from an area where the public could be exposed. These refinements are discussed in the draft risk assessment documents, which are available in the docket, for each of these source categories. 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 emission 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. However, we recognize that having this level of data is rare, hence our use of the multiplier approach.

4. Conducting Multi-Pathway Exposure and Risk Modeling

The potential for significant human health risks due to exposures via routes other than inhalation (*i.e.,* multi-pathway exposures) and the potential for adverse environmental impacts were evaluated in a three-step process. In the first step, we determined whether any facilities emitted any HAP known to be PB–HAP. There are 14 PB–HAP compounds or compound classes identified for this screening in EPA's *Air Toxics Risk Assessment Library* (available at *http://www.epa.gov/ttn/fera/risk_atra_vol1.html*). They are cadmium compounds, chlordane, chlorinated dibenzodioxins and furans, dichlorodiphenyldichloroethylene, heptachlor, hexachlorobenzene, hexachlorocyclohexane, lead compounds, mercury compounds, methoxychlor, polychlorinated biphenyls, POM, toxaphene, and trifluralin.

Since one or more of these PB–HAP are emitted by facilities in both source categories, we proceeded to the second step of the evaluation. In this step, we determined whether the facility-specific emission rates of each of the emitted PB–HAP were large enough to create the potential for significant non-inhalation risks. To facilitate this step, we have developed emission rate thresholds for each PB–HAP using a hypothetical screening exposure scenario developed for use in conjunction with the EPA's TRIM.FaTE model. The hypothetical screening scenario was subjected to a sensitivity analysis to ensure that its key design parameters were established such that environmental media concentrations were not underestimated (*i.e.,* to minimize the occurrence of false negatives, or results that suggest that risks might be acceptable when, in fact, actual risks are high), and to also minimize the occurrence of false positives for human health endpoints. We call this application of the TRIM.FaTE model TRIM–Screen. The facility-specific emission rates of each of the PB–HAP in each source category were compared to the emission threshold values for each of the PB–HAP identified in the source category datasets.

For all of the facilities in the source categories addressed in this proposal, all of the PB–HAP emission rates were less than the emission threshold values. As a result of this, multi-pathway exposures and environmental risks were

[23] *ERP Committee Procedures and Responsibilities.* 1 November, 2006. American Industrial Hygiene Association.

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

deemed negligible and no further analysis was performed. If the emission rates of the PB–HAP had been above the emission threshold values, the source categories would have been further evaluated for potential non-inhalation risks and adverse environmental effects in a third step through site-specific refined assessments using EPA's TRIM.FaTE model.

For further information on the multi-pathway analysis approach, see the residual risk documentation as referenced in section IV.A of this preamble.

5. Assessing Risks Considering Emissions Control Options

In addition to assessing baseline inhalation risks and screening for potential multi-pathway risks, where appropriate, we also estimated risks considering the potential emission reductions that would be achieved by the particular control options under consideration. In these cases, the expected emissions reductions were applied to the specific HAP and emissions sources in the source category dataset to develop corresponding estimates of risk reductions.

6. Conducting Other Risk-Related Analyses, Including Facility-Wide Assessments and Demographic Analyses

a. Facility-Wide Risk

To put the source category risks in context, we also examined 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, for each facility that includes one or more sources from one of the source categories under review, we examined the HAP emissions, not only from the source category of interest, but also emissions of HAP from all other emission sources at the facility. The emissions data for generating these "facility-wide" risks were obtained from the 2005 NATA emissions inventory (available at *http://www.epa.gov/ttn/atw/nata2005*). We estimated the 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 categories addressed in this proposal. We specifically examined the facilities associated with the highest estimates of risk and determined the percentage of that risk attributable to the source category of interest. The risk documentation available through the docket for this action provides all the facility-wide risks and the percentage of source category contribution for all source categories assessed.

The methodology and the results of the facility-wide analyses for each source category are included in the residual risk documentation as referenced in section IV.A of this preamble, which is available in the docket for this action.

b. Demographic Analysis

To examine the potential for any EJ issues that might be associated with each 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 these source categories are located. The development of demographic analyses to inform the consideration of EJ issues in EPA rulemakings is an evolving science. The EPA offers the demographic analyses in this rulemaking to inform the consideration of potential EJ issues, and invites public comment on the approaches used and the interpretations made from the results, with the hope that this will support the refinement and improve the utility of such analyses for future rulemakings.

For the demographic analyses, we focus on the populations within 50 km of any facility estimated to have exposures to HAP which result in cancer risks of 1-in-1 million or greater, or non-cancer HI of 1 or greater (based on the emissions of the source category or the facility, respectively). We examine the distributions of those risks across various demographic groups, comparing the percentages of particular demographic groups to the total number of people in those demographic groups nationwide. The results, including other risk metrics, such as average risks for the exposed populations, are documented in source category-specific technical reports in the docket for both source categories covered in this proposal.[25]

The basis for the risk values used in these analyses were the modeling results based on actual emissions levels obtained from the HEM–3 model described above. The risk values for each census block were linked to a database of information from the 2000 Decennial census that includes data on race and ethnicity, age distributions, poverty status, household incomes, and education level. The Census Department Landview® database was the source of the data on race and ethnicity, and the data on age distributions, poverty status, household incomes, and education level were obtained from the SF3 Long Form. While race and ethnicity census data are available at the census block level, the age and income census data are only available at the census block group level (which includes an average of 26 blocks or an average of 1,350 people). Where census data are available at the block group level but not the block level, we assumed that all census blocks within the block group have the same distribution of ages and incomes as the block group.

For each source category, we focused on those census blocks where source category risk results show estimated lifetime inhalation cancer risks above 1-in-1 million or chronic non-cancer indices above 1, and determined the relative percentage of different racial and ethnic groups, different age groups, adults with and without a high school diploma, people living in households below the national median income, and for people living below the poverty line within those census blocks. The specific census population categories studied include:

- Total population
- White
- African American (or Black)
- Native Americans
- Other races and multiracial
- Hispanic or Latino
- Children 18 years of age and under
- Adults 19 to 64 years of age
- Adults 65 years of age and over
- Adults without a high school diploma
- Households earning under the national median income
- People living below the poverty line

It should be noted that these categories overlap in some instances, resulting in some populations being counted in more than one category (*e.g.,* other races and multiracial and Hispanic). In addition, while not a specific census population category, we also examined risks to "Minorities," a classification which is defined for these purposes as all race population categories except white.

For further information about risks to the populations located near the facilities in these source categories, we also evaluated the estimated distribution of inhalation cancer and chronic non-cancer risks associated

[25] For example, the report pertaining to the Shipbuilding and Ship Repair (Surface Coating) source category is entitled *Risk and Technology Review—Analysis of Socio-Economic Factors for Populations Living Near Shipbuilding and Ship Repair (Surface Coating) Operations.*

with the HAP emissions from all the emissions sources at the facility (*i.e.,* facility-wide). This analysis used the facility-wide RTR modeling results and the census data described above.

The methodology and the results of the demographic analyses for each source category are included in a source category-specific technical report for each of the categories, which are available in the docket for this action.

7. Considering Uncertainties in Risk Assessment

Uncertainty and the potential for bias are inherent in all risk assessments, including those performed for the source categories addressed in this proposal. Although uncertainty exists, we believe that our approach, which used conservative tools and assumptions, ensures that our decisions are health-protective. A brief discussion of the uncertainties in the emissions datasets, dispersion modeling, inhalation exposure estimates, and dose-response relationships follows below. A more thorough discussion of these uncertainties is included in the risk assessment documentation (referenced earlier) available in the docket for this action.

a. Uncertainties in the Emissions Datasets

Although the development of the RTR datasets 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 inaccurate, errors in estimating emissions values, and other factors. The emission estimates considered in this analysis generally are annual totals for certain years that do not reflect short-term fluctuations during the course of a year or variations from year to year. Additionally, we are aware of a potential impact on emissions from a chemical reaction during the curing and gluing of parts in this source category,[26] which may not be reflected in our emissions inventory. For example, we believe formaldehyde may be formed during the chemical process of curing of some coatings formulations, such as conversion varnishes, which are commonly used at some wood furniture manufacturing operations. Currently, there are no EPA-approved methods for estimating formaldehyde emissions from wood furniture coatings that could potentially be formed as a result of the curing process. This is an uncertainty that could potentially bias the risk estimates; however, the extent of this bias is unknown. We request comment on the extent to which wood furniture coatings covered by this source category, including but not limited to conversion varnishes, undergo a chemical reaction during the curing process that yields formaldehyde, and associated methods for quantifying the resultant impact on emission levels.

The estimates of peak hourly emission rates for the acute effects screening assessment were based on multiplication factors applied to the average annual hourly emission rates (the default factor of 10 was used for Shipbuilding and Ship Repair (Surface Coating) and a factor of 4 was used for Wood Furniture Manufacturing Operations), which are intended to account for emission fluctuations due to normal facility operations. Additionally, although we believe that we have data for most facilities in these two source categories in our RTR dataset, our dataset may not include data for all existing facilities. Moreover, there are significant uncertainties with regard to the identification of sources as major or area in the NEI for these source categories. While we published an ANPRM for Shipbuilding and Ship Repair (Surface Coating) and received additional data, we did not publish an ANPRM for Wood Furniture Manufacturing due to time constraints.

b. Uncertainties in Dispersion Modeling

While the analysis employed EPA's recommended regulatory dispersion model, AERMOD, we recognize that there is uncertainty in ambient concentration estimates associated with any model, including AERMOD. In circumstances where we had to choose between various model options, where possible, model options (*e.g.,* rural/urban, plume depletion, chemistry) were selected to provide an overestimate of ambient air concentrations of the HAP rather than underestimates. However, because of practicality and data limitation reasons, some factors (*e.g.,* meteorology, building downwash) have the potential in some situations to overestimate or underestimate ambient impacts. For example, meteorological data were taken from a single year (1991), and facility locations can be a significant distance from the site where these data were taken. Despite these uncertainties, we believe that at off-site locations and census block centroids, the approach considered in the dispersion modeling analysis should generally yield overestimates of ambient HAP concentrations.

c. Uncertainties in Inhalation Exposure

The effects of human mobility on exposures were not included in the assessment. Specifically, short-term mobility and long-term mobility between census blocks in the modeling domain were not considered.[27] As a result, this simplification will likely bias the assessment toward overestimating the highest exposures. 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 further 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.

The assessments evaluate the cancer inhalation risks associated with continuous pollutant exposures over a 70-year period, which is the assumed lifetime of an individual. In reality, both the length of time that modeled emissions 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 United States facilities), will influence the risks posed by a given 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 rare cases, where a facility maintains or increases its emission levels beyond 70 years, residents live beyond 70 years at the same location, and the residents spend most of their days at that location, then the risks could potentially be underestimated. Annual cancer incidence estimates from exposures to emissions from these sources would not be affected by uncertainty in the length of time emissions sources operate.

The exposure estimates used in these analyses assume chronic exposures to ambient levels of pollutants. Because

[26] Howard *et al.* (1998). *Indoor Emissions from Conversion Varnishes.* Air & Waste Management Assoc. 48:924–930.

[27] Short-term mobility is movement from one microenvironment 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.

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, these levels are typically lower. This factor has the potential to result in an overstatement of 25 to 30 percent of exposures.[28]

In addition to the uncertainties highlighted above, there are several factors specific to the acute exposure assessment 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 human activity patterns. In this assessment, we assume that individuals remain for one hour at the point of maximum ambient concentration as determined by the co-occurrence of peak emissions and worst-case meteorological conditions. These assumptions would tend to overestimate actual exposures since it is unlikely that a person would be located at the point of maximum exposure during the time of worst-case impact.

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 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 documentation as referenced in section IV.A of this preamble, 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).[29] In some circumstances, the true risk could be as low as zero; however, in other circumstances the risk could also be greater.[30] 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, 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 reference (RfC and 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 daily oral exposure (RfD) or of a continuous inhalation exposure (RfC) to the human population (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 UF approach (U.S. EPA, 1993, 1994) which includes consideration of both uncertainty and variability. When there are gaps in the available information, UF are applied to derive reference values that are intended to protect against appreciable risk of deleterious effects. The UF are commonly default values,[31] *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. Uncertainty factors 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

[28] U.S. EPA. *National-Scale Air Toxics Assessment* for 1996. (EPA 453/R–01–003; January 2001; page 85.)

[29] IRIS glossary (*http://www.epa.gov/NCEA/iris/help_gloss.htm*).

[30] 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.

[31] 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.*

applied to account for uncertainty in extrapolation from observations at one exposure duration (*e.g.,* four hours) to derive an acute reference value at another exposure duration (*e.g.,* one 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.

Although every effort is made to identify peer-reviewed reference values for cancer and non-cancer effects for all pollutants emitted by the sources included in this assessment, some HAP continue to have no reference values for cancer or chronic non-cancer or acute effects. Since exposures to these pollutants cannot be included in a quantitative risk estimate, an understatement of risk for these pollutants at environmental exposure levels is possible. For a group of compounds that are either unspeciated or do not have reference values for every individual compound (*e.g.,* glycol ethers), we conservatively use the most protective reference value to estimate risk from individual compounds in the group of compounds.

Additionally, chronic reference values for several of the compounds included in this assessment are currently under EPA IRIS review, and revised assessments may determine that these pollutants are more or less potent than the current value. We may re-evaluate residual risks for the final rulemaking if, as a result of these reviews, a dose-response metric changes enough to indicate that the risk assessment supporting this notice may significantly understate human health risk.

e. Uncertainties in the Multi-Pathway and Environmental Effects Assessment

We generally assume that when exposure levels are not anticipated to adversely affect human health, they also are not anticipated to adversely affect the environment. For each source category, we generally rely on the site-specific levels of PB–HAP emissions to determine whether a full assessment of the multi-pathway and environmental effects is necessary. Because site-specific PB–HAP emission levels were so far below levels which would trigger a refined assessment of multi-pathway impacts, we are confident that these types of impacts are insignificant for these source categories.

f. Uncertainties in the Facility-Wide Risk Assessment

Given that the same general analytical approach and the same models were used to generate facility-wide risk results as were used to generate the source category risk results, the same types of uncertainties discussed above for our source category risk assessments apply to the facility-wide risk assessments. Additionally, the degree of uncertainty associated with facility-wide emissions and risks is likely greater because we generally have not conducted a thorough engineering review of emissions data for source categories not currently undergoing an RTR review.

g. Uncertainties in the Demographic Analysis

Our analysis of the distribution of risks across various demographic groups is subject to the typical uncertainties associated with census data (*e.g.,* errors in filling out and transcribing census forms), as well as the additional uncertainties associated with the extrapolation of census-block group data (*e.g.,* income level and education level) down to the census block level.

B. How did we perform the technology review?

Our technology review is focused on the identification and evaluation of "developments in practices, processes, and control technologies" since the promulgation of the existing MACT standard. If a review of available information identifies such developments, then we conduct an analysis of the technical feasibility of requiring the implementation of these developments, along with the impacts (costs, emission reductions, risk reductions, etc.). We then make a decision on whether it is necessary to amend the regulation to require these developments.

Based on specific knowledge of each source category, we began by identifying known developments in practices, processes, and control technologies. For the purpose of 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 MACT development;
- Any improvements in add-on control technology or other equipment (that was identified and considered during MACT development) that could result in significant additional emission reduction;
- Any work practice or operational procedure that was not identified and considered during MACT development; and
- Any process change or pollution prevention alternative that could be broadly applied that was not identified and considered during MACT development.

In addition to looking back at practices, processes, or control technologies reviewed at the time we developed the MACT standards, we reviewed a variety of sources of data to aid in our evaluation of whether there were additional practices, processes, or controls to consider. One of these sources of data was subsequent air toxics rules. Since the promulgation of the MACT standards for the source categories addressed in this proposal, EPA has developed air toxics regulations for a number of additional source categories. We reviewed the regulatory requirements and/or technical analyses associated with these subsequent regulatory actions to identify any practices, processes, and control technologies considered in these efforts that could possibly be applied to emission sources in the source categories under this current RTR review.

We also consulted EPA's RBLC. The terms "RACT," "BACT," and "LAER" are acronyms for different program requirements under the CAA provisions addressing the national ambient air quality standards. Control technologies classified as RACT, BACT, or LAER apply to stationary sources depending on whether the source is existing or new, and on the size, age, and location of the facility. Best Available Control Technology and LAER (and sometimes RACT) are determined on a case-by-case basis, usually by state or local permitting agencies. EPA established the RBLC to provide a central database of air pollution technology information (including technologies required in source-specific permits) to promote the sharing of information among permitting agencies and to aid in identifying future possible control technology options that might apply broadly to numerous sources within a category or apply only on a source-by-source basis. The RBLC contains over 5,000 air pollution control permit determinations that can help identify appropriate technologies to mitigate many air pollutant emission streams. We searched this database to determine whether any practices, processes, or control technologies are included for the types of processes used for emission

sources (*e.g.,* spray booths) in the source categories under consideration in this proposal.

We also requested information from industry regarding developments in practices, processes, or control technology. Finally, we reviewed other information sources, such as state or local permitting agency databases and industry-supported databases.

V. Analyses Results and Proposed Decisions

This section of the preamble provides background information on the MACT standards and source categories, the results of our RTR for each source category, and our proposed decisions concerning the SSM provisions in each MACT standard.

A. What are the results and proposed decisions for the Shipbuilding and Ship Repair (Surface Coating) source category?

1. Overview of the Source Category and MACT Standards

The National Emission Standards for Shipbuilding and Ship Repair (Surface Coating) were promulgated on December 15, 1995 (60 FR 64330) and codified at 40 CFR part 63, subpart II. The Shipbuilding and Ship Repair (Surface Coating) MACT standards (*i.e.,* Shipbuilding MACT standards) apply to shipbuilding and ship repair operations at any facility that is a major source of HAP. We estimate that there are approximately 85 shipbuilding and ship repair facilities currently subject to the Shipbuilding MACT standards.

The shipbuilding and ship repair industry consists of establishments that build, repair, repaint, convert, and alter ships, which are marine or fresh-water vessels used for military or commercial operations. In general, activities and processes involved in ship repair and new ship construction are relatively similar. Operations include fabrication of basic components from raw materials, welding components and parts together, painting and repainting, overhauls, ship conversions, and other alterations. Nearly all shipyards that construct new ships also perform ship repairs. The source category covered by this MACT standard only includes the surface coating operations that occur at these facilities during shipbuilding and ship repair.

Emissions of VOHAP from surface coating operations at shipbuilding and ship repair facilities result from the application of coatings and the use of cleaning solvents containing VOHAP during ship repair and shipbuilding operations. To reduce VOHAP emissions, the Shipbuilding MACT standards limit the coatings that can be used to those with as-applied VOHAP content less than or equal to the applicable level specified in Table 2 to Subpart II of Part 63—Volatile Organic HAP Limits for Marine Coatings. This table contains as-applied VOHAP content limits of a variety of marine surface coatings categories, including a general use category and 22 specialty coatings categories. The Shipbuilding MACT standards also specify work practice standards that minimize evaporative emissions and spills from the handling, transfer, and storage of VOHAP-containing materials such as organic thinning solvents and paint wastes.

2. What data were used in our risk analyses?

We initially created a preliminary dataset for the source category using data in the 2002 NEI Final Inventory, Version 1 (made publicly available on February 26, 2006). We reviewed the NEI dataset and made changes where necessary to ensure that the proper facilities were included and that the proper processes were allocated to the Shipbuilding and Ship Repair (Surface Coating) source category. We also reviewed the emissions and other data to identify data anomalies that could affect risk estimates. On March 29, 2007, we published an ANPRM (72 FR 29287) for the express purpose of requesting comments and updates to this dataset, as well as to the datasets for the other source categories addressed in that ANPRM. Approximately 20 comments, received in response to the ANPRM, were reviewed and considered, and we made adjustments to the dataset where we concluded the comments supported such adjustment. Adjustments were also made to the dataset to reflect updates made to the data in the 2005 NEI and to remove emissions from the dataset that were from sources that are not part of the Shipbuilding and Ship Repair (Surface Coating) source category, as determined through further engineering review. Based on the data collection and review process, we developed model input files to be used in the risk analysis for 71 facilities. As mentioned previously, there are a total of approximately 85 facilities subject to the Shipbuilding MACT standards. Therefore, we developed model input files for about 84 percent of the total facilities.

Nevertheless, after the adjustments described above were made to the dataset, approximately 40 facilities included in our list of 85 facilities still had some missing or incomplete HAP emissions data, based on NEI and EPA's Toxics Release Inventory searches. Thus, a HAP profile was developed to populate the Shipbuilding and Ship Repair (Surface Coating) dataset with representative data for these 40 facilities, using several assumptions and decisions. For more information see *Memoranda Documenting Changes to the RTR Dataset for the Shipbuilding and Ship Repair (Surface Coating) Source Category,* dated November 22, 2010, which includes the memorandum *Default Emissions Assumptions for Shipbuilding RTR Dataset.* For three facilities that provided VOC emissions data, but did not provide HAP emissions data, we speciated the VOC emissions into specific HAP emissions, making the worst-case assumption that all the VOC were HAP. The HAP profile we developed and applied to the VOC emissions for these three facilities was based on the top three solvents reported by the other facilities in the source category, which accounted for more than 90 percent of the total HAP emissions at those facilities. This HAP speciation profile was: Xylene (all isomers)—78 percent; ethyl benzene—15 percent; and toluene—7 percent.

There were also 44 facilities subject to the Shipbuilding MACT standards with no available emissions data, and we decided to assign them to one of two possible categories based on available information from company Web sites, operating permits, previous MACT project information, or similar facilities. The first category included 11 facilities that emitted greater than or equal to 25 TPY of total HAP. The second category included 33 facilities that emitted less than 25 TPY. Based on a small number of available operating permits and industry information collected for the original MACT rule, we determined which facilities belonged in each category. We then used the available emissions data reported for those facilities to calculate average total HAP emissions for each source type. The average HAP emissions level for facilities in the first category was estimated to be about 25 TPY, and the average HAP emissions level for facilities in the second category was estimated to be 7 TPY. Thus, the 11 facilities in the first category with no emissions data were assigned emissions of 25 tons total HAP per year, and 33 facilities in the second category with no emissions data were assigned emissions of 7 tons total HAP per year. The same default HAP solvent profile discussed above was used to speciate the HAP emissions for these facilities. For a more complete description of the default

assumptions used to populate the dataset, *see Default Emissions Assumptions for Shipbuilding RTR Dataset* memorandum, dated August 30, 2010, which is available in the docket for this action. These updated data were used to conduct the risk assessments and other analyses that form the basis for this proposed action.

Mixed xylenes and ethyl benzene account for the majority of the HAP emissions from the Shipbuilding and Ship Repair (Surface Coating) source category (approximately 855 TPY, or 90 percent of the total HAP emissions by mass). These estimates are based on actual reported emissions data. These facilities also reported relatively small emissions of 33 other HAP. For more detail, see the memorandum in the docket for this action describing the risk assessment inputs and models for the Shipbuilding and Ship Repair (Surface Coating) source category.

We estimate that MACT-allowable emissions from this source category could be up to 2 times greater than the actual emissions for some types of coatings, based on information obtained for the highest usage coating categories at several major source facilities. However, we do not have facility-specific information for all facilities or all coatings, and we request comment on this estimate. For more detail about how this estimate of the ratio of actual to MACT-allowable emissions was derived, see the *Maximum Achievable Control Technology (MACT) Allowable Emission Estimates* memorandum, dated August 5, 2010, in the docket for this action describing the estimation of MACT-allowable emission levels and associated risks and impacts. For the "facility-wide" risk analysis, facility-specific emissions data from the 2005 NEI were used.

3. What are the results of the risk assessments and analyses?

We conducted an inhalation risk assessment for the Shipbuilding and Ship Repair (Surface Coating) source category. We also conducted an assessment of facility-wide risk and performed a demographic analysis of population risks. Details of the risk assessments and analyses can be found in the residual risk documentation referenced in section IV.A of this preamble, which is available in the docket for this action.

a. Inhalation Risk Assessment Results

Table 3 provides an overall summary of the results of the inhalation risk assessment.

TABLE 3—SHIPBUILDING AND SHIP REPAIR (SURFACE COATING) INHALATION RISK ASSESSMENT RESULTS

Number of facilities [1]	Maximum individual cancer risk (in 1 million) [2]		Estimated population at risk ≥ 1-in-1 million	Estimated annual cancer incidence (cases per year)	Maximum chronic non-cancer TOSHI [3]		Maximum off-site acute non-cancer HQ [4]
	Actual emissions level	Allowable emissions level			Actual emissions level	Allowable emissions Level	
85	10	20	4,000	0.003	0.5	1	HQ_{REL} = 0.1 glycol ethers.

[1] Number of facilities evaluated in the risk analysis.
[2] Estimated maximum individual excess lifetime cancer risk.
[3] Maximum TOSHI. The target organ with the highest TOSHI for the Shipbuilding and Ship Repair (Surface Coating) source category is the reproductive system.
[4] The maximum estimated acute exposure concentration was divided by available short-term dose-response values to develop an array of HQ values. HQ values shown use the lowest available acute dose-response value, which, in most cases, is the REL. *See* section IV.A of this preamble for explanation of acute dose-response values.

As shown in Table 3, the results of the inhalation risk assessment performed using actual emissions data indicate the maximum lifetime individual cancer risk could be as high as 10-in-1 million, due to ethyl benzene emissions; the maximum chronic non-cancer TOSHI value could be as high as 0.5, due to mixed xylenes emissions; and the maximum off-site acute HQ value could be as high as 0.1, based on the REL value for glycol ethers. The total estimated cancer incidence from these facilities based on actual emission levels is 0.003 excess cancer cases per year, or 1 in every 333 years.

As explained above, our analysis of potential differences between actual emission levels and emissions allowable under the Shipbuilding MACT standards indicate that MACT-allowable emission levels may be up to 2 times greater than actual emission levels. Considering this difference, the risk results from the inhalation risk assessment indicate the maximum lifetime individual cancer risk could be as high as 20-in-1 million, and the maximum chronic non-cancer TOSHI value could be as high as 1 at the MACT-allowable emissions level.

Facility-wide Risk Assessment Results

A facility-wide risk analysis was also conducted based on actual emissions levels. Table 4 displays the results of the facility-wide risk assessment. For detailed facility-specific results, *see* Table 2 of Appendix 6 of the "Draft Residual Risk Assessment for the Shipbuilding and Ship Repair (Surface Coating) Source Category in the docket for this rulemaking.

TABLE 4. SHIPBUILDING AND SHIP REPAIR (SURFACE COATING) FACILITY-WIDE RISK ASSESSMENT RESULTS

Number of facilities analyzed		85
Cancer Risk	Estimated maximum facility-wide individual cancer risk (in 1 million)	200
	Number of facilities with estimated facility-wide individual cancer risk of 100-in-1 million or more	4
	Number of facilities at which the shipbuilding and ship repair (surface coating) source category contributes 50 percent or more to the facility-wide individual cancer risks of 100-in-1 million or more.	0
	Number of facilities with facility-wide individual cancer risk of 1-in-1 million or more	41
	Number of facilities at which the shipbuilding and ship repair (surface coating) source category contributes 50 percent or more to the facility-wide individual cancer risk of 1-in-1 million or more.	15
Chronic Non-cancer Risk	Maximum facility-wide chronic non-cancer TOSHI	10
	Number of facilities with facility-wide maximum non-cancer TOSHI greater than 1	6

TABLE 4. SHIPBUILDING AND SHIP REPAIR (SURFACE COATING) FACILITY-WIDE RISK ASSESSMENT RESULTS—Continued

	Number of facilities at which the shipbuilding and ship repair (surface coating) source category contributes 50 percent or more to the facility-wide maximum non-cancer TOSHI of 1 or more.	0

The maximum individual cancer risk from all HAP emissions at any facility that contains sources subject to the Shipbuilding MACT standards is estimated to be 200-in-1 million based on actual emissions. Of the 85 facilities included in this analysis, four have facility-wide maximum individual cancer risks of 100-in-1 million or greater. At these shipbuilding and ship repair facilities, surface coating operations account for about 1 percent of the total facility-wide risk. There are 41 facilities with facility-wide maximum individual cancer risks of 1-in-1 million or greater. Of these 41 facilities, 15 have shipbuilding and ship repair (surface coating) operations that contribute greater than 50 percent to the facility-wide risks. The facility-wide cancer risks at these 41 facilities, and at the four facilities with risks of 100-in-a million or more, are primarily driven by emissions of hexavalent chromium from welding and abrasive blasting operations. However, we note that there are uncertainties in the amount and form of chromium emitted from these facilities. For many of the facilities, the emissions inventory used for the risk assessment included estimates for the two main forms of chromium (*i.e.,* hexavalent and trivalent chromium). However, for other facilities, we only had estimates of total chromium emitted. For those facilities, we applied a default assumption that 34 percent of the total chromium emissions were hexavalent and 66 percent were trivalent chromium,[32] based on the best judgment of EPA. Chromium speciation profiles can be found on the EPA Technology Transfer Network Web site for emissions inventories [33] under the "Point Sources" section. Although, hexavalent chromium is toxic and is a known human carcinogen, trivalent chromium is less toxic and is currently "not classified as to its human carcinogenicity." Therefore, the relative emissions of these two forms can have a significant effect on the cancer risk estimates. We request comment on the distribution of the default emissions assumptions for chromium emissions applied to the Shipbuilding and Ship Repair (Surface Coating) source category.

The facility-wide maximum individual chronic non-cancer TOSHI is estimated to be 10 based on actual emissions. Of the 85 facilities included in this analysis, 6 have facility-wide maximum chronic non-cancer TOSHI values greater than 1 (the facility-specific TOSHI values are 2,2,2,3,4, and 10). Of these 6 facilities, none had shipbuilding and ship repair (surface coating) operations that contributed greater than 50 percent to these facility-wide risks. The chronic non-cancer risks at these 6 facilities are primarily driven by manganese emissions from welding and abrasive blasting operations.

Finally, as discussed previously, the welding and abrasive blasting operations that occur during shipbuilding and ship repair are sources of HAP at these major source facilities, and could involve different types of metals (welding) and minerals (abrasive blasting and welding). We therefore intend to list welding and blasting operations that occur at shipbuilding and ship repair facilities as a major source category under Section 112(c)(5) of the CAA. We request additional information on the HAP emitted by these activities. Once we have this information, we will be in a better position to identify the appropriate scope of the major source category to be listed.

c. Demographic Risk Analysis Results

The results of the demographic analyses performed to investigate the distribution of cancer risks at or above 1-in-1 million among the surrounding population are summarized in Table 5 below. These results, for various demographic groups, are based on actual emissions levels for the population living within 50 km of the facilities.

TABLE 5—SHIPBUILDING AND SHIP REPAIR DEMOGRAPHIC RISK ANALYSIS RESULTS

	Nationwide	Population with cancer risk greater than 1 in a million due to . . .	
		Source category HAP emissions	Facility-wide HAP emissions
Total population	285,000,000	4,000	392,000
Race by percent			
White	75	54	71
All Other Races	25	46	29
Race by percent			
White	75	54	71
African American	12	42	20
Native American	0.9	0.4	0.6
Other and Multiracial	12	4	8
Ethnicity by percent			
Hispanic	14	3	9
Non-Hispanic	86	97	91

[32] *http://www.epa.gov/ttn/atw/nata/nettables.pdf.*

[33] *http://www.epa.gov/ttn/chief/net/2005inventory.html#inventorydata.*

TABLE 5—SHIPBUILDING AND SHIP REPAIR DEMOGRAPHIC RISK ANALYSIS RESULTS—Continued

	Nationwide	Population with cancer risk greater than 1 in a million due to . . .	
		Source category HAP emissions	Facility-wide HAP emissions
Income by percent			
Below poverty level	13	24	16
Above poverty level	87	76	84
Education by percent			
Over 25 and without high school diploma	13	15	13
Over 25 and with a high school diploma	87	85	87

The results of the Shipbuilding and Ship Repair (Surface Coating) source category demographic analysis indicate that there are approximately 4,000 people exposed to a cancer risk greater than 1-in-1 million due to emissions from the source category. Of this population, an estimated 46 percent can be classified as a minority (listed as "All Other Races" in the table above), including 42 percent in the "African American" demographic group. Of the 4,000 people with estimated cancer risks above 1-in-1 million from the source category, 24 percent are in the "Below Poverty" demographic group, and 15 percent are in the "Over 25 Without High School Diploma" demographic group, results which are 11 and two percentage points higher, respectively, than the respective percentages for these demographic groups across the United States. The percentages for the other demographic groups are lower than their respective nationwide percentages. The table also shows that there are approximately 392,000 people exposed to an estimated cancer risk greater than 1-in-1 million due to facility-wide emissions. Of this population, an estimated 29 percent can be classified as a minority, including 20 percent in the "African American" demographic group. Of the 392,000 with estimated cancer risk greater than 1-in-1 million from the source category, 16 percent are in the "Below Poverty" demographic group, a result which is three percentage points higher than the respective percentage for this demographic group across the United States. The percentages for the other demographic groups are equal to, or lower than their respective nationwide percentages.

4. What are our proposed decisions on risk acceptability and ample margin of safety?

a. Risk Acceptability

As noted in section III.B of this preamble, we weigh all health risk factors and measures in our risk acceptability determination, including cancer risks to the individual most exposed, risk estimation uncertainty, and other health information. For the Shipbuilding and Ship Repair (Surface Coating) source category, the risk analysis we performed indicates that the cancer risks to the individual most exposed could be as high as 10-in-1 million due to actual emissions and as high as 20-in-1 million due to MACT-allowable emissions. These risks are considerably less than 100-in-1 million, which is the presumptive limit of acceptability. The risk analysis also shows low cancer incidence (1 case in every 333 years), no potential for adverse environmental effects or human health multi-pathway effects, and that chronic and acute non-cancer health impacts are unlikely. While our additional analysis of facility-wide risks showed that there are four facilities with maximum facility-wide cancer risk of 100-in-1 million or greater and 6 facilities with a maximum chronic non-cancer TOSHI greater than 1 and less than or equal to 10, it also showed that shipbuilding and ship repair (surface coating) operations did not drive these risks. Our additional analysis of the demographics of the exposed population indicates that disparities in risks between demographic groups may exist; however, the number of people exposed to cancer risks of 1-in-1 million or greater due to emissions from the source category is relatively low (4,000). Considering these factors and the uncertainties discussed in section IV.A.7 of this preamble, we propose that the risks from the Shipbuilding and Ship Repair (Surface Coating) source category are acceptable.

b. Ample Margin of Safety

Although we are proposing that the risks from the Shipbuilding and Ship Repair (Surface Coating) source category are acceptable, risk estimates for 4,000 individuals in the exposed population are above 1-in-1 million. Consequently, we considered whether the MACT standard provides an ample margin of safety. In this analysis, we investigated available emissions control options that might reduce the risk associated with emissions from the source category and considered this information along with all of the health risks and other health information considered in the risk acceptability determination.

One option we considered was to require the use of marine coatings with lower overall VOHAP content or lower toxicity VOHAP content. However, we have not identified any data regarding the availability, use, performance, and emissions associated with the use of any such marine coating. We are soliciting comment on the availability of such coatings and any issues related to the use and performance of those coatings.

We also considered requiring the enclosure of some or all of the coating operations and requiring emissions to be routed to a control device, such as a regenerative thermal oxidizer. However, because these facilities repair and repaint ships, as well as perform new construction painting operations, any enclosures would need to be large enough to accommodate the entire ship or a large portion (*i.e.,* half) of a ship at one time. We determined that this is not practicable or technically feasible in many cases, would not be cost-effective, and we are not aware of any facility using an enclosure of this size. Additional information on the feasibility and costs of controls is discussed in the Technology Review section (section 5) of this preamble and

in the memorandum *Cost Analyses for Add-on Controls for Surface Coating Operations at Shipbuilding and Ship Repair Facilities,* dated September 2, 2010, in the docket for this action.

In accordance with the approach established in the Benzene NESHAP, EPA weighed all health risk measures and information considered in the risk acceptability determination, along with the costs and economic impacts of emissions controls, technological feasibility, uncertainties, and other relevant factors, in making our ample margin of safety determination. Considering the health risk information, the uncertainty and lack of data associated with one potential risk reduction option identified, and the technological infeasibility of the other option identified, we propose that the existing MACT standards provide an ample margin of safety to protect public health. Thus, we are proposing to re-adopt the existing MACT standards to satisfy section 112(f) of the CAA.

While we are proposing that the emissions covered by the Shipbuilding MACT standards provide an ample margin of safety to protect public health, we are concerned about the estimated facility-wide risks identified through these screening analyses. As described previously, the estimated cancer risks are due to emissions of chromium compounds and are largely dependent on the estimates of the fraction of total chromium that is in the hexavalent form. Welding and abrasive blasting operations (which are not part of this source category) that occur during shipbuilding and ship repair are sources of HAP at these major source facilities, and could involve different types of metals (welding) and minerals (abrasive blasting and welding).

5. What are the results and proposed decisions from the technology review?

We evaluated developments in practices, processes, and control technologies potentially applicable to the Shipbuilding and Ship Repair (Surface Coating) source category. This included a search of the RBLC Clearinghouse, the California BACT Clearinghouse, the Internet, and correspondence with state agencies and industry. We found an advance in add-on control technology since the Shipbuilding and Ship Repair MACT standards were originally developed in 1995, and we have determined that there are more stringent VOC-based coating limits for certain marine coating categories for shipbuilding and ship repair facilities in some areas of California.

We identified an add-on control device, a concentrator/RTO, recently installed (2009) at one shipbuilding and ship repair facility in California. The control device consisted of rotary concentrators followed by RTOs on five large, custom-built spray booths to control volatile organic emissions from some of the coating operations. The system is capable of achieving 95 percent control efficiency for the VOHAP emissions captured by the spray booths (which are estimated to capture 90 percent of the VOHAP emissions). For this type of add-on control to be effective, a facility must perform regular or continuous modular (ship sections or components) coating operations, a process that is normally performed at large shipyards during new ship construction. Due to the size of the booths required to handle large ship modules, a facility would also require a large physical land space to build or retrofit the spray booths. Such spray booths must be located near the final ship assembly area (*e.g.,* dry-dock or graving dock) to facilitate the logistics of moving the ship modules into place and attaching them to other modules. Large coating booths would not be effective at shipyards that perform repairs on finished vessels or during dockside coating, since only a small amount of the total coating could be applied in such spray booths.

Nationwide, based on recently awarded contracts for new ship construction, we estimate that fewer than 20 facilities have significant new ship construction business, are large enough to adopt this type of technology, and are able to retrofit existing spray booths. We estimate cost-effectiveness of the concentrator/RTO system to be $305,000 per ton of VOHAP, with an estimated industry-wide emission reduction of 48 tons of VOHAP per year (if installed at the approximately 20 facilities large enough to use the technology). Based on facility level sales, we determined that this option is not affordable. The cost as a percent of revenues was estimated to be 42 percent or greater. Additional information on the affordability of controls is discussed in the memorandum *Affordability of Add-on Controls for Surface Coating Operations at Shipbuilding and Ship Repair Facilities,* dated October 28, 2010, in the docket for this action. The large add-on controls also require a substantial amount of fuel, which produces NO_X emissions, a byproduct of combustion. The extra fuel use and emissions of NO_X would be negative consequences of the use of such add-on controls. Moreover, we believe the costs of these controls would be disproportionate to the emission reduction that would be achieved. Thus, we are proposing that it is not necessary to revise the existing MACT standards to require this technology pursuant to section 112(d)(6) of the CAA.

In our review of developments in practices, processes, and control technologies, we also identified four California air quality districts that have adopted more stringent VOC marine coating emission limits than those specified in the 1995 Shipbuilding and Ship Repair (Surface Coating) MACT Standard. Based on information from major source facilities, when the Shipbuilding and Ship Repair MACT standards were originally developed, the relationship between VOC content and VOHAP content in marine coatings was approximately 3:1, where approximately 30 percent of all solvents used for painting and thinning were VOHAP solvents. For more information on the relationship between VOC and VOHAP, see the *Background Information Document for the Shipbuilding and Ship Repair (Surface Coating) proposed rule,* dated February, 1994. However, we note that the California limits are not uniformly applied across each coating category or in each of the four districts. Furthermore, the 1995 MACT standard includes cold weather VOHAP limits such that, if the temperature is below 4.5 °C (40 °F) at the time the coating is applied and the source needs to thin that coating beyond the applicable VOHAP limit, the applicable cold-weather VOHAP limit may be used. Since the California limits do not have similar allowances for cold weather, and California generally has a more temperate climate than many parts of the country, the ability to apply coatings effectively could be compromised in areas of the country with colder climates if the more stringent California limits were required nationwide. We currently do not have data to determine whether these lower-VOC content coatings could be applied nationwide. Considering the technical feasibility uncertainties associated with the use of lower-VOHAP coatings, we are proposing that it is not necessary to revise the existing MACT standards to require lower-VOHAP coatings pursuant to section 112(d)(6) of the CAA. However, we solicit comment and data on low-VOHAP marine coatings that may be available for use at these facilities and that could be applied at facilities nationwide.

6. What other actions are we proposing?

We are proposing the elimination of the SSM exemption in the Shipbuilding (Surface Coating) MACT Standards. Consistent with *Sierra Club* v. *EPA,* EPA is proposing standards in this rule that apply at all times. We are proposing several revisions to subpart II. Specifically, we are proposing to revise Table 1 to Subpart II of Part 63—General Provisions of Applicability to Subpart II to indicate that the requirements of 40 CFR 63.6(e)(1)(i) of the *General Provisions* do not apply, including at facilities complying with the standards by using an add-on control device. The 40 CFR 63.6(e)(1)(i) requires owners or operators to act according to the general duty to "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." We are separately proposing to incorporate this general duty to minimize into 40 CFR 63.783(b)(1). The 40 CFR 63.6(e)(3) requires the owner or operator of an affected source to develop a written SSM plan. We are proposing to remove the SSM plan requirement. We are also proposing to: (1) Add 40 CFR 63.786(e) to specify the conditions for performance tests; (2) revise the SSM-associated reporting and recordkeeping requirements in 40 CFR 63.788 to require reporting and recordkeeping for periods of malfunction; (3) revise Table 1 to Subpart II of Part 63—General Provisions of Applicability to Subpart II to specify that 40 CFR 63.6(e)(1)(i) and (ii), 63.6(e)(3), 63.6(f)(1); 40 CFR 63.7(e)(1), 40 CFR 63.8(c)(1)(i) and (iii), and the last sentence of 63.8(d)(3); 40 CFR 63.10(b)(2)(i),(ii), (iv), and (v); 40 CFR 63.10(c)(10), (11), and (15); and, 40 CFR 63.10(d)(5) of the *General Provisions* do not apply. In addition, as explained above, we are proposing to add an affirmative defense to civil penalties for exceedances of emission limits caused by malfunctions, as well as criteria for establishing the affirmative defense.

EPA has attempted to ensure that we have neither overlooked nor failed to propose to remove from the existing text any provisions that are inappropriate, unnecessary, or redundant in the absence of the SSM exemption, nor included any such provisions in the proposed new regulatory language. We are specifically seeking comment on whether there are any such provisions that we have inadvertently overlooked or incorporated.

Finally, we intend to list welding and blasting operations that occur at shipbuilding and ship repair facilities as a major source category under section 112(c)(5) of the CAA and are requesting additional information on the HAP emitted by these activities. Once we have this information, we will be in a better position to identify the appropriate scope of the major source category to be listed.

B. What are the results and proposed decisions for the Wood Furniture Manufacturing Operations source category?

1. Overview of the Source Category and MACT Standard

The National Emission Standards for Wood Furniture Manufacturing Operations were promulgated on December 7, 1995 (60 FR 62930) and codified at 40 CFR part 63, subpart JJ. The Wood Furniture Manufacturing Operations MACT standards (*i.e.,* Wood Furniture MACT standards) apply to wood furniture manufacturing operations at any facility that is a major source of HAP. We estimate that there are approximately 406 wood furniture manufacturing facilities subject to the Wood Furniture Manufacturing Operations MACT standards. In some instances, wood furniture manufacturing operations may be located at facilities that also have operations regulated by the NESHAP for Surface Coating of Metal Furniture (40 CFR part 63, subpart RRRR), the NESHAP for Surface Coating of Wood Building Products (40 CFR part 63, subpart QQQQ), or NESHAP for Plywood and Composite Wood Products (Subpart DDDD).

The Wood Furniture Manufacturing Operations source category includes operations related to the production of a range of wood products, including wood kitchen cabinets, wood residential furniture, upholstered residential and office furniture, wood office furniture and fixtures, partitions, shelving, lockers, and other wood furniture not included in one of the other categories listed above.

Finishing, gluing, cleaning, and wash-off operations are processes that take place during wood furniture manufacturing that result in VHAP emissions, and are regulated by the Wood Furniture Manufacturing Operations MACT standards.

Finishing materials include, but are not limited, to stains, basecoats, washcoats, sealers, enamels, and topcoats. All of these finishing materials may contain VHAP that would be emitted during application. After a finishing material is applied, the wood substrate typically enters a flash-off area where the more volatile solvents in the finishing materials (including VHAP) evaporate, and the finishing material begins to cure. Then, the wood substrate enters an oven where curing of the finishing material and evaporation of the volatile solvents continues.

The only gluing operations that occur at wood furniture manufacturing facilities that are part of the Wood Furniture Manufacturing Operations source category are contact adhesives.

Cleaning activities include the use of solvents to dissolve resins into the coating mix and to remove dried coatings. These industrial solvents sometimes contain VHAP which evaporate when the solvent is exposed to the air and subsequently discharged to the atmosphere via ventilation air.

To meet the requirements of the Wood Furniture MACT Standards, facilities typically use compliant coatings, finishing materials that meet the individual VHAP content requirements by material type, and work practice standards. Work practice standards include inspection and maintenance plans to prevent leaks, as well as using covers on tanks.

Another option, installing destructive control devices such as thermal oxidizers, is allowed by the Wood Furniture MACT standards as an alternative to using compliant coatings, but is not often used by the industry. For more information see memorandum *Developments in Practices, Processes, and Control Technologies for the Wood Furniture Manufacturing Operations,* dated August 24, 2010.

2. What data were used in our risk analyses?

For the Wood Furniture Manufacturing Operations source category, we compiled preliminary datasets using data in the 2005 NEI. We reviewed and verified these data and made changes where necessary. In this review and verification process, we contacted several facilities to verify existing information on emissions of several different pollutants, including speciated glycol ether emissions, as reported in the NEI. We obtained updated emissions data and process information (generally 2008 or 2009 data), found that some plants had closed, and that others no longer manufacture wood furniture. For more detail, see the memorandum *Wood Furniture Manufacturing—Updated Data for Modeling File,* dated June 8, 2010, in the docket for this action.

In addition to contacting individual facilities, we consulted with four trade

associations that are heavily involved in wood furniture manufacturing operations. We asked KCMA, the AHFA, the BIFMA, and the ACA to verify existing information in the NEI database. Specifically, we asked the trade associations to verify addresses, operational status (*i.e.,* operational or shut down), and whether the facilities belonged in the Wood Furniture Manufacturing source category. With their assistance, we were able to update the facility status for another 85 facilities. For more detail, see the memo *Review and Verification of Wood Furniture Facilities in NEI Database,* dated October 22, 2010, in the docket for this action.

A speciation profile was created and applied to the generically-reported glycol ethers in the NEI data set. A total of 66 wood furniture manufacturing facilities in the RTR dataset reported generic glycol ethers that totaled 70 TPY. For more information about glycol ethers and the glycol ether speciation profile, see the memorandum *Review of Glycol Ether Emissions Associated with Wood Furniture Manufacturing Source Category,* dated October 22, 2010, in the docket for this action.

This updated dataset was used to conduct the risk assessments and other analyses that form the basis for this proposed action. Toluene and mixed xylenes account for the majority of the VHAP emissions from the Wood Furniture Manufacturing Operations source category (approximately 3,500 TPY and 62 percent of the total VHAP emissions by mass). Lower levels of emissions of 68 other VHAP were also reported from facilities in the source category. For more detail, *see* the memorandum *Wood Furniture Manufacturing—Updates for Modeling File,* dated June 8, 2010, in the docket for this action describing the risk assessment inputs and models for the Wood Furniture Manufacturing Operations source category.

We estimate that MACT-allowable emissions from this source category could be up to 2 times greater than the actual emissions, as the compliant coatings used typically have lower VHAP content than required by the Wood Furniture Manufacturing Standards to allow for operational and market variability. However, we do not have facility-specific information for all facilities or all coatings, and we request comment on this estimate. For more detail about how we estimated this ratio of actual-to-MACT-allowable emissions, *see* the memorandum *Maximum Achievable Control Technology (MACT) Allowable Emission* Estimates, dated September 9, 2010, in the docket for this action.

3. What are the results of the risk assessments and analyses?

We have conducted an inhalation risk assessment for the Wood Furniture Manufacturing Operations source category. We have also conducted an assessment of facility-wide risks and performed a demographic analysis of population risks. Details of the risk assessments and analyses can be found in the residual risk documentation referenced in section IV.A of this preamble, which is available in the docket for this action.

a. Inhalation Risk Assessment Results

Table 6 provides an overall summary of the inhalation risk assessment results for the source category.

TABLE 6—WOOD FURNITURE MANUFACTURING OPERATIONS INHALATION RISK ASSESSMENT RESULTS

Number of facilities [1]	Maximum individual cancer risk (in 1 million) [2]		Estimated population at risk ≥ 1-in-1 million	Estimated annual cancer incidence (cases per year)	Maximum chronic non-cancer TOSHI [3]		Maximum off-site acute non-cancer HQ [4]
	Actual emissions level	Allowable emissions level			Actual emissions level	Allowable emissions level	
385	20	40	20,000	0.005	0.4	0.8	HQ_{REL} = 10 (propyl cellosolve) [5] HQ_{REL} = 7 (formaldehyde) HQ_{AEGL-1}= 0.35 (formaldehyde) HQ_{REL} = 2 (toluene) HQ_{ERPG-1} = 0.35 (toluene) HQ_{AEGL-1} = 0.09 (toluene)

[1] Number of facilities evaluated in the risk analysis.

[2] Estimated maximum individual excess lifetime cancer risk. We note that the MIR values would be reduced by 50 percent, and the cancer incidence would be reduced by 30 percent if the CIIT URE for formaldehyde were used instead of the IRIS URE.

[3] Maximum TOSHI. The target organ with the highest TOSHI for the Wood Furniture Manufacturing Operations source category is the nervous system.

[4] The maximum estimated acute exposure concentration was divided by available short-term dose-response values to develop an array of HQ values. HQ values shown use the lowest available acute dose-response value, which in most cases is the REL. Note that the REL for EGME was used to evaluate propyl cellosolve. When HQ values exceed 1, we also show HQ values using the next lowest available acute dose-response value. See section IV.A of this preamble for explanation of acute dose-response values.

[5] Note the HQ value for propyl cellosolve is the maximum acute pollutant HQ of all speciated glycol ethers modeled. The REL for EGME was used to evaluate propyl cellosolve and all speciated glycol ethers that do not have an acute dose response value. There are no AEGL or ERPG values available for glycol ethers to aid in further interpretation of potential acute risks.

The inhalation risk modeling was performed using actual emissions data. As shown in Table 6, the results of the inhalation risk assessment indicate the maximum lifetime individual cancer risk could be as high as 20-in-1 million due to emissions of formaldehyde.[34] The total estimated cancer incidence due to actual emissions from the source category is 0.005 excess cancer cases per year, or one case in every 200 years. The maximum chronic non-cancer TOSHI value could be up to 0.4, due to emissions of hexane; and the maximum acute HQ value could be up to 10 for propyl cellosolve with propyl cellosolve representing the maximum acute HQ among all the speciated glycol ethers using the REL value for EGME as a surrogate. We estimate that emissions of glycol ethers (mainly propyl cellosolve)

[34] We note that this MIR value would be reduced by 50 percent if the CIIT URE for formaldehyde were used instead of the IRIS URE.

from eight facilities (or about two percent of the total facilities) result in maximum acute HQs greater than 1. Additionally, the maximum acute HQ for formaldehyde could be up to 7 based on the REL value for formaldehyde. We estimate that emissions of formaldehyde from 11 facilities (about three percent of the total facilities) result in maximum acute HQs between 1 and 7 (the actual maximum HQ values for these 11 facilities are 7, 7, 6, 6, 2, 2, 2, 2, 2, 2, and 2). The maximum acute level of formaldehyde did not exceed the one hour AEGL–1 for formaldehyde; the estimated maximum HQ using the AEGL–1 was 0.35. We also identified one facility with a potential to exceed the acute REL for toluene (with a maximum estimated acute HQ_{REL} of 2, a maximum estimated acute HQ_{AEGL-1} of 0.09, and a maximum estimated acute HQ_{ERPG-1} of 0.35.). It is important to note, as described earlier in this preamble, the acute assessment includes multiple conservative assumptions. For example, the modeling approach assumes that peak emissions occur at the same time as worst case one hour meteorology and that a person is located directly downwind at that time. Moreover, for glycol ethers, we used the lowest acute REL of any of the glycol ethers with such health values (*i.e.,* EGME) to assess the other glycol ethers without such values. There are no AEGL or ERPG values available for any glycol ethers; this limits our ability to further interpret the potential acute impacts of propyl cellosolve. Nonetheless, overall, we believe it is unlikely that HAP emissions from this source category pose significant acute health risks. Nevertheless, we are seeking comments and data to refine the risk assessment and resolve the uncertainties that led to the use of conservative assumptions. Some of the specific information and data that we are seeking are described below.

As explained above, our analysis of potential differences between actual emission levels and emissions allowable under the MACT standards indicates that MACT-allowable emission levels may be up to 2 times greater than actual emission levels. Considering this difference, the risk results from the inhalation risk assessment indicate the maximum lifetime individual cancer risk could be as high as 40-in-1 million, and the maximum chronic non-cancer TOSHI value could be up to 0.8 at the MACT-allowable emissions level.

The risk assessment for chronic non-cancer risks was performed consistent with the approach taken in previous risk and technology review for other source categories, *i.e.,* we used our existing hierarchy of reference values (EPA 1999—Residual Risk Report to Congress), which favors the use of an IRIS value when available, and favors using values which have been developed and peer-reviewed using processes similar to the IRIS process under the sponsorship of a state or federal government agency, the documentation of which can be easily accessed by the public (such as those from ATSDR or the California EPA) when IRIS values are not available. The use of a surrogate reference value for chemicals in a chemical group (*e.g.,* glycol ethers) is part of this approach when specific chemicals in the group do not have available reference values, and/or emissions are reported generically for the chemical group and not specific chemicals. In this case, the IRIS RfC for EGME is the lowest (i.e., most health protective) of the available reference values for glycol ethers from our hierarchy of reference values. Using the surrogate approach described above, the maximum chronic non-cancer TOSHI for the source category could be as high as 0.4 (based on actual emissions) and 0.8 (based on allowable emissions), with emissions of n-hexane dominating.

In reviewing data sources for this residual risk assessment, we identified a PPRTV for assessing chronic noncancer health risks from inhalation of DGBE, which is emitted by some facilities in this source category. PPRTV are reference values, developed by EPA for use specifically in EPA's Superfund Program when an acceptable reference value, such as those found in EPA's IRIS database, is not otherwise available.

The DGBE PPRTV was prepared for EPA's Superfund Program in 2009. Inhalation toxicity information for DGBE is essentially limited to the results of a single 5-week study in rats (Gushow *et al.,* 1984), which resulted in slight vacuolization of the liver cells consistent with fatty change. An uncertainty factor of 3000 was applied in deriving the PPRTV, and confidence in the provisional RfC (p-RfC) value is low.

Provisional Peer Reviewed Toxicity Values differ from IRIS values in that PPRTVs do not receive the multiprogram review provided for IRIS values. As stated in the DGBE PPRTV document, this is because "* * * IRIS values are generally intended to be used in all U.S. EPA programs, while PPRTVs are developed specifically for the Superfund Program." The EPA's Superfund Program uses PPRTVs in conjunction with assessments to support site-specific clean-up decisions. PPRTVs are applied to high quality exposure data developed for each Superfund site using measurements of the specific chemical for which the PPRTV was developed. Each final cleanup decision, as memorialized in a Record of Decision, is subject to public notice and comment, and it is at this stage of the process that a public review of how a PPRTV was used in that site-specific context may occur, which may include consideration of comments on the development of the PPRTV itself (*i.e.,* the PPRTV development document is not explicitly the subject of a separate public review or comment period). The current process for development of the reference values used to support these proposed decisions includes a public comment period prior to a final external peer review of the assessment. This more rigorous review process prior to the release of the values enables immediate use of the derived values across multiple EPA Program Offices, including providing support for national regulatory decisions (*e.g.,* RTR).

Contrasting the site-specific Superfund application of PPRTVs and related Records of Decision, the Wood Furniture RTR proposal is of national scope and will not be subject to ongoing review related to each application to a facility. Based on the foregoing discussion, EPA has determined that reliance on the DGBE PPRTV value in this RTR rule is beyond the specific purpose for which it was developed, and would exacerbate the cumulative uncertainty in the baseline Wood Furniture risk assessment stemming from limitations in the underlying exposure and toxicity data. Accordingly, EPA has not used the DGBE PPRTV value in the risk assessment supporting this proposed action, noting that a suitable alternative value (in this case, it is the RfC for EGME from IRIS) is available to represent the toxicity of glycol ethers without hierarchically based non-cancer reference values in the assessment.

In characterizing the potential cancer and non-cancer risks, it is important to consider the uncertainties related to the risk assessments, particularly for formaldehyde and glycol ethers. Some of the general uncertainties with health values and the modeling approach were described earlier in this preamble. With regard to emissions, there are various areas of potential uncertainty for these HAP. First, only about 23 percent of the facilities reported glycol ether emissions and about half reported formaldehyde. We recognize that not all facilities necessarily emit these HAP. Nevertheless, we believe the actual number of facilities with emissions of glycol ethers and formaldehyde could

possibly be higher than the number we have in our data set because of the uncertainties in the NEI database, including the lack of quantified emissions from curing and gluing. Second, most facilities reporting glycol ether emissions reported them generically as the class "glycol ethers" and not as particular species. We developed a profile to speciate these generic glycol ethers, which was generated from a composite of reported speciated glycol ethers emissions data from facilities across the source category; however, there is uncertainty regarding how representative this profile is for the other facilities in the source category since the profile is based on limited data. Additionally, as previously discussed, a limited number of the glycol ether compounds have non-cancer reference values and therefore a surrogate value was used. For the acute assessment, glycol ethers were assessed individually and not as a combined group. Third, the reported levels of formaldehyde in the NEI are likely derived from coatings and contact adhesives content and may not account for curing or other types of gluing operations that may create and emit VHAP (including formaldehyde). Recognizing that there is no approved method for estimating formaldehyde emissions from curing, this is an uncertainty that could possibly bias the risk estimates low, but the extent of underestimation, if any, is unknown.

With regard to the acute inhalation assessment, the maximum acute non-cancer HQs of 7 for formaldehyde with the REL and 0.35 with the AEGL and 10 for propyl cellosolve were derived partly based on using an acute multiplier of 4 from the annual average hourly emissions. The factor of 4 is based on readily available information for the emissions driving the risk. The information we have may not be representative of all sources in the category. For more information on this factor, see the memorandum *Acute Effects Factor for Wood Furniture Manufacturing Operations, dated November 23, 2010,* in the docket for this action.

Thus, because of the uncertainties described above, we solicit additional data and comments that would improve our emissions estimates. Specifically, we solicit data on glycol ethers (speciated to the extent known) and formaldehyde used in coatings at wood furniture manufacturing facilities. We solicit data regarding facilities that use coatings that may form formaldehyde or other VHAP during the curing process and data on VHAP emissions related to gluing operations. We solicit comment on the emissions estimates and assumptions we have used in this proposal and whether there are scientifically credible methods to estimate curing and gluing emissions, based on known coatings or other methods. We also solicit comment on potential options for reducing the use in this source category of specific glycol ethers which are known to have (or are suspected to have) higher toxicity than other compounds in the class. Moreover, we request that comments include, if possible, the following types of data and information that might help reduce the uncertainties: (1) Ranges of the VHAP content in coating products and variability between product runs for different types of facilities; (2) ranges within the annual averages of VHAP per pound of coating solids; (3) information regarding whether control devices are used and, if so, what types and at how many facilities.

b. Facility-wide Risk Assessment Results

Table 7 displays the results of the facility-wide risk assessment. This assessment was conducted based on actual emission levels. For detailed facility-specific results, see Table 2 of Appendix 6 of the "Draft Residual Risk Assessment for the Wood Furniture Manufacturing Source Category" in the docket for this rulemaking.

TABLE 7—WOOD FURNITURE MANUFACTURING OPERATIONS FACILITY-WIDE RISK ASSESSMENT RESULTS

Number of facilities analyzed		385
Cancer Risk	Estimated maximum facility-wide individual cancer risk (in 1 million)	100
	Number of facilities with estimated facility-wide individual cancer risks of 100-in-1 million or more	1
	Number of wood furniture manufacturing operations contributing 50 percent or more to facility-wide individual cancer risk of 100-in-1 million or more.	0
	Number of facilities with facility-wide individual cancer risk of 1-in-1 million or more	74
	Number of wood furniture manufacturing operations contributing 50 percent or more to facility-wide individual cancer risk of 1-in-1 million or more.	64
Chronic Non-cancer Risk	Maximum facility-wide chronic non-cancer TOSHI	3
	Number of facilities with facility-wide maximum non-cancer TOSHI greater than 1	2
	Number of wood furniture manufacturing operations contributing 50 percent or more to facility-wide maximum non-cancer TOSHI of 1 or more.	0

The maximum individual cancer risk from all HAP emissions at a facility that contains sources subject to the Wood Furniture Manufacturing MACT standards is estimated to be 100-in-1 million. Of the 385 facilities included in this analysis, one has a facility-wide maximum individual cancer risk of 100-in-1 million or greater. At this facility, the wood furniture manufacturing operations contribute approximately one percent to these facility-wide risks. Based on the data we have, the emissions source driving this higher cancer risk is a boiler, which is subject to the proposed Boiler NESHAP (*see* 75 FR 32006, June 4, 2010) which is scheduled to be finalized in the near future.

There are 74 facilities with facility-wide maximum individual cancer risks of 1-in-1 million or greater. Of these 74 facilities, 64 have wood furniture manufacturing operations that contribute 50 percent or greater to the facility-wide risks. The facility-wide cancer risks at most of these 74 facilities are primarily driven by emissions of ethyl benzene from wood furniture manufacturing operations.

The facility-wide maximum individual chronic non-cancer TOSHI is estimated to be 3. Of the 385 facilities included in this analysis, two have facility-wide maximum chronic non-cancer TOSHI values between 1 and 3 (the individual TOSHI values are 2 and 3); all the rest are 1 or below. Of these three facilities, no facility had wood furniture manufacturing operations that contributed 50 percent or greater to these facility-wide risks. The chronic non-cancer risks at these facilities are primarily driven by emissions of manganese and acrolein from boilers.

c. Demographic Risk Analysis Results

The results of the demographic analyses performed to investigate the distribution of cancer risks at or above 1-in-1 million to the surrounding population are summarized in Table 8 below. These results, for various demographic groups, are based on actual emissions levels for the population living within 50 km of the facilities.

TABLE 8—WOOD FURNITURE MANUFACTURING OPERATIONS DEMOGRAPHIC RISK ANALYSIS RESULTS

	Nationwide	Population with cancer risk greater than 1 in a million due to	
		Source category HAP emissions	Facility-wide HAP emissions
Total population	285,000,000	20,000	26,000
Race by percent			
White	75	63	65
All Other Races	25	37	35
Race by percent			
White	75	63	65
African American	12	13	17
Native American	0.9	0.7	0.6
Other and Multiracial	12	23	17
Ethnicity by percent			
Hispanic	14	34	24
Non-Hispanic	86	66	76
Income by percent			
Below poverty	13	16	16
Above poverty	87	84	84
Education by percent			
Over 25 and without high school diploma	13	19	19
Over 25 and with a high school diploma	87	81	81

The results of the Wood Furniture Manufacturing Operations source category demographic analysis indicate that there are 20,000 people exposed to a cancer risk greater than or equal to 1-in-1 million based on HAP emissions from the source category. Of this population, an estimated 37 percent can be classified as a minority (listed as "All Other Races" in the table above), including 13 percent in the "African American" demographic group, and 23 percent in the "Other and Multiracial" demographic group). Of the 20,000 people with estimated cancer risks above 1-in-1-million from the source category, 34 percent are in the "Hispanic" demographic group, 16 percent are in the "Below Poverty" demographic group, and 19 percent are in the "Over 25 and Without High School Diploma" demographic group; these percentages are higher than their respective percentages for these demographic groups across the United States by 20, 3, and 6 percentage points. The percentages for the other demographic groups are lower than their respective nationwide values. The table also shows that there are approximately 26,000 people exposed to an estimated cancer risk greater than or equal to 1-in-1 million based on facility-wide emissions. Of this population, the results of the facility-wide demographic analysis indicate that the percentages are higher than nationwide percentages for those included in the "African American," "Other and Multiracial," "Hispanic," "Below Poverty" level," and the "Over 25 and Without High School Diploma" demographic groups, by 5, 5, 10, 3, and 6 percentage points, respectively. The percentages for the other demographic groups are lower than their respective nationwide values.

4. What are our proposed decisions on risk acceptability and ample margin of safety?

a. Risk Acceptability

As noted in section III.B of this preamble, we weigh all health risk factors and measures in our risk acceptability determination, including cancer risks to the individual most exposed, risk estimation uncertainty, and other health information. For the Wood Furniture Manufacturing Operations source category, the risk analysis we performed indicates that the cancer risks to the individual most exposed could be up to 20-in-1 million due to actual emissions and up to 40-in-1 million due to MACT-allowable emissions.[35] These values are considerably less than 100-in-1 million, which is the presumptive limit of acceptability. The risk analysis also shows low cancer incidence (1 in every 200 years),[36] no potential for adverse environmental effects or human health multi-pathway effects, and that chronic non-cancer health impacts are unlikely.

When estimated maximum 1-hour peak emissions estimates for speciated glycol ethers (*i.e.,* propyl cellosolve) are compared to the REL for EGME (used as a surrogate for propyl cellosolve), the assessment indicates that a maximum acute non-cancer HQ up to 10 could occur at one facility. Eight facilities (or

[35] We note that these MIR values would be reduced by 50 percent if the CIIT URE for formaldehyde were used instead of the IRIS URE.

[36] We note that the cancer incidence would be reduced by 30 percent if the CIIT URE for formaldehyde were used instead of the IRIS URE.

2 percent of the total) had an estimated HQ greater than 1. All other facilities modeled had HQ less than 1. Nevertheless, exposures above the REL do not necessarily indicate that adverse effects will occur. There are no other appropriate acute reference values available for glycol ethers that may be used to assess acute risks for glycol ethers.

When estimated one-hour peak emissions estimates for formaldehyde are compared to the formaldehyde REL, the assessment indicates a maximum acute non-cancer HQ up to 7 could occur. Eleven facilities (or three percent of the total) had an estimated HQ greater than 1 and up to 7 for formaldehyde. All other facilities modeled had HQs less than 1. The maximum acute HQ for formaldehyde based on an AEGL–1 or ERPG–1 value is 0.35. Exposures immediately above the REL do not necessarily indicate that adverse effects will occur (*i.e.,* they do not define a threshold for an effect); on the other hand, AEGL–1 and ERPG–1 are levels above which you may have mild, but reversible, non-disabling effects.

A detailed discussion of our acute assessment for formaldehyde along with the interpretation of potential acute risks is provided in the *Draft Risk Assessment for the Wood Furniture Manufacturing Source Category,* in the docket for this rulemaking. We solicit comment on the acute assessment and on the interpretation of potential acute formaldehyde risks.

Nevertheless, as described earlier in this preamble, the acute assessment includes some conservative assumptions and some uncertainties. Moreover, the RELs are protective and designed to protect the most sensitive individuals in the population by inclusion of margins of safety. Therefore, overall we believe that it is unlikely that HAP emissions from this source category pose unacceptable acute non-cancer risks. However, as described below, we still have concerns about the uncertainties associated with acute non-cancer risks.

While our additional analysis of facility-wide risks indicates that there is one facility with a maximum facility-wide cancer risk of 100-in-1 million and three facilities with a maximum chronic non-cancer TOSHI of 1 or more, it also shows that wood furniture manufacturing operations do not drive these risks. Our additional analysis of the demographics of the exposed population indicates disparities in risks between demographic groups may exist; however, the overall risks are not high and the total number of people exposed to cancer risks of 1-in-1 million or greater due to emissions from the source category is relatively low (20,000).

EPA has weighed the various health measures and factors and uncertainties discussed above and in section IV.A.7 of this preamble, and is proposing that the risks from the Wood Furniture Manufacturing Operations source category are acceptable. We are proposing that the risks are acceptable after weighing concerns about possible acute non-cancer risks, especially acute non-cancer risks due to formaldehyde (acute HQ up to 7 with the REL and up to 0.35 with the AEGL) and glycol ethers (acute HQ up to 10), and uncertainties in the emissions data as described above. We have considered these HAP further under the ample margin of safety analyses, as described below, and are seeking data and comments to help us refine the assessments.

b. Ample Margin of Safety

Although we are proposing that the risks from the Wood Furniture Manufacturing Operations source category are acceptable, risk estimates for 20,000 individuals in the exposed population are above 1-in-1 million, and while there is uncertainty associated with our assessment of acute non-cancer risks, we remain concerned about the potential for them. Consequently, we considered whether the Wood Furniture MACT standards provide an ample margin of safety. In this analysis, we investigated available emissions control options that might reduce the risks associated with emissions from the Wood Furniture Manufacturing Operations source category and considered this information along with all of the health risks and other health information considered in the risk acceptability determination.

i. Emissions Control Options

We evaluated the emissions reductions and cost associated with various control options for the Wood Furniture Manufacturing Operations source category. One option would require lower VHAP content in wood furniture coatings, which we estimate could reduce VHAP emissions from this source category by up to 56 TPY from the estimated baseline level of 5,900 TPY.[37] The estimated capital and annualized costs for this option would be $12,200,000 and $2,800,000, respectively. We estimate the cost-effectiveness would be about $30,000 per ton of HAP emissions reduced. We estimate this requirement to lower VHAP content from wood furniture coatings would not appreciably reduce the maximum lifetime individual cancer risk, the maximum chronic non-cancer TOSHI value, or the maximum acute non-cancer TOSHI value. These values would remain at about 20-in-1 million for the maximum lifetime individual cancer risk, 0.4 for the maximum chronic non-cancer TOSHI value, and 10 for the maximum acute HQ value using the REL.[38] Table 9 summarizes the nationwide costs and cost-effectiveness of this option.

TABLE 9—LOWER VOC COATING LIMITS FOR WOOD FURNITURE MANUFACTURING OPERATIONS—COSTS AND RISK REDUCTIONS

Control option	Number of affected facilities	Emission reduction (TPY)	Capital costs ($ million)	Annualized costs ($ million/yr)	Cost-effectiveness ($/ton)	Max MIR after control (in 1 million)	Max TOSHI after control	Max Acute HQ after control
Lower VOC coating limits	406	56	$12.2	$2.8	$30,000	20	0.4	10

[37] We estimate that lower-VHAP coatings could be applied nationwide for the Wood Furniture Manufacturing Operations source category because the coatings are applied inside buildings at the facilities and the external temperature is not a limiting factor.

[38] We estimate this requirement to lower VHAP content from wood furniture coatings would reduce the maximum lifetime individual cancer risk and the maximum chronic non-cancer TOSHI value by approximately one percent. However, as the maximum individual risk values are presented with one significant digit due to the precision of the data used to estimate these values, the risk values would still be presented as 20 for the maximum individual cancer risk, 0.4 for the maximum individual non-cancer TOSHI, and 10 for the maximum acute HQ value.

Another potential emissions reduction option involving an RTO add-on control device was investigated but found not to be feasible for implementation by the majority of the facilities in the source category. This control technology is discussed below in section IV.B.5 of this preamble.

A third emissions reduction option is to limit formaldehyde emissions by restricting formaldehyde use to 400 pounds per rolling 12 month period, or if a control device is used, to an amount adjusted from 400 pounds per rolling 12 month period based on the overall control efficiency of the control system. The limit would apply to wood furniture coatings and contact adhesives. This emissions level is currently included in Table 5 to Subpart JJ of Part 63—List of VHAP of Potential Concern Identified by Industry of the Wood Furniture Manufacturing Operations MACT standards as part of the work practice requirement to have a Formulation Assessment Plan for finishing operations. The usage level provided in Table 5 to Subpart JJ of Part 63—List of VHAP of Potential Concern Identified by Industry of the Wood Furniture Manufacturing Operations MACT standards is 0.2 TPY. Under the current Wood Furniture MACT standards, if a facility's annual usage of formaldehyde exceeds its baseline level, the owner or operator of the facility provides a written notification to the permitting authority describing the amount of the increase and explains the reasons for exceedance of the baseline level. If the exceedance is no more than 15 percent above the baseline, or if usage is below the level in Table 5 to Subpart JJ of Part 63—List of VHAP of Potential Concern Identified by Industry, then no further explanation is required. See 40 CFR 63.803(l). This third emissions reduction option would change the formaldehyde usage level in the existing Wood Furniture Operations MACT standards to a limit not to be exceeded at any time. Based on the updated dataset described in section V.B.2, 39 of the 385 facilities use (and emit) more than 400 pounds per rolling 12-month period of formaldehyde. By setting a usage limit of 400 pounds per rolling 12-month period, we estimate that the formaldehyde emissions from these 39 facilities will be reduced from 20.125 TPY to 10.665 TPY, a 9.46 TPY or 47 percent reduction.

As described in the risk assessment section above, we estimate that formaldehyde emissions from 11 facilities (about three percent) could result in exceedances of the acute REL, indicating a potential for acute non-cancer risks of concern. We did not see a potential for any facility to cause exceedances of the acute ERPG–1 or AEGL–1 levels. These 11 facilities are among the 39 facilities that use and emit formaldehyde in excess of 400 pounds per year. Moreover, formaldehyde emissions from these facilities also drive the maximum lifetime individual cancer risks. Therefore, reductions in formaldehyde emissions will reduce these risks. We estimate that limiting formaldehyde use to no more than 400 pounds per rolling 12 month period will reduce the maximum acute HQ value based on the REL for formaldehyde from 7 to 3, and will reduce the maximum lifetime individual cancer risk from 20-in-1 million to approximately 10-in-1 million, both based on the actual emissions level.[39]

There are many coatings and adhesives available from several suppliers that contain no or low quantities of formaldehyde and that are approximately equivalent in cost to the coatings and adhesives that contain formaldehyde. Many facilities currently use these no- or low-formaldehyde coatings and adhesives. Based on our data, the wood furniture manufacturing operations at the facilities using more than 400 pounds per rolling 12 month period of formaldehyde are similar to operations at facilities currently using less than 400 pounds per rolling 12 month period of formaldehyde. Therefore, we believe it is feasible for the remaining facilities (including the 11 facilities with HQ greater than 1) to switch to coatings and adhesives containing no or low amounts of formaldehyde, at little or no extra cost, and reduce their overall usage to no more than 400 pounds per rolling 12 month period.

We are proposing to limit the formaldehyde usage to 400 pounds per 12 month rolling period as a means of reducing emissions of formaldehyde. This limit will reduce the maximum acute HQ value for formaldehyde from 7 to 3, and reduce the maximum lifetime individual cancer risk from 20-in-1 million to approximately 10-in-1 million. All affected sources are expected to meet this limit by using no- or low-formaldehyde coatings. We solicit comment on these estimated risk reductions, compliant coatings as a method for reducing the risk associated with formaldehyde, the appropriateness of the 400 lb per rolling 12-month period emissions limit on formaldehyde usage, and the feasibility and cost associated with using compliant coatings to achieve the limit on formaldehyde usage.

The proposed emission limit is being developed primarily under CAA section 112(f)(2), and has a 2-year compliance date for existing sources pursuant to CAA section 112(f)(4). We are soliciting comment on whether the proposed formaldehyde emission limit should be issued under CAA section 112(d)(6). Standards developed under section 112(d)(6) would provide up to a three year compliance date for existing sources. We recognize that affected sources may need time to ensure that compliant coatings are available for their wood furniture manufacturing operations.

ii. Ample Margin of Safety Evaluation

In accordance with the approach established in the Benzene NESHAP, EPA weighed all health risk measures and information considered in the risk acceptability determination, along with the costs and economic impacts of emissions controls, technological feasibility, uncertainties, and other relevant factors, in making our ample margin of safety determination. We considered all of these factors in our ample margin of safety decision, and concluded that the costs of the add-on control options analyzed are not reasonable considering the emissions reductions and health benefits potentially achievable with the controls. However, as discussed above, we believe it is feasible for facilities to limit formaldehyde use to less than 400 pounds per rolling 12 month period by using no- or low-formaldehyde coatings and adhesives. This limit on formaldehyde use will also result in reduced emissions. As a result, we propose to establish a usage limit of 400 pounds per rolling 12 month period for formaldehyde under section 112(f) of the CAA.

We chose this level (of 400 pounds per rolling 12 month period) as the proposed usage limit since it is currently used in the MACT standard and since limiting emissions to this level will lead to reductions in cancer risks and the potential for acute non-cancer risks of concern. This limit would reduce formaldehyde emissions by an estimated 9.46 TPY from the baseline level of 20.125 TPY. The estimated maximum lifetime individual cancer risk would be reduced to approximately 10-in-1 million from the baseline of 20-in-1 million, the estimated cancer incidence due to emissions from the source category would be reduced by about 15 percent nationwide, and the estimated maximum acute HQ would be reduced

[39] We note that the estimated reduction in cancer MIR would be negligible if the CIIT URE for formaldehyde were used instead of the IRIS URE.

from 7 to 3, based on the REL for formaldehyde, and from 0.35 to 0.15, based on the AEGL–1 for formaldehyde. We estimate that there would be either no or minimal additional costs associated with this option, as the cost of no- or low-formaldehyde coatings and adhesives are approximately equal to other coating and adhesive products containing larger quantities of formaldehyde. Also, there are minimal costs associated with the recordkeeping and reporting requirements for compliance with the rule. *See* EPA ICR number 1716.07 for detailed information. We believe this formaldehyde limit is technically feasible for all wood manufacturing operations and is a cost-effective measure to achieve emissions and health risk reductions. Therefore, we propose that with this formaldehyde limit, the Wood Furniture Manufacturing Operations MACT standards provide an ample margin of safety to protect public health. Nevertheless, we are seeking comments on the proposed formaldehyde limit of 400 pounds per rolling 12-month period, and whether there may be an alternative level that we should consider. In addition, we are seeking comments and data on the cost and feasibility of using coatings, solvents, adhesives, and any other products covered by the Wood Furniture Manufacturing Operations MACT standards that have lower VHAP content, or contain less toxic VHAP, as well as information that would help us to refine our assessment of the chronic or acute risks of formaldehyde emissions from this source category.

While we propose that the Wood Furniture Manufacturing Operations MACT standards, revised to include the 400 pounds per rolling 12-month period formaldehyde emissions limit, will provide an ample margin of safety to protect public health, uncertainties remain concerning that an acute HQ of up to 10 may occur due to emissions of glycol ethers based on our screening level assessment. The potential risk reduction options identified would not appreciably reduce emissions or the potential acute risks associated with glycol ethers. Therefore, we are seeking comments and data regarding the use of glycol ethers in wood furniture manufacturing operations. This information includes the quantities of coatings and adhesives used (TPY); the speciated glycol ethers content in these products; whether the use of these products is in the kitchen cabinet, business furniture, or home furnishings sector; and the availability and feasibility of using coatings and adhesive products with a lower content of glycol ethers.

5. What are our proposed decisions on the technology review?

We evaluated developments in practices, processes, and control technologies applicable to the Wood Furniture Manufacturing Operations source category. This included an internet search, a search of the RBLC Clearinghouse, a review of relevant subsequently developed regulations, and contacts with industry. We found one advance in add-on control technology since the Wood Furniture Manufacturing Operations MACT standards were promulgated, we have determined that there are more stringent VOC-based coatings limits for wood furniture manufacturing facilities in one area of California, and we have found that fewer conventional spray guns are in use. For more detail, see the memorandum *Developments in Practices, Processes, and Control Technologies,* dated August 24, 2010, in the docket for this action that describes the technology review for the Wood Furniture Manufacturing Operations source category.

With regard to add-on technology, we identified one facility in Indiana that manufactures kitchen cabinets and uses an RTO to control spray booth emissions from its wood furniture manufacturing operations. The facility coats flat panels using an automated process with high speed lines. We estimate cost-effectiveness of the RTO system at this facility to be $20,000 per ton of HAP reduced.

Nationwide, we estimate that fewer than five facilities manufacture wood furniture using automated, high speed lines, and could install this type of add-on control device. Therefore, the RTO control technology is not applicable across the entire wood furniture source category. The estimated emissions reduction, based on these five facilities, is 98 tons of HAP per year. The cost to treat low-HAP concentration, high volume air streams routed to the RTO is estimated to be $20,000 per ton of HAP reduced, and is considered economically prohibitive when compared to the amount of emissions reduced. Based on per facility sales, we determined that this option is not affordable. The cost as a percentage of revenues was estimated to be 73 percent or greater. Additional information on the affordability of controls is discussed in the memorandum *Affordability of Lower VHAP Coatings and Add-on Controls for Wood Furniture Manufacturing Operations,* dated October 28, 2010, in the docket for this action. The large amount of fuel required for this type of add-on control would be a significant disadvantage and the fuel produces NO_X emissions, a by-product of combustion. Finally, facilities must have a large physical land space to house the RTO. For these reasons, we determined that the installation of a RTO on spray booths is not a viable option for the wood furniture manufacturing industry. For more detail, *see* the memo *Cost Analyses for Control Options,* dated September 27, 2010, in the docket for this action that describes the cost analysis for the Wood Furniture Manufacturing Operations source category.

In our review of developments in practices, processes, and control technologies, we identified the Bay Area Air Quality Management District in California as having adopted more stringent VOC coating emission limits than the VHAP coating emission limits in the Wood Furniture MACT standards. However, the California limits came into effect in July 2010, and we do not have data to demonstrate whether the facilities in this area have been able to achieve compliance with these limits or the measures they may be taking to comply with them. The California limits are VOC-based, and coating limits in the Wood Furniture MACT standard are VHAP-based. We do not have information on the exact correlation between lower-VOC content and lower-HAP content in coatings (*e.g.,* if lower VOC content leads to lower HAP content). We believe that coatings used in the industry average approximately 50 percent HAP and 50 percent non-HAP VOC, however the HAP and non-HAP VOC content varies between specific coating products.[40] Using this assumed average HAP-to-VOC content, we estimate that by adopting the California VOC limits, the industry-wide emission reduction would be 56 tons of HAP per year at a cost of $30,000 per ton of HAP reduced for the approximately 406 facilities in the source category. Based on per facility sales, we determined that this option may be affordable. The cost as a percentage of revenues was estimated to be less than four percent. Additional information on the affordability of lower VHAP coatings is discussed in the memorandum *Affordability of Lower VHAP Coatings and Add-on Controls for Wood Furniture Manufacturing Operations,* dated October 28, 2010, in

[40] Case Studies comparing HAP and VOC content of wood furniture coatings at *http://www.epa.gov/ttn/atw/wood/low/casebyco.html.*

the docket for this action. Nevertheless, due to the factors described above including the limited emissions reduction potential and the cost effectiveness, we are not proposing to require lowering the VHAP content in coatings in the MACT standards. However, we solicit comments and data regarding lower VHAP coatings and information on the types of wood furniture manufacturing coating operations for which they may be applicable.

When the Wood Furniture MACT standards were promulgated, conventional guns were used extensively by industry. Since promulgation, the use of conventional guns in the wood furniture industry has diminished drastically, and they are now rarely used. We are proposing to remove the provision in the Wood Furniture MACT standards that allows the use of conventional air spray guns; thereby codifying current industry practice. This proposed action will prevent future increases in the use of conventional spray guns, which have lower transfer efficiencies and higher emissions than other spray gun types. Based on our findings, it is possible to replace conventional air spraying with more efficient spray application methods such as air assisted airless spraying. We anticipate no changes in coating formulation will be needed to use air assisted airless spray guns rather than conventional spray guns. As conventional spray guns are now rarely used, we do not estimate there will be any appreciable emission reductions as a result of this proposed provision. For more details, see *Impacts of Prohibiting the Use of Conventional Spray Guns in the Wood Furniture Manufacturing Operations Source Category,* dated October 19, 2010.

The associated cost of discontinuing use of conventional air spray guns is believed to be minimal. Overall, we do not believe many conventional guns are in use and need to be replaced. However, for the remaining conventional spray guns, we also estimate there to be a net cost savings by switching to air assisted airless spray guns. While an air assisted airless spray gun is estimated to cost approximately $300 more than a conventional spray gun, the 10 percent increase in transfer efficiency results in an equally lower coating use and cost savings. We estimate that for a single spray gun, if the coating cost is $10/gallon and the rate of coating use is at least 1.1 gallons per day, the initial cost difference between the guns is made up within a year. For more expensive coatings, the cost difference is made up more quickly. In addition, the expected life of a conventional spray gun is estimated to be, at most, 2 years. The compliance period of the rule is three years; therefore, no air assisted airless guns would be required to replace a conventional spray gun before the end of its useful life as a result of the revised Wood Furniture MACT standards. For more details, *see Impacts of Prohibiting the Use of Conventional Spray Guns in the Wood Furniture Manufacturing Operations Source Category,* dated October 19, 2010 in the docket for this action. We solicit comment on the accuracy of our assumptions about coating use, coating costs, transfer efficiency of spray guns, spray gun replacement frequency, any additional cost associated with switching gun technology such as attachment replacements, the need for additional training associated with switching spray guns and the costs of training, if needed and the extent to which facilities are already using air assisted airless spray guns.

In summary, as a result of the technology review under section 112(d)(6) of the CAA, we are proposing to prohibit the use of conventional spray guns by facilities regulated by the Wood Furniture Manufacturing Operations MACT standard. Existing sources would be required to comply with this proposed change by 3 years after the effective date.

6. What other actions are we proposing?

We are proposing the elimination of the SSM exemption in the Wood Furniture Manufacturing Operations MACT standards. Consistent with *Sierra Club* v. *EPA,* EPA is proposing standards in this rule that apply at all times. We are proposing several revisions to 40 CFR part 63, subpart JJ regarding the standards that apply during periods of SSM. Specifically, we are proposing to revise Table 1 to Subpart JJ of Part 63—General Provisions Applicability to Subpart JJ to indicate that the requirements in 40 CFR 63.6(e)(1)(i) of the *General Provisions* do not apply. Section 63.6(e)(1)(i) requires owners or operators to act according to the general duty to "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." We are separately proposing to incorporate this general duty to minimize emissions into section 63.802(c). Section 40 CFR 63.6(e)(3) also requires the owner or operator of an affected source to develop a written SSM plan. We are proposing to remove the SSM plan requirement. We are also proposing to add SSM-associated reporting and recordkeeping requirements in 40 CFR 63.806 and 63.807 to require reporting and recordkeeping for periods of malfunction, add a requirement in 40 CFR 63.805 to require performance tests to be performed under normal operating conditions, and to revise Table 1 to Subpart JJ of Part 63—General Provisions Applicability to Subpart JJ to specify that 40 CFR 63.6(e)(1)(i) and (ii), 63.6(e)(3), 63.6(f)(1), 40 CFR 63.7(e)(1), 40 CFR 63.8(c)(1)(i) and (iii), and the last sentence of 63.8(d)(3), 40 CFR 63.10(b)(2)(i),(ii), (iv), and (v), 63.10(c)(10), (11), and (15), and 63.10(d)(5) of the *General Provisions* do not apply. In addition, as explained above, we are proposing to add an affirmative defense to civil penalties for exceedances of emission limits caused by malfunctions, as well as criteria for establishing the affirmative defense in section 63.800. EPA has attempted to ensure that we have not included in the proposed regulatory language any provisions that are inappropriate, unnecessary, or redundant in the absence of the SSM exemption. We are specifically seeking comment on whether there are any such provisions that we have inadvertently incorporated or overlooked.

VI. Proposed Action

A. What actions are we proposing as a result of the technology review?

For the Shipbuilding and Ship Repair (Surface Coating) source category, we have determined that there have been no developments in practices, processes, or control technologies since the promulgation of the MACT standards that are feasible for the facilities in these source categories to implement at this time, and we are proposing that it is not necessary to revise the existing MACT requirements based on our CAA section 112(d)(6) review.

For the Wood Furniture Manufacturing Operations source category, we are proposing to amend the rule to prohibit the use of conventional spray guns under the authority of CAA section 112(d)(6).

B. What actions are we proposing as a result of the residual risk review?

For the Shipbuilding and Ship Repair (Surface Coating) source category, we propose that the MACT standards provide an ample margin of safety to protect public health and prevent adverse environmental effects. Thus, we are proposing to re-adopt these

standards for the purpose of meeting the requirements of CAA section 112(f)(2).

For the Wood Furniture Manufacturing Operations source category, to provide an ample margin of safety to protect public health and prevent adverse environmental effects for the purpose of meeting the requirements of CAA section 112(f)(2), we propose to limit usage of formaldehyde in coatings and contact adhesives to 400 pounds per rolling 12 month period.

Existing sources would be required to comply with this proposed change by 2 years after the effective date.

C. What other actions are we proposing?

We propose to amend the Shipbuilding and Ship Repair (Surface Coating) and Wood Furniture Manufacturing Operations MACT standards to remove the language that exempts facilities from the emissions standards that would otherwise be applicable during periods of SSM, and to add an affirmative defense to civil penalties for exceedances of emission standards caused by malfunctions. These changes are being made to ensure these rules are consistent with the court's ruling in *Sierra Club* v. *EPA,* 551 F.3d 1019 (DC Cir. 2008).

We also propose to clarify the applicability language for Wood Furniture Manufacturing Operations to be consistent with surface coating rules issued after the promulgation of the Wood Furniture MACT standards in 1995. These include subparts MMMM, PPPP, QQQQ, and RRRR of part 63. Subparts MMMM, PPPP, QQQQ, and RRRR exempt surface coating operations that are subject to other subparts of Part 63, such as the Wood Furniture Operations MACT standards. (*See* 40 CFR §§ 63.3881(c)(6), 63.4481(c)(7), 63.4681(c)(2), 63.4881(c)(2)). Similarly, we propose to amend the Wood Furniture Operations MACT standards to acknowledge that surface coating operations that are subject to subparts MMMM, PPPP, QQQQ, or RRRR of Part 63 are not subject to the Wood Furniture Manufacturing Operations standards. Subparts MMMM, PPPP, and QQQQ also include provisions providing compliance options for facilities potentially subject to more than one subpart applicable to surface coating operations. (See 40 CFR §§ 63.3881(e), 63.4481(e), 63.4681(d)).

VII. Request for Comments

We are soliciting comments on all aspects of this proposed action. All comments received during the comment period will be considered. In addition to general comments on the proposed actions, we are also interested in any additional data that may help to reduce the uncertainties inherent in the risk assessments. We are specifically interested in receiving corrections to the datasets 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. Please see the following section for more information on submitting data. We are also interested in comments and information regarding add-on controls and any lower-HAP coatings available for use by these source categories and the types of coating activities for which they could be used. We are also seeking comments on the potential for lower HAP content in other products used in the Wood Furniture Production industry, including glues, resins and adhesives.

VIII. Submitting Data Corrections

The facility-specific data used in the source category risk analyses, facility-wide analyses, and demographic analyses for each source category subject to this action are available for download on the RTR Web Page at *http://www.epa.gov/ttn/atw/rrisk/rtrpg.html.* These data files include detailed information for each HAP emissions release point at each facility included in the source category and all other HAP emissions sources at these facilities (facility-wide emissions sources). However, it is important to note that the source category risk analysis included only those emissions tagged with the MACT code associated with the source category subject to the risk analysis.

If you believe 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 Web page, complete the following steps:

1. Within this downloaded file, enter suggested revisions to the data fields appropriate for that information. The data fields that may be revised include the following:

Data element	Definition
Control Measure	Are control measures in place? (yes or no).
Control Measure Comment	Select control measure from list provided, and briefly describe the control measure.
Delete	Indicate here if the facility or record should be deleted.
Delete Comment	Describes the reason for deletion.
Emission Calculation Method Code For Revised Emissions.	Code description of the method used to derive emissions. For example, CEM, material balance, stack test, etc.
Emission Process Group	Enter the general type of emission process associated with the specified emission point.
Fugitive Angle	Enter release angle (clockwise from true North); orientation of the y-dimension relative to true North, measured positive for clockwise starting at 0 degrees (maximum 89 degrees).
Fugitive Length	Enter dimension of the source in the east-west (x-) direction, commonly referred to as length (ft).
Fugitive Width	Enter dimension of the source in the north-south (y-) direction, commonly referred to as width (ft).
Malfunction Emissions	Enter total annual emissions due to malfunctions (TPY).
Malfunction Emissions Max Hourly	Enter maximum hourly malfunction emissions here (lb/hr).
North American Datum	Enter datum for latitude/longitude coordinates (NAD27 or NAD83); if left blank, NAD83 is assumed.
Process Comment	Enter general comments about process sources of emissions.
REVISED Address	Enter revised physical street address for MACT facility here.
REVISED City	Enter revised city name here.
REVISED County Name	Enter revised county name here.
REVISED Emission Release Point Type.	Enter revised Emission Release Point Type here.
REVISED End Date	Enter revised End Date here.
REVISED Exit Gas Flow Rate	Enter revised Exit Gas Flowrate here (ft^3/sec).
REVISED Exit Gas Temperature	Enter revised Exit Gas Temperature here (F).
REVISED Exit Gas Velocity	Enter revised Exit Gas Velocity here (ft/sec).
REVISED Facility Category Code	Enter revised Facility Category Code here, which indicates whether facility is a major or area source.

Data element	Definition
REVISED Facility Name	Enter revised Facility Name here.
REVISED Facility Registry Identifier	Enter revised Facility Registry Identifier here, which is an ID assigned by the EPA Facility Registry System.
REVISED HAP Emissions Performance Level Code.	Enter revised HAP Emissions Performance Level here.
REVISED Latitude	Enter revised Latitude here (decimal degrees).
REVISED Longitude	Enter revised Longitude here (decimal degrees).
REVISED MACT Code	Enter revised MACT Code here.
REVISED Pollutant Code	Enter revised Pollutant Code here.
REVISED Routine Emissions	Enter revised routine emissions value here (TPY).
REVISED SCC Code	Enter revised SCC Code here.
REVISED Stack Diameter	Enter revised Stack Diameter here (ft).
REVISED Stack Height	Enter revised Stack Height here (Ft).
REVISED Start Date	Enter revised Start Date here.
REVISED State	Enter revised State here.
REVISED Tribal Code	Enter revised Tribal Code here.
REVISED Zip Code	Enter revised Zip Code here.
Shutdown Emissions	Enter total annual emissions due to shutdown events (TPY).
Shutdown Emissions Max Hourly	Enter maximum hourly shutdown emissions here (lb/hr).
Stack Comment	Enter general comments about emission release points.
Startup Emissions	Enter total annual emissions due to startup events (TPY).
Startup Emissions Max Hourly	Enter maximum hourly startup emissions here (lb/hr).
Year Closed	Enter date facility stopped operations.

2. Fill in the commenter information fields for each suggested revision (*i.e.,* commenter name, commenter organization, commenter e-mail 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 Number EPA–HQ–OAR–2010–0786 (through one of the methods described in the **ADDRESSES** section of this preamble). To expedite review of the revisions, it would also be helpful if you submitted a copy of your revisions to the EPA directly at *RTR@epa.gov* in addition to submitting them to the docket.

5. If you are providing comments on a facility with multiple source categories, you need only submit one file for that facility, which should contain all suggested changes for all source categories at that facility. We request that all data revision comments be submitted in the form of updated Microsoft® Access files, which are provided on the *http://www.epa.gov/ttn/atw/rrisk/rtrpg.html* Web page.

IX. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735, October 4, 1993), this action is a significant regulatory action because it raises novel legal and policy issues. Accordingly, EPA submitted this action to OMB for review under Executive Order 12866 and any changes made in response to OMB recommendations have been documented in the docket for this action.

B. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to OMB under the *PRA,* 44 U.S.C. 3501, *et seq.* The ICR document prepared by EPA has been assigned EPA ICR number 1716.07.

The proposed revisions to the SSM provisions for the standards being amended with this proposed rule will reduce the reporting burden associated with having to prepare and submit a SSM report. However, we are proposing new paperwork requirements to the Wood Furniture Manufacturing Operations MACT standards. The proposed standards would require regulated entities to submit reports and keep records in accordance with Section V.B. We are not proposing any new paperwork requirements for the Shipbuilding and Ship Repair (Surface Coating) source category.

We estimate that there are approximately 406 regulated entities currently subject to the National Emission Standards for Wood Furniture Manufacturing Operations and that approximately 150 of those entities will be subject to the proposed rule involving the 12-month rolling average formaldehyde limit. New and existing regulated entities would have no capital costs associated with the information collection requirements in the proposed rule.

The estimated annual average recordkeeping and reporting burden after the effective date of the proposed rule is estimated to be 2,001 labor hours at a cost of approximately $200,000.00. This estimate includes the cost of reporting, including reading instructions, and information gathering. Recordkeeping cost estimates include reading instructions, planning activities, calculation of formaldehyde usage, and maintenance of 12-month rolling data. The average hours and cost per regulated entity would be 15 hours and $1,400.00. About 406 facilities would respond per year. Burden is defined at 5 CFR 1320.3(b).

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 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, EPA has established a public docket for this rule, which includes this ICR, under Docket ID number EPA–HQ–OAR–2010. Submit any comments related to the ICR to EPA and OMB. *See* **ADDRESSES** section at the beginning of this notice for where to submit comments to EPA. Send comments to OMB at the Office of Information and Regulatory Affairs, OMB, 725 17th Street, NW., Washington, DC 20503, Attention: Desk Office for EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after December 21, 2010, a comment to OMB is best assured of having its full effect if OMB receives it by January 20, 2011. The final rule will respond to any OMB or

public comments on the information collection requirements contained in this proposal.

C. Regulatory Flexibility Act

The RFA generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the APA or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions. For purposes of assessing the impacts of this proposed rule on small entities, small entity is defined as: (1) A small business that is a small industrial entity as defined by the SBA's regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of this proposed rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. The costs associated with the proposed requirements in this proposed rule (*i.e.,* the formaldehyde emissions limit and conventional spray gun prohibition) are negligible as discussed above.

We continue to be interested in the potential impacts of the proposed rule on small entities and welcome comments on issues related to such impacts.

D. Unfunded Mandates Reform Act

This proposed rule does not contain a federal mandate that may result in expenditures of $100 million or more for state, local, and tribal governments, in the aggregate, or to the private sector in any one year. This proposed rule does mandate a lowering of formaldehyde usage and a ban on the use of conventional spray guns but the nationwide annualized cost of these mandates are estimated to be approximately $200,000 for affected sources. Thus, this proposed rule is not subject to the requirements of sections 202 or 205 of UMRA.

This proposed rule is also not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments because it contains no requirements that apply to such governments nor does it impose obligations upon them.

E. Executive Order 13132: Federalism

This proposed rule 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, as specified in Executive Order 13132. The burden to the respondents and the states is less than $500,000 for the entire source category. Thus, Executive Order 13132 does not apply to this proposed rule.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and state and local governments, EPA specifically solicits comment on this proposed rule from state and local officials.

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

Subject to the Executive Order 13175 (65 FR 67249, November 9, 2000) EPA may not issue a regulation that has tribal implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the federal government provides the funds necessary to pay the direct compliance costs incurred by tribal governments, or EPA consults with tribal officials early in the process of developing the proposed regulation and develops a tribal summary impact statement. EPA has concluded that this proposed rule will not have tribal implications, as specified in Executive Order 13175. It will not have substantial direct effect on tribal governments, on the relationship between the federal government and Indian tribes, or on the distribution of power and responsibilities between the federal government and Indian tribes, as specified in Executive Order 13175. Thus, Executive Order 13175 does not apply to this action.

EPA specifically solicits additional comment on this proposed action from tribal officials.

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

This proposed rule is not subject to Executive Order 13045 (62 FR 19885, April 23, 1997) 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 would not relax the control measures on existing regulated sources. EPA's risk assessments (included in the docket for this proposed rule) demonstrate that the existing regulations are associated with an acceptable level of risk and that the proposed additional requirements for the Wood Furniture Manufacturing Operations source category will provide an ample margin of safety to protect public health.

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

This action is not a "significant energy action" as defined under Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use" (66 FR 28355, May 22, 2001), because it is not likely to have significant adverse effect on the supply, distribution, or use of energy. This action will not create any new requirements for sources in the energy supply, distribution, or use sectors.

I. National Technology Transfer and Advancement Act

Section 12(d) of the NTTAA of 1995, Public Law 104–113, 12(d) (15 U.S.C. 272 note) directs EPA to use VCS in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.,* materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by VCS bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the EPA decides not to use available and applicable VCS.

This proposed rulemaking does not involve technical standards. Therefore, EPA is not considering the use of any VCS.

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

Executive Order 12898 (59 FR 7629, February 16, 1994) establishes federal executive policy on EJ. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make EJ part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

To examine the potential for any EJ issues that might be associated with each 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 these source categories are located. The methods used to conduct demographic analyses for this rule are described in section IV.A of the preamble for this rule. The development of demographic analyses to inform the consideration of EJ issues in EPA rulemakings is an evolving science. The EPA offers the demographic analyses in this proposed rulemaking as examples of how such analyses might be developed to inform such consideration, and invites public comment on the approaches used and the interpretations made from the results, with the hope that this will support the refinement and improve utility of such analyses for future rulemakings.

For the demographic analyses, we focused on the populations within 50 km of any facility estimated to have exposures to HAP which result in cancer risks of 1-in-1 million or greater, or non-cancer HI of 1 or greater (based on the emissions of the source category or the facility, respectively). We examined the distributions of those risks across various demographic groups, comparing the percentages of particular demographic groups to the total number of people in those demographic groups nationwide. The results, including other risk metrics, such as average risks for the exposed populations, are documented in source category-specific technical reports in the docket for both source categories covered in this proposal.

As described in the preamble, for the Shipbuilding and Ship Repair (Surface Coating) and Wood Furniture Manufacturing Operations MACT standard source categories, our risk assessments demonstrate that the regulations are associated with an acceptable level of risk and that the proposed additional requirements for the Wood Furniture Manufacturing Operations source category will provide an ample margin of safety to protect public health.

Our analyses also show that, for these source categories, there is no potential for an adverse environmental effect or human health multi-pathway effects, and that acute and chronic non-cancer health impacts are unlikely. EPA has determined that although there may be an existing disparity in HAP risks from these sources between some demographic groups, no demographic group is exposed to an unacceptable level of risk.

List of Subjects in 40 CFR Part 63

Environmental protection, Air pollution control, Reporting and recordkeeping requirements, Volatile organic compounds.

Dated: December 3, 2010.

Lisa P. Jackson,

Administrator.

For the reasons stated in the preamble, the Environmental Protection Agency proposes to amend title 40, chapter I of the Code of Federal Regulations as follows:

PART 63—[AMENDED]

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

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

Subpart II—[AMENDED]

2. Section 63.781 is amended by revising paragraph (d) to read as follows:

§ 63.781 Applicability.

* * * * *

(d) If you are authorized in accordance with 40 CFR 63.783(c) to use an add-on control system as an alternative means of limiting emissions from coating operations, in response to an action to enforce the standards set forth in this subpart, you may assert an affirmative defense to a claim for civil penalties for exceedances of such standards that are caused by malfunction, as defined in 40 CFR 63.2. Appropriate penalties may be assessed, however, if the respondent fails to meet its burden of proving all the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunctive relief.

(1) To establish the affirmative defense in any action to enforce such a limit, the owners or operators of facilities must timely meet the notification requirements in paragraph (d)(2) of this section, and must prove by a preponderance of evidence that:

(i) The excess emissions:

(A) Were caused by a sudden, short, infrequent, and unavoidable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner; and

(B) Could not have been prevented through careful planning, proper design or better operation and maintenance practices; and

(C) Did not stem from any activity or event that could have been foreseen and avoided, or planned for; and

(D) Were not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(ii) Repairs were made as expeditiously as possible when the applicable emission limitations were being exceeded. Off-shift and overtime labor were used, to the extent practicable to make these repairs; and

(iii) The frequency, amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent practicable during periods of such emissions; and

(iv) If the excess emissions resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life, severe personal injury, or severe property damage; and

(v) All possible steps were taken to minimize the impact of the excess emissions on ambient air quality, the environment, and human health; and

(vi) All emissions monitoring and control systems were kept in operation if at all possible; and

(vii) All of the actions in response to the excess emissions were documented by properly signed, contemporaneous operating logs; and

(viii) At all times, the facility was operated in a manner consistent with good practices for minimizing emissions; and

(ix) A written root cause analysis has been prepared to determine, correct and eliminate the primary causes of the malfunction and the excess emissions resulting from the malfunction event at issue. The analysis shall also specify, using best monitoring methods and engineering judgment, the amount of excess emissions that were the result of the malfunction.

(2) Notification. The owner or operator of the facility experiencing an exceedance of its emission limit(s) during a malfunction shall notify the Administrator by telephone or facsimile transmission as soon as possible, but no later than two business days after the initial occurrence of the malfunction, if it wishes to avail itself of an affirmative defense to civil penalties for that malfunction. The owner or operator seeking to assert an affirmative defense shall also submit a written report to the Administrator within 30 days of the initial occurrence of the exceedance of the standard in this subpart to demonstrate, with all necessary supporting documentation, that it has met the requirements set forth in paragraph (d)(1) of this section.

3. Section 63.782 is amended by adding a definition for "affirmative defense" to read as follows:

§ 63.782 Definitions.

* * * * *

Affirmative defense means, in the context of an enforcement proceeding, a response or a defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding.

* * * * *

4. Section 63.783 is amended by redesignating paragraphs (b)(1) and (b)(2) as (b)(2) and (b)(3) and adding a new paragraph (b)(1) to read as follows:

§ 63.783 Standards.

* * * * *

(b) * * *

(1) 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. Determination of whether such operation and maintenance procedures are being used 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 63.785 is amended by adding paragraph (e) to read as follows:

§ 63.785 Compliance procedures.

* * * * *

(e) Continuous compliance requirements. You must demonstrate continuous compliance with the emissions standards and operating limits by using the performance test methods and procedures in § 63.786 for each affected source.

(1) *General requirements.* (i) You must monitor and collect data, and provide a site specific monitoring plan, as required by §§ 63.783, 63.785, 63.786 and 63.787.

(ii) Except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments), you must operate the monitoring system and collect data at all required intervals at all times the affected source is operating, and periods of malfunction. Any period for which data collection is required and the operation of the CEMS is not otherwise exempt and for which the monitoring system is out-of-control and data are not available for required calculations constitutes a deviation from the monitoring requirements.

(iii) You may not use data recorded during monitoring system malfunctions, repairs associated with monitoring system malfunctions, or required monitoring system quality assurance or control activities in calculations used to report emissions or operating levels. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. The owner or operator must use all the data collected during all other periods in assessing the operation of the control device and associated control system.

(2) [Reserved]

6. Section 63.786 is amended by adding paragraph (e) to read as follows:

§ 63.786 Test methods and procedures.

* * * * *

(e) For add-on control systems approved for use in limiting emissions from coating operations pursuant to § 63.783(c), 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. 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.

7. Section 63.788 is amended by adding paragraph (b)(5) and revising paragraph (c) to read as follows:

§ 63.788 Recordkeeping and reporting requirements.

* * * * *

(b) * * *

(5) Each owner or operator that receives approval pursuant to § 63.783(c) to use an add-on control system to control coating emissions shall maintain records of the occurrence and duration of each malfunction of operation (*i.e.,* process equipment) or the required air pollution control and monitoring equipment. Each owner or operator shall maintain records of actions taken during periods of malfunction to minimize emissions in accordance with § 63.783(b)(1), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

(c) *Reporting requirements.* Before the 60th day following completion of each 6-month period after the compliance date specified in § 63.784, each owner or operator of an affected source shall submit a report to the Administrator for each of the previous six months. The report shall include all of the information that must be retained pursuant to paragraphs (b)(2) through (3) of this section, except for that information specified in paragraphs (b)(2)(i) through (ii), (b)(2)(v), (b)(3)(i)(A), (b)(3)(ii)(A), and (b)(3)(iii)(A). If a violation at an affected source is detected, the owner or operator of the affected source shall also report the information specified in paragraph (b)(4) of this section for the reporting period during which the violation(s) occurred. To the extent possible, the report shall be organized according to the compliance procedure(s) followed each month by the affected source. If there was a malfunction during the reporting period, the report must also include the number, duration, and a brief description of each malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with § 63.783(b)(1), including actions taken to correct a malfunction.

8. Table 1 to subpart II of part 63 is amended:

a. By removing entry 63.6(e)–(f);

b. By adding entries 63.6(e)(1)(i), 63.6(e)(1)(ii), 63.6(e)(1)(iii); 63.6(e)(2), 63.6(e)(3), 63.6(f)(1), and 63.6(f)(2)–(f)(3);

c. By removing entry 63.7;

d. By adding entries 63.7(a)–(d), 63.7(e)(1), and 63.7(e)(2)–(e)(4);

e. By revising entry 63.8;

f. By removing entry 63.10(a)–(b);

g. By adding entries 63.10(a), 63.10(b)(1), 63.10(b)(2)(i), 63.10(b)(2)(ii), 63.10(b)(2)(iii), 63.10(b)(2)(iv)–(b)(2)(v), 63.10(b)(2)(vi)–(b)(2)(xiv), and 63.10(b)(3);

h. By removing entries 63.10(c);

i. By adding entries 63.10(c)(1)–(9), 63.10(c)(10)–(11), 63.10(c)(12)–(14), and 63.10(c)(15);

j. By removing entry 63.10(d); and

k. By adding entries 63.10(d)(1)–(4) and 63.10(d)(5).

The revisions read as follows:

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

Reference	Applies to subpart II	Comment
* * * *	* * *	
63.6(e)(1)(i)	No	*See* § 63.783(b)(1) for general duty requirement.
63.6(e)(1)(ii)	No	
63.6(e)(1)(iii)	Yes	
63.6(e)(2)	No	Section reserved.
63.6(e)(3)	No	
63.6(f)(1)	No	
63.6(f)(2)–(f)(3)	No	If an alternative means of limiting emissions (*e.g.,* an add-on control system) is used to comply with subpart II in accordance with § 63.783(c), then this section does apply.
* * * *	* * *	
63.7(a)–(d)	No	If an alternative means of limiting emissions (*e.g.,* an add-on control system) is used to comply with subpart II in accordance with § 63.783(c), then these sections do apply.
63.7(e)(1)	No	If an alternative means of limiting emissions (*e.g.,* an add-on control system) is used to comply with subpart II in accordance with § 63.783(c), then see § 63.786(e).
63.7(e)(2)–(e)(4)	No	If an alternative means of limiting emissions (*e.g.,* an add-on control system) is used to comply with subpart II in accordance with § 63.783(c), then these sections do apply.
* * * *	* * *	
63.8	No	If an alternative means of limiting emissions (*e.g.,* an add-on control system) is used to comply with subpart II in accordance with § 63.783(c), then this section does apply, with the exception of § 63.8(c)(1)(i), § 63.8(c)(1)(iii), and the last sentence of § 63.8(d)(3).
* * * *	* * *	
63.10(a)	Yes	
63.10(b)(1)	Yes	
63.10(b)(2)(i)	No	
63.10(b)(2)(ii)	No	*See* § 63.788(b)(5) for recordkeeping of occurrence, duration, and actions taken during malfunctions.
63.10(b)(2)(iii)	Yes	
63.10(b)(2)(iv)–(b)(2)(v)	No	
63.10(b)(2)(vi)–(b)(2)(xiv)	Yes	
63.10(b)(3)	Yes	
63.10(c)(1)–(9)	No	If an alternative means of limiting emissions (*e.g.,* an add-on control system) is used to comply with subpart II in accordance with § 63.783(c), then these sections do apply.
63.10(c)(10)–(11)	No	If an alternative means of limiting emissions (*e.g.,* an add-on control system) is used to comply with subpart II in accordance with § 63.783(c), then see § 63.788(b)(5) for records of malfunctions.
63.10(c)(12)–(14)	No	If an alternative means of limiting emissions (*e.g.,* an add-on control system) is used to comply with subpart II in accordance with § 63.783(c), then these sections do apply.
63.10(c)(15)	No	
63.10(d)(1)–(4)	Yes	
63.10(d)(5)	No	*See* § 63.788(c) for reporting malfunctions.
* * * *	* * *	

9. Table 3 to subpart II of part 63 is amended by revising entry "Determination of whether containers meet the standards described in § 63.783(b)(2)" to read as follows:

TABLE 3 TO SUBPART II OF PART 63—SUMMARY OF RECORDKEEPING AND REPORTING REQUIREMENTS [a] [b] [c]

Requirement	All Opts.		Option 1		Option 2		Option 3	
	Rec	Rep	Rec	Rep	Rec	Rep	Rec	Rep
* * * * *				*			*	
Determination of whether containers meet the standards described in § 63.783(b)(3)	X	X						
* * * * *				*			*	

[a] Affected sources that comply with the cold-weather limits must record and report additional information, as specified in § 63.788(b)(3)(ii)(C), (iii)(C), and (iv)(D).

[b] Affected sources that detect a violation must record and report additional information, as specified in § 63.788(b)(4).

[c] OPTION 4: the recordkeeping and reporting requirements of Option 4 are identical to those of Options 1, 2, or 3, depending on whether and how thinners are used. However, when using Option 4, the term "VOHAP" shall be used in lieu of the term "VOC," and the owner or operator shall record and report the Administrator-approved VOHAP test method or certification procedure.

* * * * *

Subpart JJ—[AMENDED]

10. Section 63.800 is amended:

a. By redesignating paragraphs (f) and (g) as paragraphs (h) and (i);

b. By redesignating paragraphs (d) and (e) as paragraphs (e) and (f);

c. By adding new paragraphs (d) and (g); and

d. By adding paragraph (j) to read as follows:

§ 63.800 Applicability.

* * * * *

(d) This subpart does not apply to any surface coating or coating operation that meets any of the criteria of paragraphs (d)(1) through (4) of this section.

(1) Surface coating of metal parts and products other than metal components of wood furniture that meets the applicability criteria for miscellaneous metal parts and products surface coating (subpart MMMM of this part).

(2) Surface coating of plastic parts and products other than plastic components of wood furniture that meets the applicability criteria for plastic parts and products surface coating (subpart PPPP of this part).

(3) Surface coating of wood building products that meets the applicability criteria for wood building products surface coating (subpart QQQQ of this part). The surface coating of millwork and trim associated with cabinet manufacturing are subject to subpart JJ.

(4) Surface coating of metal furniture that meets the applicability criteria for metal furniture surface coating (subpart RRRR of this part). Surface coating of metal components of wood furniture performed at a wood furniture or wood furniture component manufacturing facility are subject to subpart JJ.

* * * * *

(g) Existing affected sources shall be in compliance with § 63.802(a)(4) no later than [DATE 2 YEARS FROM DATE OF PUBLICATION OF THE FINAL RULE IN THE *FEDERAL REGISTER*] and § 63.803(h) no later than [DATE three YEARS FROM DATE OF PUBLICATION OF THE FINAL RULE IN THE *FEDERAL REGISTER*]. The owner or operator of an existing area source that increases its emissions of (or its potential to emit) HAP such that the source becomes a major source that is subject to this subpart shall comply with this subpart one year after becoming a major source.

* * * * *

(j) If the owner or operator, in accordance with 40 CFR 63.804, uses a control system as a means of limiting emissions, in response to an action to enforce the standards set forth in this subpart, you may assert an affirmative defense to a claim for civil penalties for exceedances of such standards that are caused by malfunction, as defined in 40 CFR 63.2. Appropriate penalties may be assessed, however, if the respondent fails to meet its burden of proving all the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunctive relief.

(1) To establish the affirmative defense in any action to enforce such a limit, the owner or operator of facilities must timely meet the notification requirements in paragraph (j)(2) of this section, and must prove by a preponderance of evidence that:

(i) The excess emissions:

(A) Were caused by a sudden, short, infrequent, and unavoidable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner; and

(B) Could not have been prevented through careful planning, proper design or better operation and maintenance practices; and

(C) Did not stem from any activity or event that could have been foreseen and avoided, or planned for; and

(D) Were not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(ii) Repairs were made as expeditiously as possible when the applicable emission limitations were being exceeded. Off-shift and overtime labor were used, to the extent practicable to make these repairs; and

(iii) The frequency, amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent practicable during periods of such emissions; and

(iv) If the excess emissions resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life, severe personal injury, or severe property damage; and

(v) All possible steps were taken to minimize the impact of the excess emissions on ambient air quality, the environment, and human health; and

(vi) All emissions monitoring and control systems were kept in operation if at all possible; and

(vii) All of the actions in response to the excess emissions were documented by properly signed, contemporaneous operating logs; and

(viii) At all times, the facility was operated in a manner consistent with good practices for minimizing emissions; and

(ix) A written root cause analysis has been prepared to determine, correct and eliminate the primary causes of the malfunction and the excess emissions resulting from the malfunction event at issue. The analysis shall also specify, using best monitoring methods and engineering judgment, the amount of excess emissions that were the result of the malfunction.

(2) *Notification.* The owner or operator of the facility experiencing an exceedance of its emission limit(s) during a malfunction shall notify the Administrator by telephone or facsimile transmission as soon as possible, but no later than two business days after the

initial occurrence of the malfunction, if it wishes to avail itself of an affirmative defense to civil penalties for that malfunction. The owner or operator seeking to assert an affirmative defense shall also submit a written report to the Administrator within 30 days of the initial occurrence of the exceedance of the standard in this subpart to demonstrate, with all necessary supporting documentation, that it has met the requirements set forth in paragraph (h)(1) of this section.

11. Section 63.801 is amended by:

a. Adding a definition for "affirmative defense" and revising the definition for "wood furniture" in paragraph (a); and

b. Adding (b)(24) through (b)(28).

The additions and revisions read as follows:

§ 63.801 Definitions.

(a) * * *

Affirmative defense means, in the context of an enforcement proceeding, a response or a defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding.

* * * * *

Wood furniture means any product made of wood, a wood product such as rattan or wicker, or an engineered wood product such as particleboard that is manufactured at any facility that is engaged, either in part or in whole, in the manufacture of wood furniture or wood furniture components, including, but not limited to, facilities under any of the following standard industrial classification codes: 2434, 2511, 2512, 2517, 2519, 2521, 2531, 2541, 2599, or 5712.

* * * * *

(b) * * *

(24) C_f =the formaldehyde content of a finishing material (c), in pounds of formaldehyde per gallon of coating (lb/gal).

(25) F_{total}= total formaldehyde emissions in each rolling 12-month period.

(26) G_f =the formaldehyde content of a contact adhesive (g), in pounds of formaldehyde per gallon of contact adhesive (lb/gal).

(27) V_c=the volume of formaldehyde-containing finishing material (c), in gal.

(28) V_g=the volume of formaldehyde-containing contact adhesive (g), in gal.

12. Section 63.802 is amended by adding paragraphs (a)(4), (b)(4), and (c) to read as follows:

§ 63.802 Emission limits.

(a) * * *

(4) Limit total formaldehyde (F_{total}) emissions from finishing operations and contact adhesives to no more than 400 lb per rolling 12-month period.

(b) * * *

(4) Limit total formaldehyde (F_{total}) emissions from finishing operations and contact adhesives to no more than 400 lb per rolling 12-month period.

(c) 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. Determination of whether such operation and maintenance procedures are being used 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.

13. Section 63.803 is amended by revising paragraph (h) to read as follows:

§ 63.803 Work practice standards.

* * * * *

(h) Application equipment requirements. Each owner or operator of an affected source shall not use conventional air spray guns.

* * * * *

14. Section 63.804 is amended by adding paragraphs (g)(9) and (h) to read as follows:

§ 63.804 Compliance procedures and monitoring requirements.

* * * * *

(g) * * *

(9) Continuous compliance requirements. You must demonstrate continuous compliance with the emissions standards and operating limits by using the performance test methods and procedures in § 63.805 for each affected source.

(i) *General requirements.* (A) You must monitor and collect data, and provide a site specific monitoring plan as required by §§ 63.804, 63.806 and 63.807.

(B) Except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments), you must operate the monitoring system and collect data at all required intervals at all times the affected source is operating and periods of malfunction. Any period for which data collection is required and the operation of the CEMS is not otherwise exempt and for which the monitoring system is out-of-control and data are not available for required calculations constitutes a deviation from the monitoring requirements.

(C) You may not use data recorded during monitoring system malfunctions, repairs associated with monitoring system malfunctions, or required monitoring system quality assurance or control activities in calculations used to report emissions or operating levels. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. The owner or operator must use all the data collected during all other periods in assessing the operation of the control device and associated control system.

(ii) [Reserved]

(h) The owner or operator of an existing or new affected source subject to § 63.802(a)(4) or (b)(4) shall comply with those provisions by using either of the methods presented in § 63.804(h)(1) and (2).

(1) Calculate total formaldehyde emissions from all finishing materials and contact adhesives used at the facility using Equation 5 and maintain a value of F_{total} no more than 400 lb per rolling 12-month period.

$$F_{total}=(C_{f1}V_{c1} + C_{f2}V_{c2} + * * * + C_{fn}V_{cn} + G_{f1}V_{g1} + G_{f2}V_{g2} + * * * + G_{fn}V_{gn}) \quad \text{Equation 5}$$

(2) Use a control system with an overall control efficiency (R) such that the calculated value of F_{total} in Equation 6 is no more than 400 lb per rolling 12-month period.

$$F_{total}=(C_{f1}V_{c1} + C_{f2}V_{c2} + * * * + C_{fn}V_{cn} + G_{fi}V_{g1} + G_{f2}V_{g2} + * * * + G_{fn}V_{gn})*(1-R) \quad \text{Equation 6}$$

15. Section 63.805 is amended by adding paragraph (a)(1) to read as follows:

§ 63.805 Performance test methods.

(a)(1) * * *

(2) 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. 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.

* * * * *

16. Section 63.806 is amended by removing and reserving paragraph (e)(4)

and adding paragraphs (b)(4) and (k) to read as follows:

§ 63.806 Recordkeeping requirements.

* * * * *

(b) * * *

(4) The formaldehyde content, in lb/gal, as applied, of each finishing material and contact adhesive subject to the emission limits in § 63.802.

* * * * *

(k) The owner or operator of an affected source subject to this subpart shall maintain records of the occurrence and duration of each malfunction of operation (*i.e.,* process equipment) or the air pollution control equipment and monitoring equipment. The owner or operator shall maintain records of actions taken during periods of malfunction to minimize emissions in accordance with § 63.802(c), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

17. Section 63.807 is amended by revising paragraphs (c) introductory text and (c)(3) and the first sentence in paragraph (d) to read as follows:

§ 63.807 Reporting requirements.

* * * * *

(c) The owner or operator of an affected source demonstrating compliance in accordance with § 63.804(g)(1), (2), (3), (5), (7), (8), and (h)(1) shall submit a report covering the previous six months of wood furniture manufacturing operations.

* * * * *

(3) The semiannual reports shall include the information required by § 63.804(g) (1), (2), (3), (5), (7), (8), and (h)(1), a statement of whether the affected source was in compliance or noncompliance, and, if the affected source was in noncompliance, the measures taken to bring the affected source into compliance. If there was a malfunction during the reporting period, the report shall also include the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with § 63.802(c), including actions taken to correct a malfunction.

* * * * *

(d) The owner or operator of an affected source demonstrating compliance in accordance with § 63.804(g)(4), (6), and (h)(2) of this subpart shall submit the excess emissions and continuous monitoring system performance report and summary report required by § 63.10(e) of subpart A. * * *

* * * * *

Subpart JJ [Amended]

18. Table 1 to Subpart JJ of part 63 is amended:

a. By removing entry 63.6(e)(1);

b. By adding entries 63.6(e)(1)(i), 63.6(e)(1)(ii), 63.6(e)(1)(iii);

c. By revising entries 63.6(e)(2) and (3);

d. By removing entries 63.7 and 63.8;

e. By adding entries 63.7(a)–(d), 63.7(e)(1), 63.7(e)(2)–(e)(4), 63.8(a)–(b), 63.8(c)(1)(i), 63.8(c)(1)(ii), 63.8(c)(1)(iii), 63.8(c)(2)–(d)(2), 63.8(d)(3), and 63.8(e)–(f);

f. By removing entry 63.10(b)(2);

g. By adding entries 63.10(b)(2)(i), 63.10(b)(2)(ii), 63.10(b)(2)(iii), 63.10(b)(2)(iv)–(b)(2)(v), 63.10(b)(2)(vi)–(b)(2)(xiv);

h. By removing entry 63.10(c);

i. By adding entries 63.10(c)(1)–(9), 63.10(c)(10)–(11), 63.10(c)(12)–(c)(14), and 63.10(c)(15); and

j. By revising entry 63.10(d)(5).

The revisions read as follows:

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

Reference	Applies to subpart JJ	Comment
* * * * * * *		
63.6(e)(1)(i)	No	*See* 63.802(c) for general duty requirement.
63.6(e)(1)(ii)	No	
63.6(e)(1)(iii)	Yes	
63.6(e)(2)	No	Section reserved.
63.6(e)(3)	No	
63.6(f)(1)	No	
§ 63.7(a)–(d)	Yes	Applies only to affected sources using a control device to comply with the rule.
§ 63.7(e)(1)	No	*See* 63.805(a)(1).
§ 63.7(e)(2)–(e)(4)	Yes	Applies only to affected sources using a control device to comply with the rule.
63.8(a)–(b)	Yes	Applies only to affected sources using a control device to comply with the rule.
63.8(c)(1)(i)	No	
63.8(c)(1)(ii)	Yes	Applies only to affected sources using a control device to comply with the rule.
63.8(c)(1)(iii)	No	
63.8(c)(2)–(d)(2)	Yes	Applies only to affected sources using a control device to comply with the rule.
63.8(d)(3)	Yes, except for last sentence.	Applies only to affected sources using a control device to comply with the rule.
63.8(e)–(g)	Yes	Applies only to affected sources using a control device to comply with the rule.
* * * * * * *		
63.10(b)(2)(i)	No	

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

Reference	Applies to subpart JJ	Comment
63.10(b)(2)(ii)	No	*See* 63.806(k) for recordkeeping of occurrence and duration of malfunctions and recordkeeping of actions taken during malfunction.
63.10(b)(2)(iii)	Yes	Applies only to affected sources using a control device to comply with the rule.
63.10(b)(2)(iv)–(b)(2)(v)	No	
63.10(b)(2)(vi)–(b)(2)(xiv)	Yes	Applies only to affected sources using a control device to comply with the rule.
* * * *	*	* * *
63.10(c)(1)–(9)	Yes	
63.10(c)(10)–(11)	No	*See* 63.806(k) for recordkeeping of malfunctions.
63.10(c)(12)–(c)(14)	Yes	
63.10(c)(15)	No	
* * * *	*	* * *
63.10(d)(5)	No	*See* 63.807(c)(3) for reporting of malfunctions.
* * * *	*	* * *

19. Table 3 to Subpart JJ of part 63 is amended by adding entry (e) under "Finishing Operations" to read as follows:

TABLE 3 TO SUBPART JJ OF PART 63—SUMMARY OF EMISSION LIMITS

Emission point	Existing source	New source
* * * * * *		*
(e) Achieve total free formaldehyde emissions across all finishing operations and contact adhesives, lb per rolling 12-month period, as applied	400	400
* * * * * *		*

Table 5 to Subpart JJ of Part 63 [Amended]

20. Table 5 to Subpart JJ of part 63 is amended by removing the entry for "Formaldehyde."

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