**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 63**

**[EPA–HQ–OAR–2010–0600; FRL–9203–7]**

**RIN 2060–AO91**

# National Emission Standards for Hazardous Air Pollutant Emissions: Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks; Group I Polymers and Resins; Marine Tank Vessel Loading Operations; Pharmaceuticals Production; The Printing and Publishing Industry; and Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule; and supplemental notice of proposed rulemaking.

**SUMMARY:** This action proposes how EPA will address the residual risk and technology reviews conducted for two national emission standards for hazardous air pollutants (NESHAP), and this action is a supplemental notice of proposed rulemaking for an October 2008 action that proposed how EPA would address the residual risk and technology reviews for four NESHAP. The six NESHAP include 16 source categories, 12 of which are the subject of residual risk and technology reviews in this package. This action proposes to modify the existing emissions standards for eight source categories in three of the six NESHAP to address certain emission sources not currently regulated under these standards. It also proposes for all six NESHAP to address provisions related to emissions during periods of startup, shutdown, and malfunction. Finally, this action proposes changes to two of the six NESHAP to correct editorial errors, make clarifications, or address issues with implementation or determining compliance.

**DATES:** *Comments.* Comments must be received on or before December 6, 2010. 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 (OMB) receives a copy of your comments on or before November 22, 2010.

*Public Hearing.* We will hold a public hearing on November 5, 2010. Persons requesting to speak at the public hearing must contact EPA by November 1, 2010.

**ADDRESSES:** *Comments.* Submit your comments, identified by Docket ID No. EPA–HQ–OAR–2010–0600, 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 No. EPA–HQ–OAR–2010–0600.
- *Fax:* (202) 566–9744. Attention Docket ID No. EPA–HQ–OAR–2010–0600.
- *Mail:* U.S. Postal Service, send comments to: EPA Docket Center, EPA West (Air Docket), Attention Docket ID No. EPA–HQ–OAR–2010–0600, 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 (OMB), 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 No. EPA–HQ–OAR–2010–0600. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

*Instructions.* Direct your comments to Docket ID No. EPA–HQ–OAR–2010–0600. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *http://www.regulations.gov,* including any personal information provided, unless the comment includes information claimed to be confidential business information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through *http://www.regulations.gov* or 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 No. EPA–HQ–OAR–2010–0600. All documents in the docket are listed in the *http://www.regulations.gov* index. Although listed in the index, some information is not publicly available, *e.g.,* CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy. Publicly available docket materials are available either electronically in *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.* We will hold a public hearing concerning this proposed rule on November 5, 2010, from 9 a.m. to 7 p.m. Persons interested in presenting oral testimony at the hearing should contact Ms. Mary Tom Kissell, Sector Policies and Programs Division (E143–01), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, telephone number, (919) 541–4516, by November 1, 2010. The public hearing will be held at the U.S. Environmental Protection Agency—Research Triangle Park Campus, 109 T.W. Alexander Drive, Research Triangle Park, NC 27709. If no one requests to speak at the public hearing by November 1, 2010, then the public hearing will be cancelled and a notification of cancellation posted on the following Web site: *http://www.epa.gov/ttn/oarpg/t3main.html.*

**FOR FURTHER INFORMATION CONTACT:** For questions about this proposed action, contact Ms. Mary Tom Kissell, Sector Policies and Programs Division (E143–01), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, telephone (919) 541–

4516; fax number: (919) 541–0246; and e-mail address: *kissell.mary@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, NC 27711; telephone number: (919) 541–5499; fax number: (919) 541–0840; and e-mail address: *manning.elaine@epa.gov.* For information about the applicability of these six NESHAP to a particular entity, contact the appropriate person listed in Table 1 to this preamble.

**SUPPLEMENTARY INFORMATION:**

TABLE 1—LIST OF EPA CONTACTS FOR THE NESHAP ADDRESSED IN THIS PROPOSED ACTION

| NESHAP for: | OECA contact [1] | OAQPS contact [2] |
|---|---|---|
| Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks. | Scott Throwe, (202) 564–7013, *throwe.scott@epa.gov*. | Phil Mulrine, (919) 541–5289, *mulrine.phil@epa.gov*. |
| Group I Polymers and Resins Production | Scott Throwe, (202) 564–7013, *throwe.scott@epa.gov*. | Randy McDonald, (919) 541–5402, *mcdonald.randy@epa.gov*. |
| Marine Vessel Loading Operations | Maria Malave, (202) 564–7027, *malave.maria@epa.gov*. | Steve Shedd, (919) 541–5397, *shedd.steve@epa.gov*. |
| Pharmaceuticals Production | Marcia Mia, (202) 564–7042, *mia.marcia@epa.gov*. | Randy McDonald, (919) 541–5402, *mcdonald.randy@epa.gov*. |
| Printing and Publishing Industry | Len Lazarus, (202) 564–6369, *lazarus.leonard@epa.gov*. | David Salman, (919) 541–0859, *salman.dave@epa.gov*. |
| Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants. | Maria Malave, (202) 564–7027, *malave.maria@epa.gov*. | Phil Mulrine, (919) 541–5289, *mulrine.phil@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.

## 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:

AERMOD—The air dispersion model used by the HEM–3 model
AEGL—Acute Exposure Guideline Levels
ANPRM—Advance Notice of Proposed Rulemaking
ASTM—An international standards organization that develops and publishes voluntary consensus technical standards
ATCM—Airborne Toxics Control Measure
ATSDR—Agency for Toxic Substances and Disease Registry
BACT—Best Available Control Technology
bbl/yr—Barrels per Year
BID—Background Information Document
CalEPA—California Environmental Protection Agency
CARB—California Air Resources Board
CAA—Clean Air Act
CBI—Confidential Business Information
CEEL—Community Emergency Exposure Levels
CIIT—Chemical Industry Institute of Toxicology
CFR—Code of Federal Regulations
CMP—Composite Mesh Pad
CO—Carbon Monoxide
$CO_2$—Carbon Dioxide
D/F—Dioxin/Furan
EED—Emission Elimination Device
EPA—Environmental Protection Agency
EPS—Eco Pickled Surface
ERPG—Emergency Response Planning Guidelines
HAP—Hazardous Air Pollutants
HCl—Hydrochloric Acid
HI—Hazard Index
HEM–3—Human Exposure Model version 3
HEPA—High Efficiency Particulate Air
HON—Hazardous Organic National Emissions Standards for Hazardous Air Pollutants
HQ—Hazard Quotient
ICR—Information Collection Request
IRIS—Integrated Risk Information System
Km—Kilometer
LAER—Lowest Achievable Emission Rate
MACT—Maximum Achievable Control Technology
MACT Code—A code within the NEI used to identify processes included in a source category
mg/dscm—Milligrams per Dry Standard Cubic Meter
MIR—Maximum Individual Risk
MTVLO—Marine Tank Vessel Loading Operations
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
$NO_X$—Nitrogen Oxide
NRC—National Research Council
NSR—New Source Review
NTTAA—National Technology Transfer and Advancement Act
OECA—Office of Enforcement and Compliance Assurance
OLD—Organic Liquids Distribution
OMB—Office of Management and Budget
PB–HAP—Hazardous air pollutants known to be persistent and bio-accumulative in the environment
PFC—Perfluorinated Chemical
PFOS—Perfluorooctyl Sulfonate
PM—Particulate Matter
POM—Polycyclic Organic Matter
RACT—Reasonably Available Control Technology
RBLC—RACT/BACT/LAER Clearinghouse
REL—CalEPA Chronic Reference Exposure Level
RFA—Regulatory Flexibility Act
RfC—Reference Concentration
RfD—Reference Dose
RTR—Residual Risk and Technology Review
SAB—Science Advisory Board
SCC—Source Classification Codes
SCS—Smooth Clean Surface
SF3—2000 Census of Population and Housing Summary File 3
$SO_2$—Sulfur Dioxide
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
TTN—Technology Transfer Network
UF—Uncertainty Factor
UMRA—Unfunded Mandates Reform Act
URE—Unit Risk Estimate
VOC—Volatile Organic Compounds
WAFS—Wetting Agent/Fume Suppressant
WCSC—Waterborne Commerce Statistics Center
WWW—Worldwide Web

## 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 to 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 include:

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

| NESHAP and source category | | NAICS code [1] | MACT code [2] |
|---|---|---|---|
| Chromium Electroplating | Chromium Anodizing Tanks | 332813 | 1607 |
| | Decorative Chromium Electroplating | 332813 | 1610 |
| | Hard Chromium Electroplating | 332813 | 1615 |
| Group I Polymers and Resins | Butyl Rubber Production | 325212 | 1307 |
| | Epichlorohydrin Elastomers Production | 325212 | 1311 |
| | Ethylene Propylene Rubber Production | 325212 | 1313 |
| | Hypalon™ Production [3] | 325212 | 1315 |
| | Neoprene Production | 325212 | 1320 |
| | Nitrile Butadiene Rubber Production | 325212 | 1321 |
| | Polybutadiene Rubber Production | 325212 | 1325 |
| | Polysulfide Rubber Production [3] | 325212 | 1332 |
| | Styrene Butadiene Rubber and Latex Production | 325212 | 1339 |
| Marine Vessel Loading Operations | | 4883 | 0603 |
| Pharmaceuticals Production | | 3254 | 1201 |
| Printing and Publishing Industry | | 32311 | 0714 |
| Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants | | 3311, 3312 | 0310 |

[1] North American Industry Classification System.
[2] Maximum Achievable Control Technology.
[3] There are no longer any operating facilities in either the Hypalon™ or Polysulfide Rubber source categories. Therefore, this proposal does not address these source categories.

*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 World Wide Web (WWW) through the Technology Transfer Network (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 residual risk and technology review (RTR) Web page at *http://www.epa.gov/ttn/atw/rrisk/rtrpg.html.* This information includes source category descriptions and 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, NC 27711, Attention Docket ID No. EPA–HQ–OAR–2010–0600.

*D. How is this document organized?*

The information in this preamble is organized as follows:

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H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use
I. National Technology Transfer and Advancement Act
J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

## III. Background

### *A. What is the statutory authority for this action?*

Section 112 of the Clean Air Act (CAA) establishes a two-stage regulatory process to address emissions of hazardous air pollutants (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 any single HAP at a rate of 10 tons per year (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 non-air quality health and environmental impacts) and are commonly referred to as maximum achievable control technology (MACT) standards.

MACT standards are to 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 standard may take the form of a design, equipment, work practice, or operational standard where EPA first determines either that (A) a pollutant cannot be emitted through a conveyance designed and constructed to emit or capture the pollutant, or that any requirement for or use of such a conveyance would be inconsistent with law, or (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 emission 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 non-air quality health and environmental impacts, and energy requirements.

The EPA is then 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 (District of Columbia Circuit, 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 risk 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.

CAA section 112(f)(2) 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. *NRDC* v. *EPA,* 529 F.3d 1077, 1083 (District of Columbia Circuit, 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.") EPA must also adopt more stringent standards, if necessary, to prevent an adverse environmental effect,[1] but must consider cost, energy, safety, and other relevant factors in doing so.

Section 112(f)(2) of the CAA expressly preserves our use of a 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

[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.

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 United States Court of Appeals for the District of Columbia Circuit in *NRDC* v. *EPA,* 529 F.3d 1077, concluded that EPA's interpretation of section 112(f)(2) is a reasonable one. See *NRDC* v. *EPA,* 529 F.3d at 1083 (District of Columbia Circuit, "[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"). (District of Columbia Circuit 2008). 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 Agency 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 Agency went on to conclude that "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 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 Agency 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-kilometer (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 Agency 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 Agency will establish the standard at a level that provides an ample margin of safety to protect the public health, as required by CAA section 112(f). 54 FR 38046.

*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 maximum individual lifetime [cancer] risk (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

[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.

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 hazard index (HI); and the maximum acute non-cancer hazard. In estimating risks, EPA considered source categories under review that are located near each other and that affect the same population. EPA provided estimates of the expected difference in actual emissions from the source category under review and emissions allowed pursuant to the source category MACT standard. EPA also discussed and considered risk estimation uncertainties. EPA is providing this same type of information in support of these actions.

However, in contrast to past determinations, this notice presents and considers additional measures of health information to support our decision-making. These are discussed in more detail in later sections of this notice, and include:

- Estimates of "total facility" cancer and non-cancer risk (risk from all HAP emissions from the facility at which the source category is located).
- Demographic analyses (analyses of the distributions of HAP-related cancer risks and non-cancer risks, across different social, demographic, and economic groups within the populations living near the facilities where these source categories are located).
- Additional estimates of the risks associated with emissions allowed by the MACT standard.

The Agency is considering all of this 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 and 38046, September 14, 1989. Similarly, with regard to making the ample margin of safety determination, the Benzene NESHAP state that "[I]n the ample margin decision, the Agency again considers all of the health risk and other health information considered in the first step. Beyond that information, additional factors relating to the appropriate level of control will also be considered, including cost and economic impacts of controls, technological feasibility, uncertainties, and any other relevant factors." *Id.*

The Agency acknowledges that the Benzene NESHAP provide flexibility regarding what factors the EPA might consider in making our 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. The Benzene NESHAP explain "an MIR of approximately 1-in-10 thousand should ordinarily be the upper end of the range of acceptability. As risks increase above this benchmark, they become presumptively less acceptable under CAA section 112, and would be weighed with the other health risk measures and information in making an overall judgment on acceptability. Or, the Agency may find, in a particular case, that a risk that includes MIR less than the presumptively acceptable level is unacceptable in the light of other health risk factors." *Id.* at 38045. Similarly, with regard to the ample margin of safety analysis, the Benzene NESHAP state that: "* * * EPA believes the relative weight of the many factors that can be considered in selecting an ample margin of safety can only be determined for each specific source category. This occurs mainly because technological and economic factors (along with the health-related factors) vary from source category to source category." *Id.* at 38061.

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 have not presented estimates of total HAP inhalation risks from all sources in the vicinity of the covered sources (*i.e.,* the sum of risks from ambient levels, emissions from the source category, facility-wide emissions, and emissions from other facilities nearby).

The Agency understands the potential importance of considering an individual's total exposure to HAP in addition to considering exposure to HAP emissions from the source category and facility. This is particularly important when assessing non-cancer risks, where pollutant-specific exposure levels (*e.g.,* Reference Concentration (RfC)) are based on the assumption that thresholds exist for adverse health effects. For example, the Agency recognizes that, although exposures attributable to emissions from a source category or facility alone may not indicate the potential for increased risk of adverse non-cancer health effects in a population, the exposures resulting from emissions from the facility in combination with emissions from all of the other sources (*e.g.,* other facilities) to which an individual is exposed may be sufficient to result in increased risk of adverse non-cancer health effects. In May 2010, the EPA Science Advisory Board (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." [3]

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

[3] 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.*

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 an 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 in our assessments, and, in particular, on whether and how it might be appropriate to use information from EPA's National Air Toxics Assessment (NATA) to support such estimates. 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 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?*

In this proposal, we are addressing three additional types of action for some or all of these six MACT standards. For eight source categories subject to three of the MACT standards, we identified significant emission sources within the categories for which standards were not previously developed. We are proposing MACT standards for these emission sources pursuant to CAA section 112(d)(2) and (3). For four source categories subject to two of the MACT standards, we are also proposing changes to correct editorial errors, to make clarifications, and to address issues with implementation or determining compliance. We are also proposing to revise requirements in each of the six MACT standards related to emissions during periods of startup, shutdown, and malfunction (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 (District of Columbia Circuit, 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 (h)(1), that is part of a regulation, commonly referred to as the *General Provisions Rule,* that EPA promulgated under section 112 of the CAA. When incorporated into a CAA section 112(d) standard for a specific source category, these two provisions exempt sources within that source category from the requirement to comply with the otherwise applicable emission standard during periods of SSM. We are proposing to eliminate the SSM exemption in each of the six MACT standards addressed in this proposal. Consistent with *Sierra Club* v. *EPA,* we are proposing that the established standards in these rules apply at all times. We are also proposing to revise the *General Provisions* table in each of the six MACT standards in several respects. For example, we are removing the *General Provisions'* requirement that the source develop an SSM plan. We are also removing certain recordkeeping and reporting requirements related to the SSM exemption, but we are retaining the recordkeeping and related requirements for malfunctions and request public comment on the requirements. EPA has attempted to ensure that regulatory language relating to the SSM exemption has been removed. We solicit comment on whether we have overlooked any regulatory provisions that might be inappropriate, unnecessary, or redundant based on our proposal to remove the exemption from compliance with the emission limit during periods of SSM.

Periods of startup, normal operations, and shutdown are all predictable and routine aspects of a source's operations. In 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 believes that a malfunction should not be viewed as a distinct operating mode, and, therefore, any emissions that occur during malfunctions 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 (District of Columbia Circuit 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 account for the innumerable types of potential malfunction events in setting emission standards. See, *Weyerhaeuser* v. *Costle,* 590 F.2d 1011, 1058 (District of Columbia Circuit 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. 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.

Under this proposal, 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 CRF 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)). Therefore, consistent with our recently promulgated final amendments to regulations addressing the Portland Cement category (75 FR 54970, September 9, 2010), we are proposing to add regulatory language providing an affirmative defense against civil penalties for exceedances of emission limits that are caused by malfunctions in each of the six MACT standards addressed in this proposal. We are proposing to define "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 are also proposing regulatory provisions to specify the elements that are necessary to establish this affirmative defense. *(See* 40 CFR 22.24). The proposed criteria would 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). The proposed criteria also are designed to ensure that steps are taken to correct the malfunction, to minimize emissions, and to prevent future malfunctions. In any judicial or administrative proceeding, the Administrator would be able to 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 could be assessed in accordance with section 113 of the CAA (see also 40 CFR 22.77).

*D. What specific RTR actions have previously been taken for these source categories?*

For some of the 16 source categories covered by these six MACT standards, we have previously taken certain actions under the RTR program. Following is a summary of these previous actions and also a summary of additional reviews we have subsequently conducted for each source category.

1. Categories for Which RTR Decisions Have Been Finalized

There are nine source categories regulated under the Group I Polymers and Resins MACT standard. For four of these source categories (Butyl Rubber Production, Ethylene Propylene Rubber Production, Neoprene Production, and Polysulfide Rubber Production), we previously proposed and promulgated a decision not to revise the standards for purposes of the RTR provisions in CAA sections 112(d)(6) and (f)(2).[4] See 72 FR 70543, December 12, 2007 (proposed rule), and 73 FR 76220, December 16, 2008 (final rule). These four categories were determined to be "low-risk," as the maximum lifetime individual cancer risks were less than 1-in-1-million, and there were no other health concerns of significance. Therefore, we determined that conducting additional risk analyses for these categories was not warranted. We are not re-opening the RTR in this notice for these four source categories, and do not seek additional comments on that prior RTR.

However, for three of these four Group I Polymers and Resins source categories (Butyl Rubber Production, Ethylene Propylene Rubber Production, and Neoprene Production), we have identified significant emission sources for which MACT standards were not previously developed. In this proposal, we are proposing MACT standards for these emission sources, and we are also proposing that the residual risks after implementation of these new MACT standards will not change our previous finding that these source categories present low risks and that our obligation to review the residual risk under CAA section 112(f) has also been satisfied.

2. Categories for Which RTR Decisions Have Been Proposed, but Not Promulgated

For eight source categories covered under four of the MACT standards addressed in this proposal, we previously performed an RTR review and proposed that no revisions of the MACT standards were necessary to address residual risk and that it was not necessary to revise the existing standards under CAA section 112(d)(6). See 73 FR 60423, October 10, 2008. The MACT standards addressed in this proposal included Marine Tank Vessel Loading Operations (MTVLO), Printing and Publishing Industry, Pharmaceuticals Production, and five of the source categories covered under Group I Polymers and Resins (Epichlorohydrin Elastomers, Hypalon™ Production, Nitrile Butadiene Rubber Production, Polybutadiene Rubber Production, and Styrene Butadiene Rubber and Latex Production).[5] Comments were received on that proposal, but no final action has been taken. This proposal presents additional analyses we have performed since the proposal, for each of these source categories with regard to the RTR. In addition, we are proposing revisions to the SSM provisions in the existing standards for these source categories, and, for several of the source categories, we are proposing MACT standards under CAA sections 112(d)(2) and (3) for emission points that were not previously regulated.

3. Categories for Which RTR Decisions Have Not Been Proposed

We have not previously proposed any RTR actions for the four source categories (Hard and Decorative Chromium Electroplating, Chromium Anodizing Tanks, and Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants) covered by the Chromium Electroplating and Steel Pickling MACT standards. Therefore, this is our initial proposed action for these two MACT standards to address the RTR requirement. In addition, we identified significant advances in the housekeeping requirements in the chromium source categories for which we are proposing MACT standards. We are also proposing revisions to the provisions addressing SSM to ensure they are consistent with the Court decision in *Sierra Club* v. *EPA,* 551 F.3d 1019, and we are proposing changes to correct editorial errors, make clarifications, or address issues with implementation or determining compliance.

## IV. Analyses Performed

As discussed above, in this notice, we are taking the following actions: (1) We are newly proposing action or supplementing our previous proposal to address the RTR requirements of CAA sections 112(d)(6) and (f)(2) for 16 source categories covered by six different MACT standards; (2) for eight of the source categories, we are proposing MACT standards for significant emission sources that are not currently subject to emission standards under the MACT standards; (3) we are proposing to revise the provisions in each of these six MACT standards to address SSM to ensure that the SSM provisions are consistent with the Court

[4] There are no longer any operating facilities in the United States that produce polysulfide rubber, and we do not anticipate any will begin to operate in the future.

[5] The Mineral Wool Production source category was also addressed in that same October 2008 proposal. We are not proposing any additional action for that source category in this proposal, but will do so in a separate future action. We note that there are no longer any operating facilities in the United States that produce Hypalon™, and we do not anticipate that any will begin operation in the future.

decision in *Sierra Club* v. *EPA,* 551 F. 3d 1019; and (4) for two of the MACT standards, we are proposing amendments to correct editorial errors, to make clarifications, and to address issues with implementation or determining compliance.

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

To support the proposed decision under the RTR for each source category, 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 non-cancer health effects, hazard quotients (HQ) for acute exposures to HAP with 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 9 Source Categories, Draft Residual Risk Assessment for Steel Pickling,* and *Draft Residual Risk Assessment for Chromium Electroplating,* as well as the memoranda for the Printing and Publishing Industry, MTVLO, Epichlorohydrin Elastomers Production, Polybutadiene Rubber Production, Styrene Butadiene Rubber Production, Nitrile Butadiene Production, and Pharmaceuticals Production source categories.

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

For the source categories included in the October 10, 2008, proposal, we compiled preliminary data sets using readily-available information, reviewed the data, and made changes where necessary, and shared these data with the public via an Advanced Notice of Proposed Rulemaking (ANPRM). 72 FR 29287, March 29, 2007. The data sets were then updated based on comments received on the ANPRM and, in some cases, with additional information gathered by EPA. For the five Group I Polymers and Resins I Production source categories included in the October 2008 proposal (Epichlorohydrin Elastomers Production, Hypalon™ Production, Nitrile Butadiene Rubber Production, Polybutadiene Rubber Production, and Styrene Butadiene Rubber and Latex Production), the preliminary data sets were based on information we collected directly from industry on emissions data and emissions release characteristics. For the MTVLO, Pharmaceuticals Production, and the Printing and Publishing Industry source categories, we created the preliminary data sets using data in the 2002 National Emissions Inventory (NEI) Final Inventory, Version 1 (made publicly available on February 26, 2006), supplemented by data collected directly from industry when available. 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, nonpoint, and mobile sources in the 50 States, the District of Columbia, Puerto Rico, and the Virgin Islands. The EPA collects this information and releases an updated version of the NEI database every 3 years.

In the March 29, 2007, ANPRM, we specifically requested comment on, and updates to, these preliminary data sets. We received comments on emissions data and emissions release characteristics data for facilities in these source categories. These comments were reviewed, considered, and the emissions information was adjusted where we concluded the comments supported such adjustment. After incorporation of changes to the data sets from this public data review process, data sets were created that were used to conduct the risk assessments and other analyses that formed the basis for the proposed actions included in the October 10, 2008, proposal.

Since the proposal, we have continued to scrutinize the data sets for these source categories and to review additional data that has become available since the October 10, 2008, proposal. For the Printing and Publishing Industry source category, we became aware that some facilities had closed. We also reviewed the emissions data and had questions about the emissions of certain HAP. After contact with industry, it was determined that those emissions did not occur from those facilities. We updated the Printing and Publishing Industry data set to reflect these changes in operating facilities and emissions. For the MTVLO data set, we had concerns that several emission points in our existing data set were mislabeled, and, thus, we extracted more recent data from the NEI. For this source category, the data set is based on the 2005 NEI. For the Pharmaceuticals Production source category data set, no changes are necessary to the data set used for the proposal. For the Polymers and Resins I MACT standard source categories included in the October 10, 2008, proposal, updates have been made based on information received in response to an industry information collection survey. Documentation for industry contacts, surveys, and other information gathered to support these changes is available in the docket for this action.

For the four source categories not included in the December 10, 2008, proposal, we compiled preliminary data sets using the best available information, reviewed the data, and made changes where necessary. For the three Chromium Electroplating MACT standard source categories (Chromium Anodizing Tanks, Decorative Chromium Electroplating, and Hard Chromium Electroplating) and the Steel Pickling source category, we compiled the preliminary data sets using data in the 2005 NEI. Then, for the Steel Pickling source category, seven facilities were contacted to verify their emissions and emissions release characteristic data, and we updated the data set based on the information collected. This updated data set was used to conduct the risk assessments and other analyses that form the bases for the proposed actions.

For the Chromium Electroplating source categories, a review of the 2005 NEI data indicated that not all chromium electroplating facilities were included in the data set. To develop an emissions inventory for the entire industry that could be used for modeling, an additional data set was developed based on facilities with known addresses—a total of 1,629 facilities compared to 122 facilities in the NEI. Emissions for each type of plant were estimated based on the model plants developed for the original Chromium Electroplating MACT standard,[6] with hard chromium model plants having the highest emissions, followed by decorative chromium electroplating, and then chromium anodizing. If the type of electroplating performed at a specific plant was unknown, we assumed these facilities were hard chrome electroplating when we estimated emissions and risks for those facilities. Although we knew that, by doing so, we would be overestimating emissions of chromium, and, therefore, also of risk, we made this conservative assumption because we did not have complete information, and we chose to overestimate to preserve an

[6] *See* EPA–HQ–OAR–2010–0600, *Model Plant Data Used to Estimate Risk from Chromium Electroplating Sources.*

ample margin of safety in the risk assessment upon which our risk modeling would be based. This analysis and a supplemental assessment are fully described in section V.A.

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 mass of emissions actually emitted during the specified annual time period. These "actual" emission levels are often lower than the level of emissions that a facility might be allowed to emit and still comply with the MACT standard. The emissions level allowed to be emitted by the MACT standard is referred to as the "MACT-allowable" emissions level. This represents the highest emission level that could be emitted by the facility without violating the MACT standard.

We discussed the use of both MACT-allowable and actual emissions in the final Coke Oven Batteries residual risk rule (70 FR 19998–19999, April 15, 2005) and in the proposed and final Hazardous Organic NESHAP (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 facilities and States, and information received in response to the ANPRM for several of the source categories. 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 standard 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 a source category were controlling storage tank emissions by 98 percent while the MACT standards required only 92-percent control, we would estimate that MACT-allowable emissions from these emission points could be as much as four times higher (8-percent allowable emissions compared with 2-percent actually emitted), and the ratio of MACT-allowable to actual would be 4:1 for this emission point type 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 values from the inhalation risk assessment to obtain facility-specific maximum risk values based on MACT-allowable emissions.

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 Human Exposure Model (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.[7] To perform the dispersion modeling and to develop the preliminary risk estimates, HEM–3 draws on three data libraries. The first is a library of meteorological data, which is used for dispersion calculations. This library includes 1 year 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[8] internal point locations and populations provides the basis of human exposure calculations (Census, 2000). In addition, the census library includes the elevation and controlling hill height for each census block, 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 lifetime (70-year period) of exposure to the maximum concentration at the centroid of an inhabited census block. Individual cancer risks were calculated as the lifetime exposure to the ambient concentration of each of the HAP multiplied by its Unit Risk Estimate (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 Integrated Risk Information System (IRIS).[9] For carcinogenic pollutants without EPA IRIS values, we look to other reputable sources of cancer dose-response values, often using California Environmental Protection Agency (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.

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

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

[9] The IRIS information is available at *http://www.epa.gov/IRIS.*

We note here that several carcinogens have a mutagenic mode of action.[10] For these compounds, the age-dependent adjustment factors described in EPA's *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens*[11] were applied. This adjustment has the effect of increasing the estimated lifetime risks for these pollutants by a factor of 1.6.[12] In addition, although only a small fraction of the total polycyclic organic matter (POM) emissions were 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 have the same mutagenic mechanism of action as does benzo[a]pyrene. For this reason, EPA's Science Policy Council[13] 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 *Supplemental Guidance* to all unspeciated 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 potential[14]) 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 modeling.

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 is the estimated exposure divided by the chronic reference level, which is either the U.S. 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 is not available, the CalEPA Chronic Reference Exposure Level (REL), defined as "the concentration level at or below which no adverse health effects are anticipated for a specified exposure duration." As noted above, 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 those dose-response values in place of, or in addition to, 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. In each case, acute HQ values were calculated using best available, short-term health threshold values. These acute threshold values include REL, Acute Exposure Guideline Levels (AEGL), and Emergency Response Planning Guidelines (ERPG) for 1-hour exposure durations. As discussed below, we used conservative assumptions for 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 is termed the REL. REL values are based on the most sensitive, relevant, adverse health effect reported in the medical and toxicological literature. 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 REL value does not automatically indicate an adverse health impact."

AEGL values were derived in response to recommendations from the National Research Council (NRC). As described in "Standing Operating Procedures (SOP) of the National Advisory Committee on Acute Exposure Guideline Levels for Hazardous Substances" (*http://www.epa.gov/opptintr/aegl/pubs/sop.pdf*),[15] "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 8 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."

[10] U.S. EPA, 2006. Performing risk assessments that include carcinogens described in the *Supplemental Guidance* as having a mutagenic mode of action. *Science Policy Council Cancer Guidelines Implementation Workgroup Communication II:* Memo from W.H. Farland dated June 14, 2006. *http://epa.gov/osa/spc/pdfs/CGIWGCommunication_II.pdf.*

[11] 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.*

[12] Only one of these mutagenic compounds, benzo[a]pyrene, is emitted by any of the sources covered by this proposal.

[13] U.S. EPA, 2005. *Science Policy Council Cancer Guidelines Implementation Workgroup Communication I:* Memo from W.H. Farland dated October 4, 2005, to Science Policy Council. *http://www.epa.gov/osa/spc/pdfs/canguid1.pdf.*

[14] 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.*

[15] NAS, 2001. *Standing Operating Procedures for Developing Acute Exposure Levels for Hazardous Chemicals,* page 2.

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."

ERPG 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 for single exposures to chemicals." [16] The ERPG–1 value is defined as "the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing other than mild transient adverse health effects or without perceiving a clearly defined, objectionable odor." 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 1 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 1 and 2. For many chemicals, a severity level 1 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 1-hour exposure durations are typically lower than their corresponding AEGL–1 and ERPG–1 values. Even though their definitions are slightly different, AEGL–1 values are often the same as the corresponding ERPG–1 values, and AEGL–2 values are often equal to ERPG–2 values. Maximum HQ values from our acute screening risk assessments typically result when basing them on the acute REL value for a particular pollutant. In cases where our maximum acute HQ value exceeds 1, we also report the HQ value based on the next highest acute threshold (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 to use 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, and the highest peak emission event was 8.5 times the annual average hourly emission rate.[17] This analysis is provided in Appendix 4 of the *Draft Residual Risk Assessment for Source Categories Report* and is available in the docket for this action. Considering this analysis, unless specific process knowledge provided an alternate value, a conservative screening multiplication factor of 10 was applied to the average annual hourly emission rate in these acute exposure screening assessments.

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 considered included using a peak-to-mean hourly emissions ratio based on source category-specific knowledge or data (rather than the default factor of 10) and using the site-specific facility layout to distinguish facility property from an area where the public could be exposed. 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 Multipathway Exposure and Risk Modeling

The potential for significant human health risks due to exposures via routes other than inhalation (*i.e.,* multipathway 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 persistent and bio-accumulative in the environment (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.

In the second step of the screening process, 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 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.

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

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

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 data sets.

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 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, for some source categories, where appropriate, we also estimated risks considering the potential emission reductions that would be achieved by the particular control options under consideration. The inhalation and multi-pathway risks estimated, as described above, at the actual and MACT-allowable levels represent the actual and maximum allowable operating conditions of the facilities in the source categories analyzed. For source categories where emission reduction options were available, we estimated risk based on the expected emissions reductions that would be realized with those additional emissions controls. In these cases, the expected emissions reductions were applied to the specific HAP and emissions sources in the source category data set. The results of the risk analyses considering the application of emissions controls 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.

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 NEI (available at *http://www.epa.gov/chief/net/2005inventory.html*). We analyzed risks due to the inhalation of HAP that are emitted "facility-wide" for the populations residing within 50 km of each facility, consistent with the methods used for the source category analysis described above. For these facility-wide risk analyses, the modeled source category risks were compared to the facility-wide risks to determine the portion of facility-wide risks that could be attributed to each of the six source categories being addressed in this proposal, we specifically examined the facility that was associated with the highest estimate of risk and determined the percentage of that risk attributable to the source category of interest. The 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 environmental justice 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 environmental justice issues in EPA rulemakings is an evolving science. The EPA offers the demographic analyses in this 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 this analysis, we analyzed risks due to the inhalation of HAP in two separate ways. In the first approach, we focus the analysis on the total populations residing within 5 km of each facility (source category and facility-wide), regardless of their estimated risks, and examine the distributions of estimated risk across the various demographic groups within those 5 km circles. The distance of 5 km was chosen for the first approach to be consistent with previous demographic analyses performed at EPA, such as the one which was performed in support of the recent proposal for the Boilers NESHAP. In the second approach, we focus the analysis only on the populations within 5 km [18] of any facility estimated to have exposures to HAP which result in cancer risks of 1-in-1 million or greater or non-cancer hazard indices of 1 or greater (based on the emissions of the source category or the facility, respectively). Once again, we examine the distributions of those risks across various demographic groups. In each approach, we compare the percentages of particular demographic groups to the total number of people in those demographic groups nationwide. In this preamble, we only present the results of the second approach since it focuses on the significant risks from either the source category or the facility-wide emissions. The results of both approaches including other risk metrics such as average risks for the exposed populations are documented in source category-specific technical reports in the docket for each of the source categories covered in this proposal.[19]

The basis for the risk values used in these analyses were the modeling results 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

[18] Generally, we have found that using a 5 km radius in the analysis will capture more than 90 percent of all the individuals with cancer risks above 1-in-1 million. In the future, we plan to extend these analyses to cover the entire modeled domain for a facility (50 km radius) to capture all individuals with risks above 1-in-1 million from the affected facilities.

[19] For example, the report pertaining to the Hard Chromium Electroplating source category is entitled *Risk and Technology Review—Analysis of Socio-Economic Factors for Populations Living Near Hard Chromium Electroplating Facilities.*

data on age distributions, poverty status, household incomes, and education level was obtained from the 2000 Census of Population and Housing Summary File 3 (SF3) Long Form. While race and ethnicity census data are available at the block group level, the age and income census data are only available at the census block 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 blocks within the block group have the same distribution of ages and incomes as the block group.

For each source category, the analysis results include the distribution of estimated lifetime inhalation cancer and chronic non-cancer risks for 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 among the population living near these facilities. 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 the category "Minorities," which is defined as all race population categories except white. Since these demographic analysis methods are still evolving, EPA specifically solicits comment on the inclusion of other demographic categories (*e.g.,* "Hispanic and Non-white") in our future analyses.

For further information about risks to the populations local to the facilities in these source categories, we also evaluated the estimated distribution of inhalation cancer and chronic non-cancer risks associated 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 the residual risk documentation as referenced in section IV.A of this preamble, which is 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 the approach that we took, which used conservative tools and assumptions, ensures that our decisions are health-protective. A brief discussion of the uncertainties in the emissions data sets, dispersion modeling, inhalation exposure estimates, and dose-response relationships follows below. A more thorough discussion of these uncertainties is included in the *Draft Residual Risk Assessment for the Steel Pickling Source Category* (July 2010), *Draft Residual Risk Assessment for the Chromium Electroplating Source Category* (July 2010), *Draft Residual Risk Assessment for 9 Source Categories* (August 2008), and the *Risk and Technology Review (RTR) Assessment Plan* (November 2006), each of which are available in the docket for this action.

a. Uncertainties in the Emissions Data Sets

Although the development of the RTR data sets 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 is incomplete or missing, the degree to which assumptions made to complete the data sets are inaccurate, errors in estimating emissions values, and other factors. The emission values considered in this analysis generally are annual totals that do not reflect short-term fluctuations during the course of a year or variations from year to year. In contrast, 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 is 10), which are intended to account for emission fluctuations due to normal facility operations. In some cases, more refined estimates were used for source categories where the screening estimates did not "screen out" all sources and more specific information was available. Additionally, for some source categories our estimate of the number of facilities may not represent the number of facilities that we have in our notice of proposed rulemaking data set. There is also significant uncertainty for some source categories in the identification of sources as major or area in the NEI.

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. Where possible, model options (*e.g.,* rural/urban, plume depletion, chemistry) were selected to provide an overestimate of ambient air concentrations of the HAP. 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.[20] 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

[20] 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.

impact, but is an unbiased estimate of average risk and incidence.

The assessments evaluate the cancer inhalation risks associated with pollutant exposures over a 70-year period, which is the assumed lifetime of an individual. In reality, both the length of time that modeled 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 likely result in an overestimate (or possibly an underestimate in the extreme case where a facility maintains or increases its emission levels beyond 70 years and residents live beyond 70 years at the same location) both in individual risk levels and in the total estimated number of cancer cases. 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 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 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.[21]

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 1 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.

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

d. Uncertainties in Dose-Response Relationships

There are uncertainties inherent in the development of the reference 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 variabilities 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).[22] In some circumstances, the true risk could be as low as zero; however, in other circumstances the risk could also be greater.[23] 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 uncertainty factor (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. UF are commonly default values,[24] *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

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

[23] 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.

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

(*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. UF are applied based on chemical-specific or health effect-specific information (*e.g.,* simple irritation effects do not vary appreciably between human individuals, hence a value of 3 is typically used), or based on the purpose for the reference value (see the following paragraph). The UF applied in acute reference value derivation include: (1) Heterogeneity among humans; (2) uncertainty in extrapolating from animals to humans; (3) uncertainty in lowest observable adverse effect (exposure) level to no observable effect (exposure) level adjustments; and (4) uncertainty in accounting for an incomplete database on toxic effects of potential concern. Additional adjustments are often applied to account for uncertainty in extrapolation from observations at one exposure duration (*e.g.,* 4 hours) to derive an acute reference value at another exposure duration (*e.g.,* 1 hour).

Not all acute reference values are developed for the same purpose and care must be taken when interpreting the results of an acute assessment of human health effects relative to the reference value or values being exceeded. Where relevant to the estimated exposures, the lack of threshold 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 pollutants have no peer-reviewed 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.

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 Multipathway 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. We generally rely on the facility-specific levels of PB–HAP emissions to determine whether a full assessment of the multi-pathway and environmental effects is necessary. Because facility-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

The same uncertainties discussed above exist with regard to the facility-wide risk assessments. Additionally, the degree of uncertainty associated with facility-wide emissions and risks is generally greater because we have not completed our 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." 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 standard, 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. In these subsequent air toxic regulatory actions, we consistently evaluated any new practices, processes, and control technologies. 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 RACT/BACT/LAER Clearinghouse (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 (Reasonably Available Control Technology), BACT (Best Available Control Technology), or LAER (Lowest Achievable Emission Rate) apply to stationary sources depending on whether the sources are existing or new, and on the size, age, and location of the facility. BACT 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 data base 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.,* tanks or vents) 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.

*C. How did we perform the analyses for the other actions being proposed?*

For several of the source categories considered in this proposal, we identified significant emission points that were not previously regulated under MACT. For these emission points, consistent with the requirements of CAA sections 112(d)(2) and (3), we identified the MACT floor for existing and new sources and considered beyond-the-floor options.

We also reviewed the SSM provisions of each of the six MACT standards in light of *Sierra Club* v. *EPA,* 551 F.3d 1019. As part of this review, we evaluated available information and engaged industry concerning the type of activities and emissions that occur during periods of startup or shutdown.

Finally, we identified potential revisions to these MACT standards to correct or clarify regulatory requirements. In the years since promulgation and compliance with the MACT standards, EPA has received comments and suggestions for improving the clarity of the MACT standards in general, as well as rule-specific comments for some individual MACT standards. These comments include such things as identification of editorial errors in the rule, clarification of existing rule text, regulatory obstacles to effective implementation of or compliance with the rule provisions. EPA has also independently identified these types of issues. We are proposing rule changes where appropriate.

## 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, our proposed actions to address significant unregulated emission points for a number of source categories, our proposed decisions concerning the SSM provisions in each of the six MACT standards, and the specific clarifications we are proposing for selected MACT standards.

*A. What are the results and proposed decisions for the Chromium Electroplating source categories?*

1. Overview of the Source Categories and MACT Standard

National Emission Standards for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks (Chromium Electroplating MACT standards) were promulgated on January 25, 1995 (60 FR 4963), and codified at 40 CFR part 63, subpart N. The Chromium Electroplating MACT standards regulate emissions of chromium compounds from three related source categories: Hard Chromium Electroplating, Decorative Chromium Electroplating, and Chromium Anodizing. Within these source categories, the MACT standards apply to all plants, both major and area sources, regardless of size.

The Hard Chromium Electroplating source category consists of facilities that plate base metals with a relatively thick layer of chromium using an electrolytic process. Hard chromium electroplating provides a finish that is resistant to wear, abrasion, heat, and corrosion. These facilities plate large cylinders and industrial rolls used in construction equipment and printing presses, hydraulic cylinders and rods, zinc die castings, plastic molds, engine components, and marine hardware.

The Decorative Chromium Electroplating source category consists of facilities that plate base materials such as brass, steel, aluminum, or plastic with layers of copper and nickel, followed by a relatively thin layer of chromium to provide a bright, tarnish- and wear-resistant surface. Decorative chromium electroplating is used for items such as automotive trim, metal furniture, bicycles, hand tools, and plumbing fixtures.

The Chromium Anodizing source category consists of facilities that use chromic acid to form an oxide layer on aluminum to provide resistance to corrosion. The chromium anodizing process is used to coat aircraft parts (such as wings and landing gears), as well as architectural structures that are subject to high stress and corrosive conditions.

The HAP emission sources subject to the Chromium Electroplating NESHAP are the tanks in which the chromium deposition takes place. For hard chromium and decorative chromium electroplating facilities, the emission sources are electroplating tanks. For the Chromium Anodizing source category, the emission sources are anodizing tanks.

The primary emission controls used by the facilities in these source categories include packed bed scrubbers, mesh pad mist eliminators, composite mesh pad (CMP) systems, high efficiency particulate air (HEPA) filters, and wetting agent/fume suppressants (WAFS). Most decorative chromium electroplating plants comply with the MACT standards by using WAFS in the tank bath to control surface tension, which in turn reduces emissions. Some plants use a combination of WAFS and add-on control to meet the MACT emission limits. If a facility controls emissions using an add-on control device, the tank is generally equipped with a hood and duct work to exhaust emissions through the control device and out the stack. However, when WAFS are used as the only means of emission control, the tanks often are not equipped with exhaust hoods. In such cases, emissions from the tank are fugitive and are exhausted to the outside using wall-mounted exhaust fans.

We estimate that there are approximately 1,770 plants that are currently subject to the Chromium Electroplating MACT standards. Of these, we estimate that there are 790 hard chromium electroplating plants, 740 decorative chromium electroplating plants, and 240 chromium anodizing plants. A detailed description of how the number of each type of plant was estimated can be found in the *Estimated Number of Chromium Electroplating Plants* document available in the docket for this action. Some facilities perform more than one type of chromium electroplating or anodizing. For purposes of our estimates, we classified facilities as hard chromium, decorative chromium, or chromium anodizing based on the primary type of electroplating operation performed at the facility. Some chromium

electroplating facilities electroplate items that are used internally in the manufacturing process at the same facility or within the same company. For example, some large printing facilities electroplate their printing rollers in house, and the chromium electroplating processes are located at the same site as the printing and publishing processes.

2. What data were used in our risk analyses?

For the Chromium Electroplating source categories, we compiled a preliminary data set using data in the 2005 NEI. A review of the NEI resulted in the identification of data for 122 chromium electroplating facilities. These data were reviewed and the data for eight hard chromium and six decorative chromium electroplating plants were revised based on information in the facilities' permits or permit applications. Additional data were available for 44 facilities through responses to a CAA section 114 information request that was sent to facilities for the Plating and Polishing Area Source rule. The data for these facilities were added to the NEI data set, and, as with the original data, represent actual emission levels for these electroplating and anodizing facilities. Most of these facilities have low emissions, which are generally less than 2 pounds per year (lbs/yr). These 166 facilities now included in the 2005 NEI comprise approximately 9 percent of the estimated 1,770 facilities covered by the MACT standards, and include 63 hard chromium electroplating, 96 decorative chromium electroplating, and 7 chromium anodizing facilities.[25] This data set of 166 facilities was modeled to determine the maximum individual cancer risk, the population cancer risk, the cancer incidence, and the maximum chronic non-cancer risk for the three source categories based on actual emissions. The maximum individual cancer risk and the maximum chronic non-cancer risk estimated from this data set were also compared to the maximum individual cancer risk and the maximum chronic non-cancer risk estimated from MACT-allowable emissions for the three source categories.[26]

To address the possibility that the small number of facilities included in the 166-facility data set might not be fully representative of the source categories and their risks, we developed an additional data set. In the development of this data set, we used "model plants" developed for the original MACT standard to represent the individual facilities. For hard and decorative chromium electroplating, we used three model plants (large, medium, and small) that represent average characteristics for each of these groups. For each of these plant sizes, there is an annual emissions rate (lbs/yr) that is derived from the design and operating parameters, and is specific to the size and type of model plant. For chromium anodizing, we have two model plants (large and small). The model plants were based on data collected during development of the original MACT standards from 1988 to 1993 from more than 100 facilities that responded to an Information Collection Request (ICR) for the chromium electroplating and anodizing industry. Data from site visits and other information also were used in developing the model plants. A complete description of the model plants developed for the MACT standard is provided in the Background Information Document (BID) for the original MACT standard (Chromium Electroplating BID).

The basis for this additional data set is 1,629 chromium electroplating facilities with known addresses.[27] For about half of these facilities, the type of electroplating performed is known, but the size of the facility is not known. For the remaining facilities, neither the type of chromium electroplating process or processes, nor the facility size is known.

For use in the risk analysis, the limited available data were used to divide these facilities into six groups. Facilities in three of the six groups were assigned to be hard chromium electroplating facilities. Those groups include: hard chromium facilities; facilities with combined hard chromium operations and other electroplating or anodizing; and facilities with unknown processes. Together, these three groups yielded a total of 1,219 plants, all of which we modeled as hard chromium electroplating facilities. This total, in addition to the 63 hard chromium electroplating facilities in the 2005 NEI data set, yields a total of 1,282 facilities, which is substantially higher than the 790 hard chromium facilities that we estimate exist in the United States. However, because hard chromium facilities have the highest emissions among the three source categories, we made these selections as a conservative or health-protective assumption.

To represent the decorative chromium electroplating facilities, we combined two of the six groups of facilities; decorative chromium facilities and facilities that perform both decorative chromium and chromium anodizing. This results in 319 decorative chromium facilities in this data set, which, even when combined with the 96 decorative chromium electroplating facilities in the 2005 NEI data set, is less than the 740 facilities that we believe exist in the industry. Because we modeled all of the unknown electroplating type facilities as the highest-emitting hard chromium electroplating facilities, we consider this assessment to be conservative, even though it appears to under-represent decorative chromium facilities.

Similarly, the last of the six groups are all known chromium anodizing facilities. This group includes 73 facilities, and, when combined with the 7 chromium anodizing facilities in the 2005 NEI data set, still represents only about a third of the 240 facilities chromium anodizing facilities. Again, we believe this is conservative because those facilities not modeled as chromium anodizing plants were modeled as the higher emitting hard chromium facilities in the analysis.

To estimate the risks for this assessment, we needed to establish estimated emissions for each of the electroplating and anodizing types. To ensure that we did not underestimate cancer risk to the most exposed individual, we originally planned to use the large plant emission factors that we had developed for the original MACT standard to represent all model plants for each type of chromium electroplating processing. In reviewing available emissions data, we found that, while the large plant emission factors adequately represent the average chromium emissions from known large decorative chromium electroplating and large chromium anodizing facilities, they are not representative of the average chromium emissions from large hard chromium electroplating facilities.

The emission factor for large hard chromium electroplating developed for the original MACT standard was 35.3 lbs/yr. However, in comparing this emission factor to available emissions data for individual facilities, we find that this emissions factor is unrealistically high and does not represent the average level of emissions for large facilities as we would expect to see under the current MACT standard. As explained more fully in the *Model Plant Data Used to Estimate Risk from*

[25] The National Association of Surface Finishers provided OMB with data for 15 plants. We have placed this information in the docket for this rulemaking.

[26] The Occupational Safety and Health Administration adopted a lower permissible exposure limit for hexavalent chromium in 2006.

[27] There is some overlap between the 1,629 facilities with known addresses and the 166 facilities for which we have emissions data based on the NEI and the data collection request.

*Chromium Electroplating Sources* document available in the docket for this action, based on the large model plant design flow rate and operating hours, a large hard chromium model plant operating at the MACT emission limit of 0.015 milligrams per dry standard cubic meter (mg/dscm) would emit a maximum of only 23.6 lbs/yr of chromium compounds. Moreover, the available data on actual emissions for hard chromium electroplating plants indicate there are only 4 plants with annual emissions greater than 10 lbs/yr. As a result, we determined that the large size model plant emissions factor, as defined for the original MACT standard, is not representative of existing large hard chromium electroplating facilities on a nationwide basis. On the other hand, the emission factor associated with a medium size hard chromium electroplating model plant (9.26 lbs/yr) falls between the 90th percentile (8.04 lbs/yr) and the 95th percentile (11.6 lbs/yr) of the available emissions data for hard chromium electroplating facilities. Because this emission factor, which was originally developed for medium sized facilities at the time the MACT standard was developed, is representative of the emissions from large facilities, the emissions factor of 9.26 lbs/yr was used to represent current large hard chromium electroplating facilities. Thus, for purposes of this residual risk review, we refer to 9.26 lbs/yr as the emissions factor for a "large" hard chromium electroplating facility.

We believe the approach of using the "large" facility emissions factor to represent all facility sizes is reasonable to ensure that we did not underestimate maximum individual cancer risk. Although we believe that only a small percentage of the facilities are large, we recognize that we do not have emissions data for approximately 90 percent of the sources. Thus, by assuming all sources are large, we have ensured that we will not underestimate the maximum individual risk.

For hard chromium electroplating, the model plant emission factors for small, medium, and large facilities range from 0.55 to 9.26 lbs/yr. While we expect only 10 percent of the facilities to be large, based on the distribution of model plant sizes developed for the MACT standard, we used the emissions factor for a large facility (9.26 lbs/yr) for all of the 1,219 facilities that we considered as hard chromium electroplating facilities. Similarly, for decorative chromium electroplating, the emission factors for small, medium, and large facilities are 0.065, 0.27, and 2.65 lbs/yr, respectively, and the large facility emissions factor was used in the risk assessment for decorative chromium. For the Decorative Chromium category, we estimate that only 5 percent of the facilities are large, based upon the distribution of decorative chromium plants nationwide when the original NESHAP were developed. Finally, for chromium anodizing, the emission factor for small facilities is 0.036 lb/yr, and for large facilities, is 0.44 lb/yr. The large facility emissions factor (0.44 lb/yr) was used in the conservative analysis for all of the anodizing facilities even though we estimate that only 25 percent are large.

Population risk indicators can be greatly overstated when highly conservative emission estimates are applied to every facility in the source category. Recognizing this fact, we performed a supplemental analysis to better address nationwide average emission levels and assess the sensitivity of our population risk estimates. Thus, as described further below, the supplemental analysis was performed to understand the degree to which the risk might be overstated, and, thus, how much weight to attach to the conservative analysis. The conservatism of this risk assessment is one factor that we consider in determining whether the risk is acceptable within the meaning of the Benzene NESHAP.

For the supplemental analysis, we assigned unique emission factors to each of the 6 groups of facilities in our 1,629 facility data set. These emission factors were developed to better estimate the average emissions for all of the sources within each group. The new emission factors are:

- 2.24 lbs/yr for known hard chromium electroplating facilities,
- 0.225 lb/yr for known decorative chromium electroplating facilities,
- 0.137 lb/yr for known chromium anodizing facilities,
- 1.23 lbs/yr for facilities with combinations of hard chromium electroplating and either decorative electroplating or anodizing,
- 0.181 lb/yr for facilities with combinations of decorative electroplating and anodizing, and
- 1.11 lbs/yr for facilities where the type of process (electroplating or anodizing) is unknown.

A detailed explanation for how these emission factors were derived can be found in the *Model Plant Data Used to Estimate Risk from Chromium Electroplating Sources* available in the docket for this action. These weighted average emission factors account for the plant type (hard chromium electroplating, decorative chromium electroplating, or chromium anodizing) and the distribution of plant sizes (large, medium, or small). For example, the average emissions factor for hard chromium electroplating (2.24 lbs/yr) is the weighted average of the model plant emission factors for large plants (10 percent of plants at 9.26 lbs/yr per plant), medium plants (20 percent of plants at 4.63 lbs/yr per plant, and small plants (70 percent of plants at 0.55 lb/yr per plant). This distribution of plant sizes is based on actual data collected during development of the original MACT rule. We have no reason to believe the distribution of facility sizes has changed significantly since then.

The uncertainties associated with both the conservative analysis and the supplemental analysis include the estimated distribution of plant types and sizes as well as the facility emissions factors. Although the type of plants used in the NEI analysis is based on a variety of reliable sources, including ICR responses for the Plating and Polishing NESHAP, trade association data, data from State agencies, and information from Web sites, we were unable to identify the plant type for nearly half of the data set. For those plants of unknown type, we used the highest emissions factor, which corresponds to a large hard chromium plant, in the conservative analysis. For the supplemental analysis, we developed an emissions factor using a weighted average across all plant types and sizes. For all plants that were modeled, we are soliciting additional information on actual and MACT-allowable emissions, plant type, and plant size. More information about the development of the model plants can be found in the *Model Plant Data Used to Estimate Risk from Chromium Electroplating Sources* document available in the docket for this action.

In all the data sets, chromium compounds account for all the HAP emissions from the Chromium Electroplating and Chromium Anodizing source categories. For the Hard Chromium Electroplating source category, in the NEI-based data set, chromium VI compounds account for 98 percent of the emissions, with chromium III and chromium trioxide compounds comprising the remaining HAP. In both the NEI and model plant emission estimates, we made the conservative assumption that 100 percent of the emissions are chromium VI compounds. For the Decorative Chromium Electroplating source category, in the NEI-based data set, chromium VI compounds account for 94 percent of the emissions, with chromium III and chromium trioxide compounds comprising the remaining HAP. In both emission estimates, we

made the conservative assumption that 100 percent of the emissions are chromium VI compounds. For the Chromium Anodizing source category, in the NEI-based data set, chromium VI compounds account for 99 percent of the emissions with chromium III compounds comprising the remaining HAP. In both emission estimates, we made the conservative assumption that 100 percent of the emissions are chromium VI compounds.

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

We conducted an inhalation risk assessment for each of the three source categories: Hard Chromium Electroplating, Decorative Chromium Electroplating, and Chromium Anodizing. Also, for each source category, we conducted an assessment of facility-wide risk, and performed a demographic analysis of population risks. As noted above, we developed two data sets for these source categories, one based primarily on NEI data for 166 sources, and one based on model plant data for 1,629 sources.

The following tables present the combined results from the data sets. Table A.1 provides an overall summary of the maximum individual inhalation risk assessment results, and Table A.2 provides population risk assessment results for the Hard Chromium Electroplating, Decorative Chromium Electroplating, and Chromium Anodizing source categories.

TABLE A.1—CHROMIUM ELECTROPLATING AND ANODIZING MAXIMUM INDIVIDUAL INHALATION RISK ASSESSMENT RESULTS*

| Source category | Number of facilities (NEI/model plant) [1] | Maximum individual cancer risk (in 1 million) [2] | | 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 | |
| Hard Chromium Electroplating | 63/1,219 | 70 | 90 | 0.06 | 0.09 | Not applicable [5]. |
| Decorative Chromium Electroplating | 96/337 | 70 | 70 | 0.06 | 0.06 | Not applicable [5]. |
| Chromium Anodizing | 7/73 | 5 | 5 | 0.004 | 0.004 | Not applicable [5]. |

* All results are for impacts out to 50 km from each source in the categories.
[1] Number of facilities evaluated in the risk analysis: the first number refers to the NEI data set, and the second number applies to the conservative emission estimate.
[2] Maximum individual excess lifetime cancer risk.
[3] Maximum TOSHI. The target organ with the highest TOSHI for the Hard Chromium Electroplating, Decorative Chromium Electroplating, and Chromium Anodizing source categories is the respiratory system.
[4] The maximum estimated acute exposure concentration was divided by available short-term threshold values to develop an array of HQ values. HQ values shown use the lowest available acute threshold value, which, in most cases, is the REL. When HQ values exceed 1, we also show HQ values using the next lowest available acute threshold. See section IV.A. of this preamble for explanation of acute threshold values.
[5] NA = not applicable. There are no HAP with acute dose-response benchmark values, so no acute HQ were calculated for these source categories. See section IV.A of this preamble for an explanation of acute threshold values.

TABLE A.2—CHROMIUM ELECTROPLATING AND ANODIZING POPULATION RISK INHALATION RISK ASSESSMENT RESULTS

| Source category | Number of facilities (NEI/model plant) | Conservative assessment population at risk | | Conservative annual cancer incidence (cases per year) | Supplemental assessment population at risk | | Supplemental annual cancer incidence (case per year) |
|---|---|---|---|---|---|---|---|
| | | ≥ 1-in-1 million | ≥ 10-in-1 million | | ≥ 1-in-1 million | ≥ 10-in-1 million | |
| Hard Chromium Electroplating | 63/1,219 | 14,200,000 | 71,000 | 0.8 | 360,000 | 5,100 | 0.1 |
| Decorative Chromium Electroplating | 96/337 | 390,000 | 4,000 | 0.08 | 30,000 | 1,300 | 0.01 |
| Chromium Anodizing | 7/73 | 2,700 | 0 | 0.003 | 540 | 0 | 0.001 |

As shown in Table A.1, the results of the inhalation risk assessment for the Hard Chromium Electroplating source category indicate the maximum lifetime individual cancer risk could be as high as 70-in-1 million, based on actual emissions, and as high as 90-in-1 million based on allowable emissions. This maximum individual cancer risk is based on the highest risk facility out of the 63 actual facilities and the 1,219 model plants. The highest risk facility is one for which we have design and operating data, and we believe it is also both the largest and highest emitting hard chromium electroplating facility in the United States. Thus, we believe this level accurately reflects the maximum individual exposure. The maximum chronic non-cancer TOSHI value could be 0.06, based on the actual emissions level, and up to 0.09 based on allowables. This value is also based on known emission levels from the largest facility in the nation. A non-cancer TOSHI of one or less is not of human health concern.

The total estimated national cancer incidence from hard chromium electroplating facilities based on actual emission levels is 0.8 excess cancer cases per year, or one case in every 1.25 years for the conservative assessment. Our risk assessment shows 14.2 million people exposed to a cancer risk greater than 1-in-1 million and 71,000 people exposed to a cancer risk of at least 10-in-1 million.

As noted above, we conducted a supplemental analysis to determine the weight to give to the conservative risk analysis. That supplemental analysis estimates 0.1 excess cancer cases per year, or one case in every 10 years. Additionally, it estimates a population exposure of 360,000 people at 1-in-1 million cancer risk. For a cancer risk of at least 10-in-1 million, the population exposed decreases to 5,100.

Based on the 2005 NEI data set for the Decorative Chromium Electroplating

source category, the maximum lifetime individual cancer risk could be as high as 70-in-1 million, and the maximum chronic non-cancer TOSHI value could be up to 0.06, based on the actual emissions level.[28] We do not believe the maximum lifetime individual cancer risk and the maximum chronic non-cancer TOSHI value would be any higher than this based on allowable emissions. The total estimated population risks from the conservative risk assessment of the decorative chromium electroplating facilities based on actual emission levels is 390,000 people exposed to a cancer risk greater than 1-in-1 million and 0.08 excess cancer cases per year, or one case in every 12 years.[29]

Based on the 2005 NEI data set for the Chromium Anodizing source category, the maximum lifetime individual cancer risk could be as high as 5-in-1 million and the maximum chronic non-cancer TOSHI value could be up to 0.004, based on the actual emissions level. The total estimated population risks from the conservative assessment of the chromium anodizing facilities based on actual emission levels is 2,700 people exposed to a cancer risk greater than 1-in-1 million and 0.003 excess cancer cases per year, or one case in every 333 years.[30]

Also, as there were no reported emissions of PB–HAP for these three source categories, we do not expect the potential for human health multipathway risks or adverse environmental impacts.

Our analyses of potential differences between actual emission levels and emissions allowable under the MACT standards are based on emissions test data from specific facilities. A comparison of these test results to allowable emissions at these facilities indicates that the ratio of MACT-allowable to actual emissions varies considerably from facility to facility. As a result, a uniform factor was not available to apply to all facilities. However, for the Hard Chromium Electroplating source category, we did evaluate the facility that was modeled as having the highest maximum individual lifetime cancer risk (70-in-1 million) based on actual emissions. Our analysis indicates that this facility, if operated at the allowable emissions limit, could have a maximum individual lifetime cancer risk as high as 90-in-1 million. Furthermore, the available data indicate that no other hard chromium electroplating facility would have a cancer risk that high if operated at the allowable emissions limit.

For the Decorative Chromium Electroplating source category, we performed a similar analysis of the available data and concluded that the maximum individual lifetime cancer risk would not exceed 70-in-1 million for any facility that operated at the allowable emissions limit. As stated earlier, because most chromium anodizing facilities use WAFS, we believe actual emissions are essentially the same as allowable emissions. Thus, we believe that the MIR based on allowable emissions would be the same as that based on actual emissions, *i.e.,* 5-in-1 million.

Table A.3 displays the results of the facility-wide risk assessment for actual emissions of all sources at the facility as reported in the NEI. We did not perform a facility-wide risk assessment based on allowable emissions, as explained in the documentation referenced in section IV.A of this preamble, which is available in the docket for this action.

TABLE A.3—CHROMIUM ELECTROPLATING AND ANODIZING FACILITY-WIDE RISK ASSESSMENT RESULTS

| Source category | Maximum facility-wide individual cancer risk (in 1 million) | Source category contribution to this maximum facility-wide individual cancer risk [1] | Maximum facility-wide chronic non-cancer TOSHI | Source category contribution to this maximum facility-wide chronic non-cancer TOSHI [1] |
|---|---|---|---|---|
| Hard Chromium Electroplating | 90 | < 1% | 2 | < 1% |
| Decorative Chromium Electroplating | 90 | 7% | 0.8 | < 1% |
| Chromium Anodizing | 20 | 75% | 0.2 | < 1% |

[1] Percentage shown reflects source category contribution to the maximum facility-wide risks at the facility with the maximum risk value shown.

As shown in Table A.3, the maximum individual cancer risks from all HAP emissions at facilities that perform hard chromium electroplating, decorative chromium electroplating, and chromium anodizing are estimated to be 90-in-1 million, 90-in-1 million, and 20-in-1 million, respectively. For the facilities where these maximum risk values occur, the estimated proportion of the cancer risk attributable to the hard chromium electroplating, decorative chromium electroplating, and chromium anodizing processes is less than 1 percent, 7 percent, and 75 percent, respectively. The highest facility-wide cancer risk for a facility that includes a hard chromium electroplating source is primarily driven by chemical production processes. We are currently developing a chemical manufacturing sector project [31] and plan to address risk from these chemical production processes as part of that action. The highest facility-wide cancer risk for a facility that includes a decorative chromium electroplating

[28] There is uncertainty regarding the operating status of the facility (reported to be closed) associated with the maximum lifetime individual cancer risk. Prior to any final rulemaking action, we will investigate this situation and revise the risk analysis and results accordingly.

[29] Based on our conservative risk assessment, we believe the risks are low, and, as explained further below, are proposing that the risks are acceptable for the Decorative Chromium source category. Although we did not need to consider the supplemental analysis that we conducted for Decorative Chromium to help guide our conclusion about the uncertainty of the risk assessment results, we note that the supplemental assessment shows 30,000 people exposed to a cancer risk greater than 1-in-1 million and 0.01 excess cancer case per year, or one case in every 100 years.

[30] Based on our conservative risk assessment, we believe the risks are low, and, as explained further below, are proposing that the risks are acceptable for the Chromium Anodizing source category. Although we did not need to consider the supplemental analysis that we conducted for Chromium Anodizing to help guide our conclusion about the uncertainty of the risk assessment results, we note that the supplemental assessment shows 540 people exposed to a cancer risk greater than 1-in-1 million and 0.001 excess cancer case per year, or one case in every 1,000 years.

[31] This is one of several projects EPA is undertaking to establish and implement national emission-control measures for specific sectors of the economy by taking an integrated multipollutant approach to assessing and implementing additional emission controls using our existing regulatory frameworks.

source is primarily driven by aerospace processes that will be addressed in a future residual risk review for the Aerospace Manufacturing and Rework Facilities source category. The highest facility-wide cancer risk for a facility that includes a chromium anodizing source is primarily driven by the chromium anodizing processes. The facility-wide maximum chronic non-cancer TOSHI values for facilities that include Hard Chromium Electroplating, Decorative Chromium Electroplating, and Chromium Anodizing source category processes are estimated to be 2, 0.8, and 0.2, respectively. At the facilities where these maximum risk values occur, the estimated proportion of the non-cancer risk attributable to the Hard Chromium Electroplating, Decorative Chromium Electroplating, and Chromium Anodizing source category processes is less than 1 percent for each source category.

The results of the demographic analyses performed to investigate the distribution of risks above 1-in-1 million, based on actual emissions levels for the population living within 5 km of the facilities, among various demographic groups are provided in a report available in the docket for this action and summarized in Tables A.4, A.5, and A.6 below. These estimates of total population with risk exceeding 1-in-1 million differ from the risk estimates presented above because the demographic analysis uses a 5 km radius and the risk assessment results provided above reflect use of a 50 km radius around all chromium electroplating facilities.

TABLE A.4—HARD CHROME ELECTROPLATING DEMOGRAPHIC RISK ANALYSIS RESULTS

| Emissions basis | Maximum risk (in 1 million) | Population with risk greater than 1-in-1 million | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Total (millions) | Minority % | African American % | Other and multiracial % | Hispanic or Latino % | Native American % | Below the poverty level % | Over 25 w/o a HS diploma % |
| Nationwide | n/a | 285 | 25 | 12 | 12 | 14 | 0.9 | 13 | 13 |
| Source Category | 70 | 13.1 | 52 | 23 | 29 | 34 | 0.6 | 22 | 20 |
| Facility-wide ..... | 90 | 13.1 | 52 | 23 | 29 | 34 | 0.6 | 22 | 20 |

TABLE A.5—DECORATIVE CHROMIUM ELECTROPLATING DEMOGRAPHIC RISK ANALYSIS RESULTS

| Emissions basis | Maximum risk (in 1 million) | Population with risk greater than 1-in-1 million | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Total (millions) | Minority % | African American % | Other and multiracial % | Hispanic or Latino % | Native American % | Below the poverty level % | Over 25 w/o a HS diploma % |
| Nationwide | n/a | 285 | 25 | 12 | 12 | 14 | 0.9 | 13 | 13 |
| Source Category | 70 | 0.35 | 50 | 18 | 32 | 47 | 0.8 | 24 | 23 |
| Facility-wide ..... | 90 | 0.43 | 54 | 21 | 32 | 48 | 0.7 | 24 | 25 |

TABLE A.6—CHROMIUM ANODIZING DEMOGRAPHIC RISK ANALYSIS RESULTS

| Emissions basis | Maximum risk (in 1 million) | Population with risk greater than 1-in-1 million | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Total (millions) | Minority % | African American % | Other and multiracial % | Hispanic or Latino % | Native American % | Below the poverty level % | Over 25 w/o a HS diploma % |
| Nationwide | n/a | 285 | 25 | 12 | 12 | 14 | 0.9 | 13 | 13 |
| Source Category | 5 | 0.0027 | 36 | 16 | 0 | 0 | 0.4 | 25 | 19 |
| Facility-wide ..... | 20 | 0.0079 | 22 | 10 | 12 | 13 | 0.8 | 19 | 16 |

The results of the demographic analysis show that, for the population located within 5 km of Hard Chromium Electroplating source category, there are about 13.1 million people with cancer risks greater than 1-in-1 million for both the source category and facility-wide. Of this population at risk, 52 percent could be classified as a "Minority," 34 percent are included in the "Hispanic or Latino" demographic group, 29 percent are included in the "Other and Multiracial" demographic group, 23 percent are included in the "African-American" demographic group, 22 percent are included in the "Below Poverty Level" demographic group, and 20 percent are included in the "Over 25 Without a High School Diploma" demographic group. The percentage of the population within 5 km of a hard chromium electroplating facility and with a cancer risk greater than 1-in-1 million is higher than the typical distribution of these demographic groups across the United States. These demographic analyses are based on the conservative assessment results.

For the Decorative Chromium Electroplating source category, there are about 350,000 people with cancer risks greater than 1-in-1 million for the source category and 430,000 people with

cancer risks greater than 1-in-1 million facility-wide. Of this population at risk, 50 percent could be classified as a "Minority," 47 percent are included in the "Hispanic or Latino" demographic group, 32 percent are included in the "Other and Multiracial," demographic group, 18 percent are included in the "African-American" demographic group, 24 percent are included in the "Below Poverty Level" demographic group, and 23 percent are included in the "Over 25 Without a High School Diploma" demographic group. The percentage of the population within 5 km of a decorative chromium electroplating facility and with a cancer risks greater than 1-in-1 million is higher than the typical distribution of these demographic groups across the United States. The results of the demographic analysis for facility-wide emissions are similar to the results for the source category.

For the Chromium Anodizing source category, there are about 2,700 people with cancer risks greater than 1-in-1 million and 7,900 people with cancer risks greater than 1-in-1 million facility-wide. Of the population with cancer risks greater than 1-in-1 million, 36 percent could be classified as a "Minority," 16 percent are included in the "African-American" demographic group, 25 percent are included in the "Below Poverty Level" demographic group, and 19 percent are included in the "Over 25 Without a High School Diploma" demographic group. The percentage of the population within 5 km of a chromium anodizing facility and with a cancer risk greater than 1-in-1 million is higher than the typical distribution of these demographic groups across the United States. The results of the facility-wide demographic analysis are higher than the typical distribution of risks to the demographic groups across the United States, for the "Below Poverty Level" and the "Over 25 Without a High School Diploma" demographic groups, but are lower than these levels for the other demographic groups.

Details of these assessments and analyses can be found in the residual risk documentation as referenced in section IV.A of this preamble, which is available in the docket for this action.

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

a. Risk Acceptability

The risk analysis we performed for this proposal indicates that for the Hard Chromium Electroplating source category, the cancer risks to the individual most exposed is 70-in-1 million based on actual emissions and 90-in-1 million based on MACT-allowable emissions. The maximum non-cancer risk level, which is low, is a TOSHI of 0.06 based on actual emissions and 0.09 based on allowable emissions. These risks are due to estimated emissions of hexavalent chromium, which EPA describes as a known human carcinogen by the inhalation route of exposure. As explained above, both the MIR and the maximum non-cancer risk levels are based on emissions from what we believe is the highest risk hard chromium facility operating in the United States.

We further estimate that the excess cancer incidence could be as high as 0.8 cases per year, and that over 14 million people could be exposed to a cancer risk of 1-in-1 million or greater. These risk levels are based on a highly conservative risk assessment as described above. In summary, in this assessment we used (1) actual emissions data for 63 facilities and (2) emissions estimates that are reflective of average emissions for the highest emitting facilities for each one of an additional 1,219 facilities not in the original dataset. Because there are only 790 hard chromium facilities, and because only ten percent of the facilities would have this high an emissions rate, we believe that these conservative risk assessment results overstate cancer incidence and population exposure.

As noted above, we performed a supplemental analysis to assess the degree to which the conservative risk assessment may overstate risks, and, thus, to determine how heavily to weigh those risks in determining whether to find the risks acceptable. In this supplemental analysis we assessed these risks based on (1) the emissions data used in the conservative assessment for the 63 facilities for which we have actual facility emission information, and (2) revised emission data that better represent nationwide average emission levels for the 1,219 facilities. The supplemental assessment indicates that the excess cancer risks from hard chromium electroplating facilities is 0.1 cancer cases per year and 360,000 people exposed to a cancer risk of 1-in-1 million or more, which is substantially less than we found with the conservative assessment. These results indicate that the estimated risks are uncertain and are highly sensitive to input assumptions and that the conservative assessment may substantially overstate risks.

The results of our demographic analysis indicate that minorities face disproportionate risks [32] from exposure to emissions from this category (Tables A.4–A.6). Although the demographic analysis was based on our conservative risk assessment modeling, we have no reason to believe that the results would be substantially different were we to re-run that analysis using the assumptions underlying the supplemental assessment. This is because the disparate impacts identified through our demographic analysis are reflective of the fact that many chrome facilities are located in inner city urban areas, and in or near residential neighborhoods more likely to be inhabited by minority and low income persons. We are concerned about the potential disproportionate health risks from these urban facilities on minorities and those below the poverty level. We solicit comment on whether there may be pollution prevention efforts or other HAP emission reduction approaches that could mitigate the impacts that these facilities have on their immediate surroundings. We also recognize that, in addition to whatever controls are required in the final rulemaking for the Hard Chromium Electroplating source category, there may be other approaches, such as facility-specific compliance assistance, that could mitigate the impacts that these facilities have on their immediate surroundings. We solicit comment and supporting information to assist EPA in identifying measures to mitigate these disproportionate risks.

In accordance with the approach established in the Benzene NESHAP, EPA weighed all health risk measures and information, including the maximum individual cancer risk, the cancer incidence, the number of people exposed to a risk greater than 1-in-1 million, the distribution of risks in the exposed population, and the uncertainty of our risk calculations in determining whether the risk posed by emissions from hard chromium facilities is acceptable.

As an initial matter, we note that the 90-in-1 million risk based on allowable emissions is approaching the "presumptive limit on maximum individual lifetime risk of approximately 1-in-10 thousand [100-in-1 million]" recognized in the Benzene NESHAP (54 FR 38045). We also note

[32] Using census data on race and ethnicity, we estimated the percentage of people in the United States that are minority. We also estimated the percentage of people that live within 5 km of each facility and have cancer risks greater than 1-in-1 million that are minority. Where the percentage of people at risk is higher than the percentage nationwide, those minorities face disproportionate risks.

that, based on our conservative analysis, there is a high level of cancer incidence of 0.8 excess cancer cases per year nationwide, and a very large number (14.2 million) of people potentially exposed to a cancer risk greater than 1-in-1 million.[33] However, we also recognize that our supplemental assessment based on alternative input assumptions concerning emissions (that better represent nationwide average emissions) indicate that the results of the conservative assessments are substantially overstated. Thus, there is great uncertainty about both the cancer incidence and the number of people exposed.

On the one hand, we acknowledge that the cancer incidence and number of people exposed to cancer risks of 1-in-1 million or greater are high based on our conservative analysis. On the other hand, we recognize the significant uncertainty of these risk estimates and the likelihood that they are overstated, based on the conservative nature of the assessment. The supplemental analysis highlights the sensitivity of our risk analysis to highly uncertain input assumptions and supports a determination that the population exposure and cancer incidence risk numbers are overstated. It shows substantially lower cancer incidence (0.1 excess cases per year nationwide as opposed to 0.8) and number of people potentially exposed to a cancer risk of 1-in-1 million or more (360 thousand as opposed to 14.2 million). In addition, the distribution of risks in the exposed population shows the number of people exposed to a cancer risk greater than 10-in-1 million is 71,000 for the conservative assessment and 5,100 for the supplemental analysis.

In determining whether risk is acceptable, we focus on the results of all aspects of the risk assessment. Because the MIR is less than 100-in-1 million, and because of the significant uncertainty of the cancer incidence and number of people exposed, which we believe are overstated based on the fact that our risk analysis was highly conservative, at this time, we are proposing that the risks from the Hard Chromium Electroplating source category are acceptable. We are proposing that the risks are acceptable, in large part, because we believe that the assumptions underlying the supplemental analysis may present a more realistic estimate of the emissions from hard chromium facilities.

[33] These comparisons refer to estimates of incidence and populations from risk assessments performed for other source categories previously covered by RTR risk assessments.

However, we are very concerned by the results of our conservative risk analysis, especially the large number of people (including disproportionately affected populations) estimated to be exposed at a cancer risk above 1-in-1 million. We are also concerned about the level of uncertainty with our analysis given that we have very limited information as to the number (and size) of the facilities. While our current proposal is supported by recognizing the uncertainty associated with the high risk levels from our conservative assessment and, as explained above, that uncertainty (as demonstrated by the supplemental analysis) points in the direction of an overstatement of risk, we would prefer to base a final rule on more complete and reliable information. The purpose of the residual risk standards under CAA section 112(f) is to ensure protection of public health and the environment. Thus, we believe it is important to develop a conservative risk analysis and err on the side of potential overestimation of risk analyses where we are missing data. In this case, we recognize that the assessment may be overly conservative, and we are considering additional methods for performing a conservative analysis. However, we believe additional information and data regarding the location, type and size of facilities will be important to performing any additional analysis that would err on the side of protectiveness without being overly conservative. At this time, we are not certain that we would take final action finding the risk to be acceptable based on the limited information currently available to the Agency.

The comments and information that we receive on this proposal will be critical in making a final decision on acceptability. We are soliciting comment and data to help the Agency make an informed decision as it moves forward with this rulemaking. Specifically, with regard to each of the facilities listed in Appendix A to this preamble, we are seeking to identify (1) the actual annual emissions, if known; (2) which of the three source categories it falls within; and (3) whether, for hard chromium, it is a "large" or "small" facility within the definitions in 40 CFR 63.341(a). In particular, we are encouraging the States to provide EPA with better inventory data for sources within their States. Moreover, we are encouraging States to help identify sources that may be located near sensitive populations or other populations of concern, such as located near schools or that may be located in communities with a significant minority population. To feel comfortable with a final decision finding the risk acceptable, we believe it is important to reduce the level of uncertainty associated with our current analyses. Thus, in light of the comments and any additional data (or lack thereof) that we receive during the comment period, we may determine that it is appropriate to issue a supplemental proposal in which we propose to find the risk unacceptable. If we issue a supplemental proposal in which we propose to find the risk unacceptable, we would be required to propose emissions standards or work practices that reduce risk to a level that is acceptable and provides an ample margin of safety.

For the Decorative Chromium Electroplating source category, the cancer risks to the individual most exposed is 70-in-1 million, based on both actual and MACT-allowable emissions. Based on this cancer risk level and in consideration of other health measures and factors, including the cancer incidence (one case in every 12.5 years) and the low maximum non-cancer risk level (TOSHI of 0.06 based on both actual and MACT-allowable emissions), we propose that the risks from the Decorative Chromium Electroplating source category are acceptable.

For the Chromium Anodizing source category, the cancer risks to the individual most exposed is 5-in-1 million, based on both actual and allowable emissions. Based on this low cancer risk level and in consideration of other health measures and factors, including the cancer incidence (one case in every 250 years) and the low maximum non-cancer risk level (TOSHI of 0.004 based on actual emissions), we propose that the risks from the Chromium Anodizing source category are acceptable.

b. Ample Margin of Safety

Although we are proposing that the risks from these source categories are acceptable, risk estimates for individuals in the exposed population are above 1-in-1 million. Consequently, we considered whether the MACT standard provides an ample margin of safety. As part of this analysis, we investigated available emissions control options that might reduce the risk associated with chromium compound emissions from the nationwide estimated 1,770 hard chromium electroplating, decorative chromium electroplating, and chromium anodizing operations. Once we identified the available emissions control options, we estimated the cost of these options and

estimated the emission reduction associated with each control option. To determine controlled baseline emissions nationwide, assumptions were made about the numbers and types of emission control technologies in use, and the control efficiencies achieved by those technologies. The distribution of emission control methods among the various types of chromium electroplating plants and plant sizes was estimated based on general knowledge of the industry. Table A.7 summarizes the nationwide costs and cost-effectiveness of these regulatory control options.

TABLE A.7—COSTS OF CONTROL OPTIONS FOR CHROMIUM ELECTROPLATING

| Type of facility | Control option | Number of affected facilities | Emission reduction (TPY) | Capital costs ($million) | Annualized costs ($million/yr) | Cost-effectiveness ($million/ton) | MIR after control (in-1-million) |
|---|---|---|---|---|---|---|---|
| Large hard chromium electroplating. | HEPA filter retrofit | 132 | 1.0 | 35.1 | 18.4 | 36.3 | 6 |
| Small hard chromium electroplating. | HEPA filter retrofit | 658 | 0.4 | 66.0 | 33.9 | 59.3 | 6 |
| | CMP retrofit ..... | 392 | 0.2 | 36.6 | 11.1 | 33.1 | 10 |
| Decorative chromium electroplating. | HEPA filter retrofit | 740 | 0.1 | 109.0 | 47.8 | 486 | 4 |
| | CMP retrofit ..... | 644 | [1] 0.05 | 63.1 | 17.1 | 367 | 10 |
| Chromium anodizing ..... | HEPA filter retrofit | 240 | 0.02 | 43.9 | 17.9 | 895 | < 1 |
| | CMP retrofit ..... | 198 | [1] 0.009 | 22.9 | 5.6 | 649 | 2 |

[1] Based on an estimated control efficiency of 99.9 percent.

For large hard chromium electroplating facilities, we evaluated the costs and emissions reductions associated with retrofitting existing tanks with HEPA filters. For small hard chromium electroplating facilities, we evaluated the same HEPA filter retrofit option, and also the option of retrofitting CMP systems on all tanks currently controlled with packed bed scrubbers. Retrofitting HEPA filters on existing tanks at large hard chromium electroplating plants would reduce nationwide emissions of chromium compounds by an estimated 1.0 TPY from the estimated baseline level of 1.10 TPY. The estimated capital and annualized costs for this option would be $35,100,000 and $18,430,000, respectively. The cost-effectiveness would be $36,300,000 per ton of HAP emissions reduced. Retrofitting HEPA filters on existing tanks at small hard chromium electroplating plants would reduce nationwide emissions of chromium compounds by an estimated 0.40 TPY from the estimated baseline level of 0.42 TPY. The estimated capital and annualized costs for this option would be $65,980,000 and $33,860,000, respectively. The cost-effectiveness would be $59,300,000 per ton of HAP emissions reduced. Retrofitting CMP systems on all tanks currently controlled with packed bed scrubbers at small hard chromium electroplating plants would reduce nationwide emissions of chromium compounds by an estimated 0.19 TPY from the estimated baseline level of 0.37 TPY. The estimated capital and annualized costs for this option would be $36,640,000 and $11,050,000, respectively. The cost-effectiveness would be $33,100,000 per ton of HAP emissions reduced. The Benzene NESHAP emphasize the need to consider "costs and the economic impacts of control," which implies some knowledge of affordability (54 FR 38046). The cost of the control options for hard chromium electroplating would impact over half of these facilities with estimated cost to sales ratios ranging from 8 percent to 22 percent. A cost to sales ratio greater than 3 percent may have a significant impact, including plant closure for many of these facilities.

These additional control requirements would reduce the maximum lifetime individual cancer risk from the Hard Chromium Electroplating source category to approximately 4-in-1 million, based on actual emissions. We estimate that, considering MACT-allowable emissions levels, the maximum lifetime individual cancer risk from the Hard Chromium Electroplating source category would be reduced to approximately 6-in-1 million. The cancer incidence would be reduced to approximately 0.05 and the estimated number of people exposed higher than 1-in-1 million would be about 1 million.

For decorative chromium electroplating, we evaluated the options of retrofitting HEPA filters on all existing tanks and the option of retrofitting CMP systems on the existing tanks that currently are not equipped with add-on control devices. Retrofitting HEPA filters on all existing decorative chromium electroplating tanks would reduce nationwide emissions of chromium compounds by an estimated 0.098 TPY from the estimated baseline level of 0.10 TPY. The estimated capital and annualized costs for this option would be $108,970,000 and $47,800,000, respectively. The cost-effectiveness would be $486,000,000 per ton of HAP emissions reduced. Retrofitting CMP systems on all decorative chromium electroplating tanks that currently do not have add-on controls would reduce nationwide emissions of chromium compounds by an estimated 0.05 TPY from the estimated baseline level of 0.10 TPY. The estimated capital and annualized costs for this option would be $63,100,000 and $17,100,000, respectively. The cost-effectiveness for this option would be $367 million per ton of HAP emissions reduced. The additional control requirements for HEPA filters would reduce the maximum lifetime individual cancer risk from the Decorative Chromium Electroplating source category to approximately 4-in-1 million, based on actual emissions. Because we believe the actual emissions are essentially the same as the MACT-allowable emissions for the Decorative Chromium Electroplating source category, we estimate no difference between the risks from the allowable emission level and the actual emission level.

For chromium anodizing, we evaluated the options of retrofitting HEPA filters on all existing tanks and the option of retrofitting CMP systems on the existing tanks that currently are not equipped with add-on control devices. Retrofitting HEPA filters on all existing chromium anodizing tanks

would reduce nationwide emissions of chromium compounds by an estimated 0.020 TPY from the estimated baseline level of 0.021 TPY. The estimated capital and annualized costs for this option would be $43,860,000 and $17,900,000, respectively. The cost-effectiveness would be $895,000,000 per ton of HAP emissions reduced. Retrofitting CMP systems on all chromium anodizing tanks that currently do not have add-on controls would not significantly reduce emissions. The estimated capital and annualized costs for this option would be $22,900,000 and $5,600,000, respectively. The cost-effectiveness for this option would be $649 million per ton of HAP emissions reduced. The additional control requirements for HEPA filters would reduce the maximum lifetime individual cancer risk from the Chromium Anodizing source category to less than 1-in-1 million, based on actual emissions. Because we believe the actual emissions are essentially the same as the MACT-allowable emissions for the Chromium Anodizing source category, we estimate the risk reduction based on allowable emissions to be the same as that for the actual emissions.

Our risk analysis results show cancer risks to the individual most exposed of 70-in-1 million and 5-in-1 million based on actual and MACT-allowable emissions, respectively, for the Decorative Chromium Electroplating and Chromium Anodizing source categories. For both of these categories, the cancer incidence is less than 0.01 cases per year. For decorative chromium electroplating, the number of people exposed to a cancer risk of 1-in-1 million or more is approximately 390,000. For chromium anodizing, the number of people exposed to a cancer risk of 1-in-1 million or more is approximately 2,700.

For the Hard Chromium Electroplating source category, our risk analysis shows cancer risks to the individual most exposed are 70-in-1 million based on actual emissions levels and 90-in-1 million based on MACT-allowable emissions. The cancer incidence for this source category could be as high as 0.8 cases per year, and could be over 14 million people exposed to cancer risks of 1-in-1 million or greater due to emissions from hard chromium electroplating sources using highly conservative assumptions. As we stated previously, we believe we overestimated hard chromium electroplating emissions, the number of plants that perform hard chromium electroplating, and, therefore, that the risks from the resulting analyses are also overstated. Our supplemental risk analysis for this source category indicates a cancer incidence of 0.1 cases per year and 360,000 people exposed to cancer risks of greater than 1-in-1-million. This analysis indicates that the risk levels in the assessment are highly uncertain and err on the side of being conservative.

Our analyses also show that, for these source categories, there is no potential for an adverse environmental effect or human health multipathway effects, and that acute and chronic non-cancer health impacts are unlikely. Our additional analysis of facility-wide risks showed that the maximum facility-wide cancer risk is 90-in-1 million, and that the maximum chronic non-cancer risks are unlikely to cause health impacts. Our additional analysis of the demographics of the exposed population shows that minorities face disproportionate risk from exposure to emissions from this category

We do not believe there is a significant risk reduction from the housekeeping measures we are proposing under CAA section 112(d)(6). However, we are requesting information on any risk reductions from these housekeeping practices and whether we should consider adopting these practices under CAA section 112(f)(2).

We considered all these factors in our ample margin of safety decision, and concluded that the costs of the options analyzed are not reasonable considering the emissions reductions and cancer health benefits potentially achievable with the controls. As a result, we propose that the existing MACT standard provides an ample margin of safety (considering cost, technical feasibility, and other factors) to protect public health for all three of these source categories. Thus, we are proposing to re-adopt the existing MACT standard to satisfy section 112(f) of the CAA.

While we propose that the existing MACT standard for the Hard Chromium Electroplating source category is acceptable and provides an ample margin of safety, we are proposing additional requirements under CAA section 112(d)(6), as discussed below. Notwithstanding our proposal that the risks are acceptable, we remain concerned that up to 14.2 million people may be exposed to cancer risks of 1-in-1 million or greater, and that there are disparities in risks for some demographic groups. While we are rejecting the option of adding HEPA filters or CMP as not cost-effective, we are specifically requesting comment on whether there are any cost-effective controls that may be able to reduce these risks. In particular, we are requesting States to identify any controls they have already required for these facilities, any controls they are currently considering, or any other controls of which they may be aware. We are also soliciting comment on whether our cost estimates for these options are accurate and whether these controls may be more cost-effective.

In summary, we propose that the risks posed by these source categories are acceptable. We are also proposing that the current MACT standard provides an ample margin of safety to protect public health based on our conclusion that the controls available are not cost-effective in light of the additional health protection the controls would provide. Thus, we are proposing to re-adopt the existing MACT standard to satisfy section 112(f) of the CAA.

5. What is our proposed decision on the technology review?

To evaluate developments in practices, processes, and control technologies for the chromium electroplating source categories, several activities were performed. Public comments received on the proposed 2002 amendments to the Chromium Electroplating MACT standards (67 FR 38810, June 5, 2002) were reviewed to determine whether they identified any developments in practices, processes, or control technologies that warrant further consideration. A review was performed of the supporting documentation for the 2007 amendments to California's Airborne Toxic Control Measure (ATCM) for Chromium Plating and Chromium Anodizing Facilities. Finally, searches of the RBLC and the Internet were conducted to identify other practices, processes, or control technologies that could be applied to chromium electroplating.

The 2004 amendments to the Chromium Electroplating MACT standards addressed three specific technology developments that occurred following promulgation of the original MACT standard: The use of WAFS for hard chromium electroplating emission control; instrumental differences in surface tension measurements for demonstrating compliance with electroplating bath surface tension limits; and enclosing hoods for electroplating tanks. Because those technology developments have already been addressed and we are not aware of any improvements to them, they are not discussed further. The following paragraphs describe all developments in practices, processes, and control technologies that we identified and that

were thus considered for the technology review, along with our conclusions.

a. Emission Elimination Device

An emission elimination device (EED), which is also referred to as a "Merlin cover," consists of a tank cover that includes a porous membrane that allows gases to escape, but captures droplets and mist emanating from the electroplating tank. While these tank covers are available, we do not believe any chromium electroplating or anodizing facilities are currently using an EED due to the impracticality of covering the electroplating tank while plating is underway. Because these devices are not known to be used in this industry and because it is unclear that they are feasible for these operations, we concluded that it is not necessary to revise the MACT standard to require this control under section 112(d)(6). However, we request comment on tanks or processes in which an EED could practicably be used by chromium electroplating or anodizing facilities.

b. HEPA Filters

Although HEPA filters have been on the market for decades, they were not considered to be a practical control method for electroplating tank emissions when the MACT standards were developed due to potential problems with clogging and the availability of several other types of mist eliminator technologies that had been proven to be effective in reducing emissions from electroplating tanks. However, in the past decade, facilities in California have increasingly used HEPA filters to meet the emission limits of the State's ATCM for Chromium Plating and Chromic Acid Anodizing Facilities. In October 2007, the California Air Resources Board (CARB) amended the ATCM to further tighten emission limits and to require HEPA filters on all new chromium electroplating and anodizing tanks. In those applications, HEPA filters act as a second stage of control, with the first stage generally consisting of a mesh pad mist eliminator or other device that removes large particles from the exhaust stream prior to the HEPA filter. Discussions with State and local agency staff in California indicate no technological problems with using HEPA filters for chromium electroplating emissions control. As part of this technology review, HEPA filters have been considered as a possible control option for sources subject to the Chromium Electroplating MACT standards. The costs of requiring HEPA filters were estimated, and are discussed above in section V.A.4.b of this preamble. In light of the high cost of this option as compared with the risk reductions it would achieve, we are proposing that it is not necessary to revise the MACT standard under section 112(d)(6) to require HEPA filters. However, we request comment on whether we should require HEPA filters for new source MACT.

c. Wetting Agent Fume Suppressants (WAFS)

The MACT standard allows the use of WAFS as a compliance alternative for meeting the applicable emission limit. WAFS are used in most decorative chromium electroplating and chromium anodizing tanks and in many hard chromium electroplating tanks for emission control. Historically, the most effective types of WAFS have been based on perfluorooctyl sulfonate (PFOS). The PFOS-based WAFS used in the chromium electroplating industry are part of a family of chemical compounds categorized as long-chain perfluorinated chemicals (PFC). As noted in a 2010 California Office of Health Hazard Assessment report, *Perfluorooctane sulfonate (PFOS) and Its Salts and Transformation and Degradation Precursors,*[34] these compounds have persistent, bioaccumulative, and toxic characteristics and are a particular concern for children's health.

Over the last several years there have been developments associated with the use of WAFS as a compliance alternative. There are now several types of WAFS on the market that do not include PFOS chemicals and have been proven effective for use in hard chromium and decorative chromium electroplating baths that we believe are cost-effective. Furthermore, these non-PFOS WAFS are not associated with any known adverse health effects. Although the non-PFOS WAFS have not been used extensively in the chromium anodizing industry, we are not aware of any technical reasons to preclude their use and effectiveness for chromium anodizing baths. However, we seek comment on this, as well as on our assessment that their use is cost-effective. Because of the adverse non-air quality health and environmental impacts associated with using PFOS-based WAFS (*i.e.,* the increasing concern over the presence of long-chain PFC in the environment), we are proposing under CAA section 112(d)(6) to revise the scope of the compliance alternative to no longer allow the addition of PFOS-based WAFS to tanks as a control method for these source categories. We solicit comment on all aspects of this change, including the non-air quality health and environmental impacts associated with using PFOS based WAFS.

For new sources, we are proposing that no PFOS-based WAFS could be used upon startup. For existing sources, we are proposing that no PFOS-based WAFS could be added to the electroplating or anodizing tanks beginning 3 years after promulgation of the final amendments; however, the tanks may continue operating with the remaining PFOS-based WAFS in them after that date until it is depleted. Under these amendments, these requirements would be specified in 40 CFR 63.342(c)(1)(iv) and (2)(vi) for hard chromium electroplating tanks, 40 CFR 63.342(d)(3) for decorative chromium electroplating and chromium anodizing tanks, and 40 CFR 63.342(e)(2) for decorative chromium electroplating tanks that use a trivalent chromium bath. A definition of PFOS-based fume suppressants also would be added to 40 CFR 63.341.

d. Housekeeping Procedures

We are also proposing under CAA section 112 (d)(6) to incorporate several housekeeping requirements into 40 CFR 63.342(f). In our review of the 2007 amendments to California's ATCM for Chromium Plating and Chromic Acid Anodizing Facilities, we found this rule required several housekeeping procedures that were not included in the housekeeping procedures required by the Chromium Electroplating MACT standards. These measures would potentially reduce fugitive chromium emissions from chromium electroplating and anodizing operations. In view of the implementation of these procedures in California and the potential for fugitive emissions reductions, we are proposing to add these procedures to the Chromium Electroplating MACT standards. The proposed housekeeping procedures would include storage requirements for any substance that contains hexavalent chromium as a primary ingredient; controls for the dripping of bath solution resulting from dragout; splash guards to minimize overspray and return bath solution to the electroplating or anodizing tank; a requirement to promptly clean up or contain all spills of any substance containing hexavalent chromium; requirements for the routine cleaning or stabilizing of storage and work surfaces, walkways, and other surfaces potentially contaminated with hexavalent chromium; a requirement to

[34] This report is available at *http://www.oehha.org/prop65/CRNR_notices/pdf_zip/070910_PFOS_CIC.pdf.*

install a barrier between all buffing, grinding, or polishing operations and electroplating or anodizing operations; and requirements for the storage, disposal, recovery, or recycling of chromium-containing wastes. The proposed housekeeping procedures would be listed in a new Table 2 to 40 CFR 63.342. In addition, this proposed action would require owners and operators to incorporate these housekeeping procedures in the facility Operation and Maintenance Plan specified in section 40 CFR 63.342(f)(3) and implement them, and a new definition would be added to 40 CFR 63.341(a) to clarify what is meant by the term "contains hexavalent chromium as a primary ingredient." The proposed compliance date for implementing the housekeeping procedures would be 6 months after promulgation of the final amendments.

6. What are the other actions we are proposing?

a. SSM Provisions

Consistent with *Sierra Club* v. *EPA,* EPA is proposing that standards in this rule would apply at all times. The existing MACT standards for these three source categories already specifies that the emission limitations apply "during periods of startup and shutdown" but not during malfunctions. We are proposing to revise this paragraph to remove the sentence indicating that the emission limitations do not apply during malfunctions. We are maintaining the malfunction-associated reporting and recordkeeping requirements in 40 CFR 63.346 and 40 CFR 63.347 with minor revisions. We are proposing to add language to 40 CFR 63.344(a) to clarify the conditions during which performance tests shall be conducted and to specify in Table 1 that the performance test specifications in 40 CFR 63.7(e)(1) of the *General Provisions* do not apply. We are also proposing to add a general duty provision to minimize emissions into 40 CFR 63.342(a)(1). In addition, we are proposing to promulgate an affirmative defense against civil penalties for exceedances of emission standards caused by malfunctions, as well as criteria for establishing the affirmative defense. EPA has attempted to ensure that we have not incorporated into 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.

b. Rule Improvements

In addition, we identified the need for revisions of the standards to correct editorial errors, make clarifications, or address issues with implementation or determining compliance with the rule provisions.

*Monitoring and Testing Requirements.* We are proposing to revise 40 CFR 63.344(e), which addresses compliance provisions for multiple sources controlled by a common add-on air pollution control device. This section of the MACT standard references testing by Method 306, without any mention of Method 306A. Since Method 306A is an alternative to Method 306, we are proposing to revise section 40 CFR 63.344(e) to clarify that testing can be performed by either Method 306 or Method 306A.

To correct inconsistencies between the amendments made to 40 CFR part 63, subpart N in 2004 (69 FR 42885) and Method 306B, we are proposing to revise Method 306B, which specifies procedures for measuring the surface tension of chromium electroplating and anodizing baths. In addition, the proposed amendments would help to ensure that surface tension measurements made using stalagmometers are accurate. Under the proposed amendments, section 1.2 of Method 306B would be revised to clarify that the method also applies to hard chromium electroplating tanks. Section 11.1 would be revised to include procedures for checking the accuracy of, and cleaning, a stalagmometer before using the stalagmometer to measure surface tension. The proposed revisions to section 11.1 are consistent with the CARB ATCM for Hexavalent Chromium for Decorative and Hard Chrome plating and Chromic Acid Anodizing Facilities. Maintaining surface tension measuring devices is critical for obtaining accurate measurements. Method 306B currently references standard procedures for the use of tensiometers (ASTM Method D 1331–89), but not for the use of stalagmometers. The proposed amendment to section 11.1 would help to ensure that stalagmometers used to demonstrate compliance with surface tension limits are maintained and used properly. Finally, section 11.2 would be revised to account for the differences in surface tension limits, depending on the type of instrument used (tensiometer or stalagmometer).

*Rule Corrections.* To eliminate a discrepancy between the Chromium Electroplating MACT standards in subpart N of part 63 and the *General Provisions* in subpart A of part 63, this proposed action would also revise the trigger for semiannual compliance reports specified in 40 CFR 63.347(h)(2)(A) to be consistent with the trigger specified in the *General Provisions.* Subpart N currently provides that a semiannual report must be submitted if both the duration of excess emissions exceeds 1 percent of the source operating time and the duration of air pollution control device malfunctions exceeds 5 percent of the source operating time during the reporting period; however, 40 CFR 63.10(e)(3)(viii) of the *General Provisions* requires submitting a semiannual report if either condition occurs. We are proposing to revise 40 CFR part 63, subpart N to require semiannual reports to be submitted if either condition occurs.

*B. What are the results and proposed decisions for the Group I Polymers and Resins Production source categories?*

The National Emission Standards for Hazardous Air Pollutant Emissions: Group I Polymers and Resins were promulgated on September 5, 1996 (62 FR 46925), and codified at 40 CFR part 63, subpart U. The Polymers and Resins I MACT standard applies to major sources and regulates HAP emissions from nine source categories: Butyl Rubber Production, Epichlorohydrin Elastomers Production, Ethylene Propylene Rubber Production, Hypalon™ Production, Neoprene Production, Nitrile Butadiene Rubber Production, Polybutadiene Rubber Production, Polysulfide Rubber Production, and Styrene Butadiene Rubber and Latex Production.

The Polymers and Resins I MACT standards regulate HAP emissions resulting from the production of elastomers (*i.e.,* synthetic rubber). An elastomer is a synthetic polymeric material that can stretch to at least twice its original length and then return rapidly to approximately its original length when released. Elastomers are produced via a polymerization/copolymerization process, in which monomers undergo intermolecular chemical bond formation to form a very large polymer molecule. Generally, the production of elastomers entails four processes: (1) Raw material (*i.e.,* solvent) storage and refining; (2) polymer formation in a reactor (either via the solution process, where monomers are dissolved in an organic solvent, or the emulsion process, where monomers are dispersed in water using a soap solution); (3) stripping and material recovery; and (4) finishing (*i.e.,* blending, aging, coagulation, washing, and drying).

Sources of HAP emissions from elastomers production include raw material storage vessels, front-end process vents, back-end process operations, wastewater operations, and equipment leaks. The "front-end" processes include pre-polymerization, reaction, stripping, and material recovery operations; and the "back-end" process includes all operations after stripping (predominately drying and finishing). Typical control devices used to reduce organic HAP emissions from front-end process vents include flares, incinerators, absorbers, carbon adsorbers, and condensers. In addition, hydrochloric acid formed when chlorinated organic compounds are combusted are controlled using scrubbers. Emissions from storage vessels are controlled by floating roofs or by routing them to a control device.

While emissions from back-end process operations can be controlled with control devices such as incinerators, the most common method of reducing these emissions is the pollution prevention method of reducing the amount of residual HAP that is contained in the raw product going to the back-end operations. Emissions from wastewater are controlled by a variety of methods, including equipment modifications (*e.g.,* fixed roofs on storage vessels and oil water separators; covers on surface impoundments, containers, and drain systems), treatment to remove the HAP (steam stripping, biological treatment), control devices, and work practices.

Emissions from equipment leaks are typically reduced by leak detection and repair work practice programs, and in some cases, by equipment modifications. Each of the seven Group I Polymers and Resins Production source categories addressed in this proposal are discussed further below.

1. Epichlorohydrin Elastomers Production

Epichlorohydrin Elastomers Production is one of the source categories for which we proposed RTR decisions on October 10, 2008.

a. Overview of the Source Category

Epichlorohydrin elastomers are prepared from the polymerization or copolymerization of epichlorohydrin or other monomers. Epichlorohydrin elastomers are produced by a solution polymerization process, typically using toluene as the solvent in the reaction. The main epichlorohydrin elastomers are polyepichlorohydrin, epi-ethylene oxide (EO) copolymer, epi-allyl glycidyl ether (AGE) copolymer, and epi-EOAGE terpolymer. Epichlorohydrin elastomers are widely used in the automotive industry.

We identified one currently operating epichlorohydrin elastomers production facility subject to the Polymers and Resins I MACT standard. Toluene accounts for the majority of the HAP emissions from the epichlorohydrin elastomers production processes at this facility (approximately 44 TPY and 99 percent of the total HAP emissions by mass). This facility also reported relatively small emissions of epichlorohydrin and ethylene oxide. The majority of HAP emissions are from back-end process vents (approximately 82 percent of the total HAP by mass). We estimate that the MACT-allowable emissions (*i.e.,* the maximum emission levels allowed if in compliance with the MACT standard) from this source category are approximately equal to the reported, actual emissions. For more detail about this estimate of the ratio of actual to MACT-allowable emissions, see the memo in the docket for this action describing the estimation of MACT-allowable emission levels and associated risks and impacts.

b. What data were used in our risk analyses?

We initially created a preliminary data set for the Epichlorohydrin Elastomers Production source category using information we collected directly from industry on emissions data and emissions release characteristics. 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 on and updates to this data set, as well as to the data sets for the other source categories addressed in that ANPRM. Comments received in response to the ANPRM were reviewed and considered, and we made adjustments to the data set where we concluded the comments supported such adjustment. After making appropriate changes to the data set based on this public data review process, the data set on which we based the initial proposal was created. This data set was used to conduct the risk assessment and other analyses for the Epichlorohydrin Elastomers Production source category that formed the basis for the proposed RTR included in the October 10, 2008, proposal.

We have continued to scrutinize the existing data set and have evaluated any additional data that became available subsequent to the October 10, 2008, proposal. Specific questions we had concerning current operations led us to develop a questionnaire and ask for updated emissions and emissions release characteristics information. This information was requested from the facility in May 2010 using the authority of section 114 of the CAA. We updated our data set for this source category based on the information received through this request.

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

We have conducted a revised inhalation risk assessment for the Epichlorohydrin Elastomers Production source category. We have also conducted an assessment of facility-wide risk, and performed a demographic analysis of population risks. Table B.1.1 provides an overall summary of the results of the revised inhalation risk assessment.

TABLE B.1.1—EPICHLOROHYDRIN ELASTOMERS PRODUCTION REVISED INHALATION RISK ASSESSMENT RESULTS *

| Number of facilities[1] | Maximum individual cancer risk (in 1 million)[2] | | Population at risk ≥ 1-in-1 million | 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 | |
| 1 | 10 | 10 | 800 | 0.0001 | 0.1 | 0.1 | $HQ_{REL}$ = 0.2 epichlorohydrin |

* All results are for impacts out to 50 km from every source in the category.

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

[2] Maximum individual excess lifetime cancer risk.

[3] Maximum TOSHI. The target organ with the highest TOSHI for the Epichlorohydrin Elastomer Production source category is the respiratory system.

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

The inhalation risk modeling was performed using actual emissions level data. As shown in Table B.1.1, the results of the revised inhalation risk assessment indicated the maximum lifetime individual cancer risk could be as high as 10-in-1 million, the maximum chronic non-cancer TOSHI value could be as high as 0.1, and the maximum off-facility-site acute HQ value could be as high as 0.2, based on the actual emissions level and the REL value for epichlorohydrin. The total estimated national cancer incidence from these facilities based on actual emission levels is 0.0001 excess cancer cases per year, or one case in every 10,000 years.

Based on our analysis, we believe that actual emissions approximate emissions allowable under the MACT standard. Therefore, the risk results for MACT-allowable emissions are approximately equal to those for actual emissions. For more detail about the estimate of the ratio of actual to MACT-allowable emissions, see the memo in the docket for this action describing the estimation of MACT-allowable emission levels and associated risks and impacts.

There were no reported emissions of PB–HAP; therefore, we do not expect potential for human health multipathway risks or adverse environmental impacts.

Table B.1.2 displays the results of the facility-wide risk assessment. This assessment was conducted based on actual emission levels.

TABLE B.1.2—EPICHLOROHYDRIN ELASTOMERS PRODUCTION FACILITY-WIDE RISK ASSESSMENT RESULTS

| | |
|---|---|
| Maximum facility-wide individual cancer risk (in 1 million) | 10 |
| Epichlorohydrin Elastomer Production source category contribution to this maximum facility-wide individual cancer risk [1] | 100% |
| Maximum facility-wide chronic non-cancer TOSHI | 0.1 |
| Epichlorohydrin Elastomer Production source category contribution to this maximum facility-wide non-cancer TOSHI [1] | 100% |

[1] Percentage shown reflects Epichlorohydrin Elastomer Production source category contribution to the maximum facility-wide risks at the facility with the maximum risk value shown.

As shown in Table B.1.2, the maximum individual cancer risk from all HAP emissions at the one facility that contains epichlorohydrin elastomers production processes subject to the Group I Polymers and Resins MACT standard is estimated to be 10-in-1 million, and the maximum chronic non-cancer TOSHI value is estimated to be 0.1. The estimated proportion of the risk attributable to Epichlorohydrin Elastomers Production source category processes at this facility is approximately 100 percent for cancer risks and 100 percent for chronic non-cancer risk.

The results of the demographic analyses performed to investigate the distribution of risks above 1-in-1 million, based on actual emissions levels for the population living within 5 km of the facilities, among various demographic groups are provided in a report available in the docket for this action and summarized in Table B.1.3 below.

TABLE B.1.3—EPICHLOROHYDRIN ELASTOMERS DEMOGRAPHIC RISK ANALYSIS RESULTS

| Emissions basis | Maximum risk (in 1 million) | Population with risk greater than 1-in-1 million | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Total (millions) | Minority % | African American % | Other and multiracial % | Hispanic or Latino % | Native American % | Below the poverty level % | Over 25 W/O a HS diploma % |
| Nationwide | n/a | 285 | 25 | 12 | 12 | 14 | 0.9 | 13 | 13 |
| Source Category | 10 | 0.0008 | 54 | 53 | 1 | 1 | 0.4 | 20 | 11 |
| Facility-wide | 10 | 0.01 | 52 | 50 | 2 | 1 | 0.2 | 23 | 14 |

The results of the demographic analysis show that, for the Epichlorohydrin Elastomers Production source category, of the population of 800 people with cancer risk greater than 1-in-1 million, 54 percent could be classified as a "Minority," 53 percent are included the "African-American" demographic group, and 20 percent are included the "Below Poverty Level," demographic group. The percentage of the population within 5 km of a epichlorohydrin elastomers production facility and with a cancer risk greater than 1-in-1 million is higher than expected for these demographic categories based on the typical distribution of these demographic groups across the United States. The table also shows that the results of the demographic analysis for the facility-wide emissions are similar to the results for the source category.

Details of these assessments and analyses can be found in the residual risk documentation as referenced in section IV.A. of this preamble, which is available in the docket for this action.

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

*October 2008 Proposed Decision.* In our October 10, 2008, proposal, we proposed that the risks 0f 30-in-1 million were acceptable because the risks results indicated that cancer risks to the individual most exposed to emissions from the category were greater than 1-in-1 million, but less than 100-in-1 million. We then analyzed other risk factors in the ample margin of safety determination. In this analysis, we proposed that emissions from the source category posed no potential for

an adverse environmental effect, did not pose potential for human health multipathway risks, and were unlikely to cause acute or chronic non-cancer health impacts. We also identified one emissions control option that would reduce risks. We proposed that such control was not necessary to protect public health with an ample margin of safety in light of the high cost and limited addition health protection it would provide. Therefore, we proposed that the existing standard provided an ample margin of safety and proposed to re-adopt the existing MACT standard to satisfy section 112(f) of the CAA.

*Risk Acceptability.* The revised risk analysis we performed for this proposal indicates that the cancer risks to the individual most exposed is 10-in-1 million based on both actual and MACT-allowable emissions. The cancer incidence and the number of people exposed to cancer risks of 1-in-1 million or greater are not significantly changed from the risk identified in the October 2008 proposal. Similarly, the risk analysis continued to show no potential for an adverse environmental effect or human health multipathway effects, and that acute or chronic non-cancer health impacts are unlikely. Our additional analysis of facility-wide risks showed that the maximum facility-wide cancer risk is 10-in-1 million and that the maximum chronic non-cancer risks are unlikely to cause health impacts. Our additional analysis of the demographics of the exposed population shows disparities in risks between demographic groups for the 800 people exposed at risks of 1-in-1 million. Based on this low cancer risk level and in consideration of other health measures and factors, including the low cancer incidence (one case in every 10,000 years) and the low maximum non-cancer risk level (TOSHI of 0.1), we propose that the risks from the Epichlorohydrin Elastomers Production are acceptable.

*Ample Margin of Safety.* Because we are proposing that the risks are acceptable, but still above 1-in-1 million, we then reconsidered our 2008 ample margin of safety decision. We have not identified any additional control options or any changes to the previously analyzed control option. Our analysis does not indicate a change in the emissions reductions that could be achieved or the cost of control for the control option considered in the October 2008 proposal. Therefore, we continue to propose that the current MACT standard provides an ample margin of safety to protect public health and the environment, and we are proposing to re-adopt the existing MACT standard to satisfy section 112(f) of the CAA.

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

In the October 10, 2008 proposal, we identified no advancements in practices, processes, and control technologies applicable to the emission sources in the Group I Polymers and Resins Production source categories in our technology review, and we proposed to re-adopt the existing MACT standard to satisfy section 112(d)(6) of the CAA. In that review, we examined the regulatory requirements and/or technical analyses for subsequently promulgated air toxics regulations with similar types of emissions sources as those in the Group I Polymers and Resins Production source categories, and we conducted a search of the RBLC for controls for VOC- and HAP-emitting processes in the Group I Polymers and Resins Production source categories. We have not identified any additional developments in practices, processes, and control technologies since the proposal date for the Epichlorohydrin Elastomers Production source category. Thus, we are proposing that it is not necessary to revise the MACT standard pursuant to section 112(d)(6) of the CAA.

f. What other actions are we proposing?

*SSM Provisions.* We are proposing to eliminate the SSM exemption in the Group 1 Polymers and Resins MACT standard. Consistent with *Sierra Club* v. *EPA,* EPA is proposing that standards in this rule would apply at all times. We are proposing several revisions to 40 CFR part 63, subpart U. Specifically, we are proposing to revise Table 1 to indicate that the requirements of 40 CFR 63.6(e) of the *General Provisions* do not apply. The 40 CFR 63.6(e) requires owner 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 63.483(a). The 40 CFR 63.6(e) 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 proposing to remove the explanation of applicability of emissions standards during periods SSM in 40 CFR 63.480(j); remove the malfunction plan from 40 CFR 63.482 and revise the definition of initial start-up to remove references to malfunctions in this section; clarify that representative conditions do not include periods of SSM throughout the rule; remove references to periods of SSM in monitoring; and revise the SSM-associated recordkeeping and reporting requirements in 40 CFR 63.506 to require reporting and recordkeeping for periods of malfunction. We are also proposing to revise Table 1 to indicate that SSM-related provisions in 40 CFR 63.6(f)(1), 40 CFR 63.7(e)(1), and 40 CFR 63.10(d)(5)(i) of the *General Provisions* do not apply. In addition, we are proposing to promulgate an affirmative defense against civil penalties for exceedances of emission standards caused by malfunctions, as well as criteria for establishing the affirmative defense.

EPA has attempted to ensure that we have not incorporated into 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.

*Significant Emission Points Not Previously Regulated Review.* We identified the absence of a limit for a significant emissions source within the provisions of the Group I Polymers and Resins MACT standard that apply to the Epichlorohydrin Elastomers Production source category. Specifically, there are no back-end process operation emission limits for this source category.[35] As these processes are major sources of emissions for the one facility in the source category, we are proposing to set standards for back-end process operations under CAA section 112(d)(2) and (d)(3) in this action.

As there is only one facility in the source category, the emissions level currently being achieved by this facility represents the MACT floor. The annual HAP emissions from the back-end process operations at this facility are approximately 36 TPY of toluene. There are two separate dryer vents, one emitting around 24 TPY of toluene, and the other emitting around 12 TPY of toluene. Neither of these vents is controlled. Therefore, we have determined that the MACT floor for these processes is 36 TPY based on the current level of HAP stripping and recovery, given current production levels, but which would fluctuate proportionally with an increase or decrease in production levels.

As part of our beyond-the-floor analysis, we considered alternatives

[35] Note that these uncontrolled emissions were included in the baseline risk assessment.

more stringent than the MACT floor option. We identified one option using add-on emission controls that would require the ducting of emissions from the back-end process operations to a control device, such as an incinerator. This option would also require an initial performance test of the incinerator and continuous parameter monitoring averaged daily. The capital costs of this option are estimated to be approximately $600,000 and the total annual costs are estimated to be approximately $1,100,000. We estimate that an incinerator would achieve an emissions reduction of 98 percent, resulting in a HAP decrease of approximately 35 TPY, with a cost-effectiveness of approximately $31,000/ton. Table B.2.4 summarizes the cost and emission reduction impacts of the proposed options. Because the reduction in HAP would be due to toluene, no reduction of cancer risk would result from this control option.

TABLE B.1.4—EPICHLOROHYDRIN ELASTOMER PRODUCTION FACILITY BACK-END OPTIONS IMPACTS

| Regulatory alternatives | HAP emissions (TPY HAP) | Capital cost ($million) | Annual cost ($million/yr) | Cost-effectiveness as compared to baseline |
|---|---|---|---|---|
| | | | | $/Ton HAP Removed |
| Baseline | 36 | | | |
| 1 (MACT floor) | 36 | 0 | 0 | |
| 2 (Beyond-the-floor) | 1 | 0.6 | 1.1 | 31,000 |

In addition to the cost and emission reduction impacts shown in Table B.1.4, we estimate that the beyond-the-floor option would result in increases in criteria pollutant and carbon dioxide emissions (PM − 0.2 TPY, $SO_2$ − 0.03 TPY, $NO_X$ − 12 TPY, CO − 2 TPY, and $CO_2$ − 7,000 TPY), and an increase in energy use of approximately 117,000 million British thermal units (BTU)/year at a cost of approximately $33,000/year.

We believe that the costs and other impacts of this beyond-the-floor option are not reasonable, given the level of emission reduction. Therefore, we are proposing an emission standard that reflects the MACT floor option. We are requesting comment on this analysis and these options.

As noted above, we are proposing that the MACT standard, prior to the implementation of the proposed emission limitation to the back-end process operations discussed in this section, provides an ample margin of safety to protect public health. Therefore, we maintain that after the new standard's implementation, the rule will continue to provide an ample margin of safety to protect public health. Consequently, we do not believe it will be necessary to conduct another residual risk review under CAA section 112(f) for this source category 8 years following promulgation of new back-end process limitations, merely due to the addition of this new MACT requirement.

2. Polybutadiene Rubber Production

Polybutadiene Rubber Production is one of the source categories for which we proposed RTR decisions on October 10, 2008.

a. Overview of the Source Category

Polybutadiene rubber is a homopolymer of 1,3-butadiene (*i.e.,* 1,3-butadiene is the only monomer used in the production of this polymer). While both the solution and emulsion polymerization processes can be used to produce polybutadiene rubber, all currently operating facilities in the United States use a solution process. In the solution process, the reaction is conducted in an organic solvent (hexane, toluene, or a non-HAP organic solvent), which helps to dissipate heat generated by the reaction and control the reaction rate. While polybutadiene rubber is the primary product at these facilities, styrene-butadiene rubber can also be produced as a minor product by adding styrene as a monomer. Most of the polybutadiene rubber manufactured in the United States is used in the production of tires in the construction of the tread and sidewalls. Polybutadiene rubber is also used as a modifier in the production of other polymers and resins (*e.g.,* polystyrene).

We identified five currently operating polybutadiene rubber production facilities subject to the Polymers and Resins I MACT standard. Some of these facilities are located at plant sites that also have other HAP-emitting sources regulated under separate MACT standards, which have been or will be addressed in separate regulatory actions. Three of the polybutadiene rubber production facilities use hexane as the solvent in their solution process, one facility uses toluene as its solvent, and the fifth uses a non-HAP organic solvent. Overall, hexane and toluene account for the majority of the HAP emissions from this source category (approximately 1,600 TPY hexane, which represents 70 percent of the total HAP emissions by mass, and 500 TPY toluene, which represents 23 percent). The facilities in this source category also reported emissions of styrene, 1,3-butadiene, ethylbenzene, and relatively minor quantities of other HAP. The majority of HAP emissions are from back-end process operations (approximately 70 percent of the total HAP by mass). For all emission sources except the back-end process operations, the actual emissions level is representative of the MACT-allowable level. For back-end process operations, we estimate that MACT-allowable emissions from this source category could be as high as seven times the actual emissions. Because these back-end limitations are production-based, this estimate was made by comparing the actual emissions levels to the emissions calculated using the limitations and production levels. For more detail about the estimate of the ratio of actual to MACT-allowable emissions, see the memo in the docket for this action describing the estimation of MACT-allowable emission levels and associated risks and impacts.

b. What data were used in our risk analyses?

We initially created a preliminary data set for the Polybutadiene Rubber Production source category using information we collected directly from industry on emissions data and emissions release characteristics. 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 on, and updates

to, this data set, as well as to the data sets for the other source categories addressed in that ANPRM. Comments received in response to the ANPRM were reviewed and considered. We made adjustments to the data set where we concluded the comments supported such adjustment. After making appropriate changes to the data set based on this public data review process, the data set on which we based the initial proposal was created. This data set was used to conduct the risk assessment and other analyses for the Polybutadiene Rubber Production source category that formed the basis for the proposed actions included in the October 10, 2008, proposal. We have continued to scrutinize the data set and any additional data that have become available since the October 10, 2008, proposal.

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

We have conducted a revised inhalation risk assessment for the Polybutadiene Rubber Production source category. We have also conducted an assessment of facility-wide risk and performed a demographic analysis of population risks. Table B.2.1 provides an overall summary of the results of the revised inhalation risk assessment.

TABLE B.2.1—POLYBUTADIENE RUBBER REVISED INHALATION RISK ASSESSMENT RESULTS *

| Number of facilities[1] | Maximum individual cancer risk (in 1 million)[2] | | Population at risk ≥ 1-in-1 million | 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 | |
| 5 | 30 | 30 | 24,000 | 0.003 | 0.3 | 0.3 | $HQ_{REL}$ = 1 toluene |

* All results are for impacts out to 50 km from every source in the category.
[1] Number of facilities evaluated in the risk analysis.
[2] Maximum individual excess lifetime cancer risk.
[3] Maximum TOSHI. The target organ with the highest TOSHI for the Polybutadiene Rubber Production source category is the reproductive system.
[4] The maximum estimated acute exposure concentration was divided by available short-term threshold values to develop an array of HQ values. HQ values shown use the lowest available acute threshold value, which, in most cases, is the REL. When HQ values exceed 1, we also show HQ values using the next lowest available acute threshold. See section IV.A. of this preamble for explanation of acute threshold values.

The inhalation risk modeling was performed using actual emissions level data. As shown in Table B.2.1, the results of the revised inhalation risk assessment indicated the maximum lifetime individual cancer risk could be as high as 30-in-1 million, the maximum chronic non-cancer TOSHI value could be up to 0.3, and the maximum off-facility-site acute HQ value could be as high as 1, based on the actual emissions level and the REL value for toluene. The total estimated national cancer incidence from these facilities based on actual emission levels is 0.003 excess cancer cases per year, or one case in every 333 years.

Our analysis of potential differences between actual emission levels and emissions allowable under the MACT standard indicated that MACT-allowable emission levels are equal to actual emissions for all emissions sources other than back-end process operations and may be up to seven times greater than actual emission levels for back-end process operations. When these ratios of actual to MACT-allowable emissions are applied to each emission source type, the result is that the cancer risks at the MACT-allowable level are equal to those at the actual level shown in Table B.2.1.

There were no reported emissions of PB–HAP; therefore, we do not expect potential for human health multipathway risks or adverse environmental impacts.

Table B.2.2 displays the results of the facility-wide risk assessment. This assessment was conducted based on actual emission levels.

TABLE B.2.2—POLYBUTADIENE RUBBER PRODUCTION FACILITY-WIDE RISK ASSESSMENT RESULTS

| | |
|---|---|
| Maximum facility-wide individual cancer risk (in 1 million) | 30 |
| Polybutadiene Rubber Production source category contribution to this maximum facility-wide individual cancer risk)[1] | 100% |
| Maximum facility-wide chronic non-cancer TOSHI | 0.3 |
| Polybutadiene Rubber Production source category contribution to this maximum facility-wide non-cancer TOSHI[1] | 100% |

[1] Percentage shown reflects Polybutadiene Rubber Production source category contribution to the maximum facility-wide risks at the facility with the maximum risk value shown.

The maximum individual cancer risk from all HAP emissions at a facility that contains polybutadiene rubber production processes subject to the Group I Polymers and Resins MACT standard is estimated to be 30-in-1 million, and the maximum chronic non-cancer TOSHI value is estimated to be 0.3. At the facilities where these maximum risk values occur, the estimated proportion of the risk attributable to the Polybutadiene Rubber Production source category processes is 100 percent for both cancer and non-cancer risk.

The results of the demographic analyses performed to investigate the distribution of risks above 1-in-1 million, based on actual emissions levels for the population living within 5 km of the facilities, among various demographic groups are provided in a report available in the docket for this action and summarized in Table B.2.3 below.

TABLE B.2.3—POLYBUTADIENE RUBBER DEMOGRAPHIC RISK ANALYSIS RESULTS

| Emissions basis | Maximum risk (in 1 million) | Population with risk greater than 1-in-1 million | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Total (millions) | Minority % | African American % | Other and multiracial % | Hispanic or Latino % | Native American % | Below the poverty level % | Over 25 W/O a HS diploma % |
| Nationwide | n/a | 285 | 25 | 12 | 12 | 14 | 0.9 | 13 | 13 |
| Source Category | 30 | 0.017 | 11 | 6 | 4 | 4 | 0.5 | 11 | 13 |
| Facility-wide | 30 | 0.02 | 12 | 7 | 5 | 4 | 0.5 | 12 | 14 |

The results of the Polybutadiene Rubber Production source category demographic analysis show that the percentage of the population within 5 km of a polybutadiene rubber production facility and with a cancer risk greater than 1-in-1 million is less than the distribution of these demographic groups across the United States as displayed in Table B.2.3, with the exception of those "Over 25 Without a High School Diploma", where the levels are equal to the distribution of these demographic groups across the United States. The table also shows that the facility-wide emissions demographic analysis shows similar results.

Details of these assessments and analyses can be found in the residual risk documentation as referenced in section IV.A of this preamble, which is available in the docket for this action.

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

*October 2008 Proposed Decision.* In our October 10, 2008 proposal, we proposed that the risks were acceptable because the risks results indicated that cancer risks to the individual most exposed to emissions from the category were 10-in-1 million which is greater than 1-in-1 million but less than 100-in-1 million. We then analyzed other risk factors in the ample margin of safety determination. In this analysis, we proposed that emissions from the source category posed no potential for an adverse environmental effect, did not pose potential for human health multipathway risks, and were unlikely to cause acute or chronic non-cancer health impacts. We also identified two emissions control options that would reduce risks. We proposed that these controls were not necessary to protect public health with an ample margin of safety in light of the high cost and limited addition health protection they would provide. Therefore, we proposed that the existing standard provided an ample margin of safety and proposed to re-adopt the existing MACT standard to satisfy section 112(f) of the CAA.

*Risk Acceptability.* The revised risk analysis we performed for this proposal indicates that the cancer risks to the individual most exposed is 30-in-1 million based on both actual and MACT-allowable emissions. The cancer incidence and the number of people exposed to cancer risks of 1-in-1 million or greater are not significantly changed from the risk identified in the October 2008 proposal. Similarly, the risk analysis continued to show no potential for an adverse environmental effect or human health multipathway effects, and that chronic non-cancer health impacts are unlikely. The revised assessment did indicate that an acute non-cancer HQ as high as 1 could occur, based on the REL value at an area adjacent to the facility fenceline. Our additional analysis of facility-wide risks showed that the maximum facility-wide cancer risk is 30-in-1 million and that the maximum chronic non-cancer risks are unlikely to cause health impacts. Our additional analysis of the demographics of the exposed population suggests there are no disparities in risks for the various demographic groups. Based on this low cancer risk level and in consideration of other health measures and factors, including the low cancer incidence (one case in every 333 years) and the low maximum non-cancer risk level (TOSHI of 0.3), we propose that the risks from the Polybutadiene Rubber Production source category are acceptable.

*Ample Margin of Safety.* Because we are proposing that the risks are acceptable, but still above 1-in-1 million, we then re-considered our 2008 ample margin of safety decision. We have not identified any additional control options or any changes to the previously analyzed control option. Our analysis does not indicate a change in the emissions reductions that could be achieved or the cost of control for the control option considered in the October 2008 proposal. Therefore, we continue to propose that the current MACT standard provides an ample margin of safety to protect public health and the environment, and we are proposing to re-adopt the existing MACT standard to satisfy section 112(f) of the CAA.

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

In the October 10, 2008 proposal, we identified no advancements in practices, processes, and control technologies applicable to the emission sources in the Group I Polymers and Resins Production source categories in our technology review, and we proposed to re-adopt the existing MACT standard to satisfy section 112(d)(6) of the CAA. In that review we examined the regulatory requirements and/or technical analyses for subsequently promulgated air toxics regulations with similar types of emissions sources as those in the Group I Polymers and Resins Production source categories, and we conducted a search of the RBLC for controls for VOC- and HAP-emitting processes in the Group I Polymers and Resins Production source categories. We have not identified any additional developments in practices, processes, and control technologies since the proposal date for the Polybutadiene Rubber Production source category. In addition, we have not identified the need for revisions of the standards to correct editorial errors, make clarifications, or address issues with implementation or determining compliance with the rule provisions. Thus, we are continuing to propose to re-adopt the existing MACT standard to satisfy section 112(d)(6) of the CAA.

f. What other actions are we proposing?

The proposed changes to the SSM provisions for the Group I Polymers and Resins MACT, which apply to the Polybutadiene Rubber Production source category, are discussed above in section V.B.1.f.

3. Styrene Butadiene Rubber and Latex Production

Styrene Butadiene Rubber and Latex Production is one of the source categories for which we proposed RTR decisions on October 10, 2008.

a. Overview of the Source Category

Styrene butadiene rubber and latex are elastomers prepared from styrene and butadiene monomer units. The source category is divided into three subcategories due to technical process and HAP emission differences: (1) The production of styrene butadiene rubber by emulsion, (2) the production of styrene butadiene rubber by solution, and (3) the production of styrene butadiene latex. Styrene butadiene rubber is coagulated and dried to produce a solid product, while latex is a liquid product. For both styrene butadiene rubber processes, the monomers used are styrene and butadiene; either process can be conducted as a batch or a continuous process. These elastomers are commonly used in tires and tire-related products. We identified three currently operating styrene butadiene rubber production facilities using the emulsion process and three styrene butadiene rubber latex production facilities subject to the Polymers and Resins I MACT standard. Other than the polybutadiene plants that produce styrene butadiene rubber as a minor product, we did not identify any styrene butadiene rubber produced in a solution process. Some of these facilities are located at plant sites that also have other HAP-emitting sources regulated under separate MACT standards, for which we have addressed or will address in future rulemaking actions. Overall, styrene accounts for the majority of the HAP emissions from these facilities (approximately 276 TPY and 90 percent of the total HAP emissions by mass). These facilities also reported relatively small emissions of other HAP. The majority of HAP emissions are from back-end process operations (approximately 78 percent of the total HAP by mass). For all emission sources except the back-end process operations, the actual emissions level is representative of the MACT-allowable level. For back-end process operations, we estimate that MACT-allowable emissions from this source category could be as high as four times the actual emissions. Since these back-end limitations are production-based, this estimate was made by comparing the actual emissions levels to the emissions calculated using the limitations and production levels. For more detail about the estimate of the ratio of actual to MACT-allowable emissions, see the memo in the docket for this action describing the estimation of MACT-allowable emission levels and associated risks and impacts.

b. What data were used in our risk analyses?

We initially created a preliminary data set for the Styrene Butadiene Rubber and Latex Production source category using information we collected directly from industry on emissions data and emissions release characteristics. 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 on and updates to this data set, as well as to the data sets for the other source categories addressed in that ANPRM. Comments received in response to the ANPRM were reviewed and considered, and we made adjustments to the data set where we concluded the comments supported such adjustment. After making appropriate changes to the data set based on this public data review process, the data set on which we based the initial proposal was created. This data set was used to conduct the risk assessment and other analyses for the Styrene Butadiene Rubber and Latex Production source category, which formed the basis for the proposed RTR actions included in the October 10, 2008 proposal.

We have continued to scrutinize the existing data set and have evaluated any additional data that became available subsequent to the October 2008 proposal. Specific questions we had concerning current operations led us to develop a questionnaire and ask for updated emissions and emissions release characteristics information. This information was requested from the facilities in May 2010 using the authority of section 114 of the CAA. We updated our data set for this source category based on the information received through this request.

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

We have conducted a revised inhalation risk assessment for the Styrene Butadiene Rubber and Latex Production source category. We have also conducted an assessment of facility-wide risk and performed a demographic analysis of population risks. Table B.3.1 provides an overall summary of the results of the revised inhalation risk assessment.

TABLE B.3.1—STYRENE BUTADIENE RUBBER AND LATEX PRODUCTION REVISED INHALATION RISK ASSESSMENT RESULTS *

| Number of facilities [1] | Maximum individual cancer risk (in 1 million) [2] | | Population at risk ≥ 1-in-1 million | 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 | |
| 6 ..... | 10 | 10 | 25,000 | 0.004 | 0.2 | 0.2 | $HQ_{REL}$ = 0.4 styrene. |

* All results are for impacts out to 50 km from every source in the category.
[1] Number of facilities evaluated in the risk analysis.
[2] Maximum individual excess lifetime cancer risk.
[3] Maximum TOSHI. The target organ with the highest TOSHI for the Styrene Butadiene Rubber and Latex Production source category is the reproductive system.
[4] The maximum estimated acute exposure concentration was divided by available short-term threshold values to develop an array of HQ values. HQ values shown use the lowest available acute threshold value, which, in most cases, is the REL. When HQ values exceed 1, we also show HQ values using the next lowest available acute threshold. See section IV.A. of this preamble for explanation of acute threshold values.

The inhalation risk modeling was performed using actual emissions level data. As shown in Table B.3.1, the results of the revised inhalation risk assessment indicated the maximum lifetime individual cancer risk could be as high as 10-in-1 million, the maximum chronic non-cancer TOSHI value could be up to 0.2, and the maximum off-facility-site acute HQ value could be as high as 0.4, based on the actual emissions level and the REL value for styrene. The total estimated national cancer incidence from these facilities based on actual emission levels is 0.004 excess cancer cases per year, or one case in every 250 years.

Our analysis of potential differences between actual emission levels and emissions allowable under the MACT standard indicated that MACT-

allowable emission levels are equal to actual emissions for all emissions sources other than back-end process operations. While the emissions may be up to four times greater than actual emission levels for back-end process operations, the compounds emitted do not have cancer potency values so this potential increase in emissions does not effect risk. When these ratios of actual to MACT-allowable emissions are applied to each emission source type, the result is that the cancer risks at the MACT-allowable level are equal to those at the actual level shown in Table B.3.1.

There were no reported emissions of PB–HAP; therefore, we do not expect potential for human health multipathway risks or adverse environmental impacts.

Table B.3.2 displays the results of the facility-wide risk assessment. This assessment was conducted based on actual emission levels.

TABLE B.3.2—STYRENE BUTADIENE RUBBER AND LATEX PRODUCTION FACILITY-WIDE RISK ASSESSMENT RESULTS

| | |
|---|---|
| Maximum facility-wide individual cancer risk (in 1 million) | 70 |
| Styrene Butadiene Rubber and Latex Production source category contribution to this maximum facility-wide individual cancer risk [1] | 5% |
| Maximum facility-wide chronic non-cancer TOSHI | 1 |
| Styrene Butadiene Rubber and Latex Production source category contribution to this maximum facility-wide non-cancer TOSHI [1] | 10% |

[1] Percentage shown reflects the Styrene Butadiene Rubber Production source category contribution to the maximum facility-wide risks at the facility with the maximum risk value shown.

As shown in Table B.3.2, the maximum individual cancer risk from all HAP emissions at a facility that contains styrene butadiene rubber and latex production processes subject to the Group I Polymers and Resins MACT standard is estimated to be 70-in-1 million, and the maximum chronic non-cancer TOSHI value is estimated to be 1. At the facilities where these maximum risk values occur, the estimated proportion of the risk attributable to Styrene Butadiene Rubber and Latex Production source category processes is approximately 5 percent for cancer risks and 10 percent for chronic non-cancer risk. Both the cancer and non-cancer risks at this facility are primarily due to a nitrile butadiene rubber process, which has recently closed.

The results of the demographic analyses performed to investigate the distribution of risks above 1-in-1 million, based on actual emissions levels for the population living within 5 km of the facilities, among various demographic groups are provided in a report available in the docket for this action and summarized in Table B.3.3 below.

TABLE B.3.3—STYRENE BUTADIENE RUBBER AND LATEX PRODUCTION DEMOGRAPHIC RISK ANALYSIS RESULTS

| Emissions basis | Maximum risk (in 1 million) | Population with risk greater than 1-in-1 million | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Total (millions) | Minority % | African American % | Other and multiracial % | Hispanic or Latino % | Native American % | Below the poverty level % | Over 25 W/O a HS diploma % |
| Nationwide | n/a | 285 | 25 | 12 | 12 | 14 | 0.9 | 13 | 13 |
| Source Category | 10 | 0.02 | 40 | 3 | 36 | 54 | 0.6 | 18 | 24 |
| Facility-wide | 70 | 0.1 | 50 | 29 | 20 | 32 | 0.5 | 23 | 20 |

The results of the Styrene Butadiene Rubber and Latex Production source category demographic analysis show that of the population with cancer risk greater than 1-in-1 million, 40 percent could be classified as a "Minority," 54 percent are included in the "Hispanic or Latino" demographic group, 36 percent are included in the "Other and Multiracial," demographic group, 18 percent are included in the "Below Poverty Level," and 24 percent are included in the "Over 25 Without a High School Diploma" demographic group. These percentages of the population within 5 km of a styrene butadiene rubber and latex production facility and with a cancer risk greater than 1-in-1 million is higher than the percentages for these demographic categories based on the distribution of these demographic groups across the United States. The table also shows that the results of the facility-wide demographic analysis are higher than the national percentages for the those that could be classified as a "Minority" and for those included in the "Hispanic or Latino," "African American," "Other and Multiracial," "Below Poverty Level," and the "Over 25 Without a High School Diploma" demographic groups.

Details of these assessments and analyses can be found in the residual risk documentation as referenced in section IV.A of this preamble, which is available in the docket for this action.

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

*October 2008 Proposed Decision.* In our October 10, 2008 proposal, we proposed that the risks were acceptable because the risks results of 7-in-1 million indicated that cancer risks to the individual most exposed to emissions from the category were greater than 1-in-1 million but less than 100-in-1 million. We then analyzed other risk factors in the ample margin of safety determination. In this analysis, we proposed that emissions from the source category posed no potential for an adverse environmental effect, did not pose potential for human health multipathway risks, and were unlikely to cause acute or chronic non-cancer health impacts. We also identified one emissions control option that would reduce risks. We proposed that such control was not necessary to protect public health with an ample margin of safety in light of the high cost and limited addition health protection it would provide. Therefore, we proposed that the existing standard provided an

ample margin of safety and proposed to re-adopt the existing MACT standard to satisfy section 112(f) of the CAA.

*Risk Acceptability.* The revised risk analysis we performed for this proposal indicates that the cancer risks to the individual most exposed is 10-in-1 million based on both actual and MACT-allowable emissions. The cancer incidence and the number of people exposed to cancer risks of 1-in-1 million or greater are not significantly changed from the risk identified in the October 2008 proposal. Similarly, the risk analysis continued to show no potential for an adverse environmental effect or human health multipathway effects, and that chronic non-cancer health impacts are unlikely. The revised assessment indicated that an acute non-cancer HQ as high as 0.4 could occur, based on the REL value. Our additional analysis of facility-wide risks showed that the maximum facility-wide cancer risk is 70-in-1 million and the maximum facility-wide non-cancer TOSHI is 1. It also showed that the styrene butadiene rubber production processes located at the facilities with these maximum risk values contribute approximately 5 and 10 percent to such risks, respectively. Our additional analysis of the demographics of the exposed population may show disparities in risks between demographic groups. Based on this low cancer risk level and in consideration of other health measures and factors, including the low cancer incidence (one case in every 250 years) and the low maximum non-cancer risk level (TOSHI of 0.2), we propose that the risks from the Styrene Butadiene Rubber and Latex Production source category are acceptable.

*Ample Margin of Safety.* Because we are proposing that the risks are acceptable, but still above 1-in-1 million, we then re-considered our 2008 ample margin of safety decision.

We have not identified any additional control options or any changes to the previously analyzed control option to reduce risks. Our analysis does not indicate a change in the emissions reductions that could be achieved or the cost of control for the control option considered in the October 2008 proposal. Therefore, we continue to propose that the current MACT standard provides an ample margin of safety to protect public health and the environment, and we are proposing to re-adopt the existing MACT standard to satisfy section 112(f) of the CAA.

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

In the October 10, 2008 proposal, we identified no advancements in practices, processes, and control technologies applicable to the emission sources in the Group I Polymers and Resins Production source categories in our technology review, and we proposed to re-adopt the existing MACT standard to satisfy section 112(d)(6) of the CAA. In that review we examined the regulatory requirements and/or technical analyses for subsequently promulgated air toxics regulations with similar types of emissions sources as those in the Group I Polymers and Resins I Production source categories, and we conducted a search of the RBLC for controls for VOC- and HAP-emitting processes in the Group I Polymers and Resins Production source categories. We have not identified any additional developments in practices, processes, and control technologies since the proposal date for the Styrene Butadiene Rubber and Latex Production source category. Thus, we are continuing to propose to re-adopt the existing MACT standard to satisfy section 112(d)(6) of the CAA.

f. What other actions are we proposing?

The proposed changes to the SSM provisions for the Group I Polymers and Resins MACT, which apply to the Styrene Butadiene Rubber and Latex Production source category, are discussed above in section V.B.1.f.

4. Nitrile Butadiene Rubber Production

Nitrile Butadiene Rubber Production is one of the source categories for which we proposed RTR decisions on October 10, 2008.

a. Overview of the Source Category

Nitrile butadiene rubber is a copolymer of 1,3-butadiene and acrylonitrile, and the Nitrile Butadiene Rubber Production source category includes any facility that polymerizes 1,3-butadiene and acrylonitrile. While nitrile butadiene rubber is the primary product at these facilities, styrene-butadiene rubber can also be produced as a minor product by substituting styrene for acrylonitrile as a monomer. Depending on its specific composition, nitrile butadiene rubber can be resistant to oil and chemicals, a property that facilitates its use in disposable gloves, hoses, seals, and a variety of automotive applications.

We identified one nitrile butadiene rubber production facility currently subject to the Polymers and Resins I MACT standard. This facility is at a plant site that also has other HAP-emitting sources that are regulated under separate MACT standards, for which we have addressed or will address in future rulemaking actions. Acrylonitrile and 1,3-butadiene account for the HAP emissions from this source category (approximately 2 TPY). The majority of HAP emissions are from back-end process operations (approximately 97 percent of the total HAP by mass) for this source category. We estimate that MACT-allowable emissions from this source category are approximately equal to reported, actual emissions. For more detail about this estimate of the ratio of actual to MACT-allowable emissions, see the memo in the docket for this action describing the estimation of MACT-allowable emission levels and associated risks and impacts.

b. What data were used in our risk analyses?

We initially created a preliminary data set for the Nitrile Butadiene Rubber Production source category using information we collected directly from industry on emissions data and emissions release characteristics. 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 data set, as well as to the data sets for the other source categories addressed in that ANPRM. Comments received in response to the ANPRM were reviewed and considered, and we made adjustments to the data set where we concluded the comments supported such adjustment. After making appropriate changes to the data set based on this public data review process, the data set on which we based the initial proposal was created. This data set was used to conduct the risk assessment and other analyses for the Nitrile Butadiene Rubber Production source category, which formed the basis for the proposed RTR actions included in the October 10, 2008 proposal.

Since the proposal, we have continued to scrutinize the existing data set and have evaluated any additional data that became available subsequent to the October 10, 2008 proposal. Specific questions we had concerning current operations led us to develop a questionnaire and ask for updated emissions and emissions release characteristics information. This information was requested from the facility in May 2010 using the authority of section 114 of the CAA. We updated our data set for this source category based on the information received through this request.

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

We have conducted a revised inhalation risk assessment for the Nitrile Butadiene Rubber Production source category. We have also conducted an assessment of facility-wide risk and performed a demographic analysis of population risks. Table B.4.1 provides an overall summary of the results of the revised inhalation risk assessment.

TABLE B.4.1—NITRILE BUTADIENE RUBBER PRODUCTION REVISED INHALATION RISK ASSESSMENT RESULTS *

| Number of facilities [1] | Maximum individual cancer risk (in 1 million) [2] | | Population at risk ≥ 1-in-1 million | 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 | |
| 1 | 2 | 2 | 70 | 0.0004 | 0.009 | 0.009 | $HQ_{AEGL-1}$ = 0.002 acrylonitrile |

* All results are for impacts out to 50 km from every source in the category.
[1] Number of facilities evaluated in the risk analysis.
[2] Maximum individual excess lifetime cancer risk.
[3] Maximum TOSHI. The target organ with the highest TOSHI for the Nitrile Butadiene Rubber Production source category is the reproductive system.
[4] The maximum estimated acute exposure concentration was divided by available short-term threshold values to develop an array of HQ values. HQ values shown use the lowest available acute threshold value, which in most cases, is the REL. When HQ values exceed 1, we also show HQ values using the next lowest available acute threshold. See section III.A of this preamble for explanation of acute threshold values.

The inhalation risk modeling was performed using actual emissions level data. As shown in Table B.4.1, the results of the revised inhalation risk assessment indicated the maximum lifetime individual cancer risk could be as high as 2-in-1 million, the maximum chronic non-cancer TOSHI value could be up to 0.009, and the maximum off-facility-site acute HQ value could be as high as 0.002, based on the actual emissions level and the AEGL–1 value for acrylonitrile. The total estimated national cancer incidence from these facilities based on actual emission levels is 0.0004 excess cancer cases per year, or one case in every 2,500 years.

Our analysis of potential differences between actual emission levels and emissions allowable under the MACT standard indicate that actual and allowable emissions are approximately the same. Therefore, the risk results for MACT-allowable emissions are equal to those for actual emissions.

There were no reported emissions of PB–HAP; therefore, we do not expect potential for human health multipathway risks or adverse environmental impacts.

Table B.4.2 displays the results of the facility-wide risk assessment. This assessment was conducted based on actual emission levels.

TABLE B.4.2—NITRILE BUTADIENE RUBBER PRODUCTION FACILITY-WIDE RISK ASSESSMENT RESULTS

| | |
|---|---|
| Maximum facility-wide individual cancer risk (in 1 million) | 5 |
| Nitrile Butadiene Rubber Production source category contribution to this maximum facility-wide individual cancer risk [1] | 33% |
| Maximum facility-wide chronic non-cancer TOSHI | 0.03 |
| Nitrile Butadiene Rubber Production source category contribution to this maximum facility-wide non-cancer TOSHI [1] | 30% |

[1] Percentage shown reflects Nitrile Butadiene Rubber Production source category contribution to the maximum facility-wide risks at the facility with the maximum risk value shown.

The maximum individual cancer risk from all HAP emissions at a facility that contains nitrile butadiene rubber production processes subject to the Group I Polymers and Resins MACT standard is estimated to be 5-in-1 million, and the maximum chronic non-cancer TOSHI value is estimated to be 0.03. The estimated proportion of the risk attributable to Nitrile Butadiene Rubber Production source category processes at this facility is approximately 33 percent for cancer risks and 30 percent for chronic non-cancer risk. This facility also has processes subject to the Group IV Polymers and Resins MACT standard, 40 CFR part 63, subpart JJJ.

The results of the demographic analyses performed to investigate the distribution of risks above 1-in-1 million, based on actual emissions levels for the population living within 5 km of the facilities, among various demographic groups are provided in a report available in the docket for this action and summarized in Table B.4.3 below.

TABLE B.4.3—NITRILE BUTADIENE RUBBER PRODUCTION DEMOGRAPHIC RISK ANALYSIS RESULTS

| Emissions basis | Maximum risk (in 1 million) | Population with risk greater than 1-in-1 million | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Total (millions) | Minority % | African American % | Other and multiracial % | Hispanic or Latino % | Native American % | Below the poverty level % | Over 25 W/O a HS diploma % |
| Nationwide | n/a | 285 | 25 | 12 | 12 | 14 | 0.9 | 13 | 13 |
| Source Category | 2 | 0.00007 | 94 | 94 | 0 | 0 | 0 | 33 | 14 |
| Facility-wide | 5 | 0.006 | 95 | 93 | 2 | 0.4 | 0.1 | 23 | 17 |

The results of the demographic analysis show that, for the Nitrile Butadiene Rubber Production source category, of the population of 70 people with cancer risk greater than 1-in-1 million, 94 percent could be classified as a "Minority," 94 percent are included in the "African-American" demographic group, 33 percent are included in the "Below Poverty Level" demographic group, and 14 percent are included in the "Over 25 Without a High School Diploma" demographic group. The percentage of the population for these demographic categories within 5 km of a nitrile butadiene rubber production facility and with a cancer risk greater than 1-in-1 million is higher than distribution of these demographic groups across the United States. The table also shows that the results of the demographic analysis for the 6,000 people at cancer risk greater than 1-in-1 million from facility-wide emissions are similar to the results for the source category.

Details of these assessments and analyses can be found in the residual risk documentation as referenced in section IV.A of this preamble, which is available in the docket for this action.

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

*October 2008 Proposed Decision.* In our October 2008 proposal, we proposed that the risks were acceptable because the risks results indicated that cancer risks to the individual most exposed to emissions from the category of 60-in-1 million were greater than 1-in-1 million but less than 100-in-1 million. We then analyzed other risk factors in the ample margin of safety determination. In this analysis, we proposed that emissions from the source category posed no potential for an adverse environmental effect, did not pose potential for human health multipathway risks, and were unlikely to cause acute or chronic non-cancer health impacts. We also identified one emissions control option that would reduce risks. We proposed that such control was not necessary to protect public health with an ample margin of safety in light of the high cost and limited addition health protection it would provide. Therefore, we proposed that the existing standard provided an ample margin of safety and proposed to re-adopt the existing MACT standard to satisfy section 112(f) of the CAA.

*Risk Acceptability.* The revised risk analysis we performed for this proposal indicates that the cancer risks to the individual most exposed is 2-in-1 million based on both actual and MACT-allowable emissions. The cancer incidence and the number of people exposed to cancer risks of 1-in-1 million or greater are much less than the risk identified in the October 2008 proposal. Similarly, the risk analysis continued to show no potential for an adverse environmental effect or human health multipathway effects, and that acute or chronic non-cancer health impacts are unlikely. Our additional analysis of facility-wide risks showed that the maximum facility-wide cancer risk is 5-in-1 million and that the maximum chronic non-cancer risks are unlikely to cause health impacts. Our additional analysis of the demographics of the exposed population may show disparities in risks between demographic groups, but only for the 60 people at cancer risk greater than 1-in-1 million. Based on this low cancer risk level and in consideration of other health measures and factors, including the low cancer incidence (one case in every 2,500 years) and the low maximum non-cancer risk level (TOSHI of 0.009), we propose that the risks from the Nitrile Butadiene Rubber Production source category are acceptable.

*Ample Margin of Safety.* Because we are proposing that the risks are acceptable, but still above 1-in-1 million, we then re-considered our October 2008 ample margin of safety decision.

We have not identified any additional control options or any changes to the previously analyzed control option. Our analysis does not indicate a change in the emissions reductions that could be achieved or the cost of control for the control option considered in the October 2008 proposal. Therefore, we continue to propose that the current MACT standard provides an ample margin of safety to protect public health and the environment, and we are proposing to re-adopt the existing MACT standard to satisfy section 112(f) of the CAA.

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

In the October 10, 2008 proposal, we identified no advancements in practices, processes, and control technologies applicable to the emission sources in the Group I Polymers and Resins Production source categories in our technology review, and we proposed to re-adopt the existing MACT standard to satisfy section 112(d)(6) of the CAA. In that review we examined the regulatory requirements and/or technical analyses for subsequently promulgated air toxics regulations with similar types of emissions sources as those in the Group I Polymers and Resins Production source categories, and we conducted a search of the RBLC for controls for VOC- and HAP-emitting processes in the Group I Polymers and Resins Production source categories. We have not identified any additional developments in practices, processes, and control technologies since the proposal date for the Nitrile Butadiene Rubber Production source category. Thus, we are continuing to propose to re-adopt the existing MACT standard to satisfy section 112(d)(6) of the CAA.

f. What other actions are we proposing?

*SSM Provisions.* The proposed changes to the Group I Polymers and Resins MACT, which apply to the Nitrile Butadiene Rubber Production source category, are discussed above in section V.B.1.f.

*Significant Emission Points Not Previously Regulated.* We identified the absence of a standard for a significant emissions source in the category in the provisions of the Group I Polymers and Resins MACT standard that apply to the Nitrile Butadiene Rubber Production source category. Specifically, there are no back-end process operation emission limits for this source category.[36] As these processes are major sources of emissions for the one facility in the source category, we are proposing to set standards for back-end process operations under CAA section 112(d)(2) and (d)(3) in this action.

The emission limit we are proposing today represents the MACT floor level of control. As there is only one facility in the source category, the emissions limitation achieved by this facility is the MACT floor. The annual emissions from the back-end process operations at this facility are approximately 2 TPY. There are 11 separate dryer vents; one is controlled, while the others are uncontrolled. The controlled vent emits around 0.003 TPY of 1,3-butadiene and 0.002 TPY of acrylonitrile. The regenerative thermal oxidizer used on this vent achieves approximately 96 percent control of the acrylonitrile emissions, but no control of 1,3-butadiene. The collection of 10 uncontrolled vents emit around 0.8 TPY of 1,3-butadiene and 0.9 TPY of acrylonitrile.

As part of our beyond-the-floor analysis, we considered alternatives more stringent than the MACT floor option. We identified one option using add-on emission controls that would require the ducting of emissions from the currently uncontrolled back-end process operations emission source to a control device, such as an incinerator.

[36] Note that these uncontrolled emissions were included in the baseline risk assessment.

This option would also require an initial performance test of the incinerator and continuous parameter monitoring averaged daily. The capital costs of this option are estimated to be approximately $1,600,000 and the total annual costs are estimated to be approximately $11,400,000/year. We estimate that an incinerator would achieve an emissions reduction of 98 percent, resulting in a HAP decrease of approximately 1.7 TPY, with a cost-effectiveness of approximately $6,700,000/ton. Table B.4.4 summarizes the cost and emission reduction impacts of the proposed options.

TABLE B.4.4—NITRILE BUTADIENE RUBBER PRODUCTION FACILITY BACK-END OPTION IMPACTS

| Regulatory alternatives | HAP emissions (TPY) | Capital cost (million $) | Annual cost (million $/yr) | Cost-effectiveness as compared to baseline (million $/ton HAP removed) |
|---|---|---|---|---|
| Baseline | 1.7 | | | |
| 1 (MACT floor) | 1.7 | 0 | 0 | |
| 2 (Beyond-the-floor) | 0.04 | 1.6 | 11.4 | 6.7 |

In addition to the cost and emission reduction impacts shown in Table B.4.4, we estimate that the beyond-the-floor option will result in increases in criteria pollutant and carbon dioxide emissions (PM − 2 TPY, $SO_2$ − 0.4 TPY, $NO_X$ − 133 TPY, CO − 23 TPY, and $CO_2$ − 80,000 TPY) and an increase in energy use of approximately 1,400,000 BTU/year at a cost of approximately $385,000/year.

We believe that the costs and other impacts of this beyond-the-floor option are not reasonable, given the level of emission reduction. Therefore, we are proposing Option 1, the MACT floor option. We are requesting comment on this analysis and these options.

As noted above, we are proposing that the MACT standard, prior to the implementation of the proposed emission limitation to the back-end process operations discussed in this section, provides an ample margin of safety to protect public health. Since the proposed emission limitation represents the existing level of control for the single plant in the source category, this proposed emission limitation will not have an impact on risk. Therefore, we maintain that after its implementation, the rule will continue to provide an ample margin of safety to protect public health. Consequently, we do not believe it will be necessary to conduct another residual risk review under CAA section 112(f) for this source category 8 years following promulgation of new back-end process limitations, merely due to the addition of this new MACT requirement.

5. Neoprene Rubber Production

Neoprene Rubber Production is one of the source categories for which we proposed and finalized RTR decisions on December 12, 2007 (72 FR 70543) and December 16, 2008 (73 FR 76220), respectively.

a. Overview of the Source Category

Neoprene is a polymer of chloroprene. Neoprene was originally developed as an oil-resistant substitute for natural rubber, and its properties allow its use in a wide variety of applications, including wetsuits, gaskets and seals, hoses and tubing, plumbing fixtures, adhesives, and other products. We have identified one neoprene rubber production facility currently subject to the Polymers and Resins I MACT standards.

For the Neoprene Rubber Production source category, we have proposed and finalized a decision not to revise the standards for those source categories based on our RTR. As noted above, this decision was proposed on December 12, 2007 and finalized on December 16, 2008. Since the Neoprene Production source category was determined to be "low risk" (maximum lifetime cancer risk less than 1-in-1 million), we did not believe it was necessary to conduct a facility-wide or demographic risk analysis. Therefore, we are not addressing the RTR in today's notice for this source category.

b. What other actions are we proposing?

*SSM Provisions.* The proposed changes to the Group I Polymers and Resins MACT, which apply to the Neoprene Rubber Production source category, are discussed above in section V.B.1.f.

*Significant Emission Points Not Previously Regulated.* We identified in the provisions of the Group I Polymers and Resins MACT standard that apply to the Neoprene Rubber Production source category the absence of a standard for a significant emissions source in the category. Specifically, there are no back-end process operation emission limits for this source category. As these processes are major sources of emissions for the one facility in the source category, we are proposing to set standards for back-end process operations under CAA sections 112(d)(2) and (3) in this action.

As there is only one facility in the source category, the emissions level currently being achieved by this facility represents the MACT floor. The annual emissions from the back-end process operations at this facility are approximately 14 TPY. There are 11 separate dryer vents collectively emitting around 14 TPY of toluene. None of the vents are controlled. Therefore, we have determined that the MACT floor for the back-end process is 14 TPY based on stripping and HAP recovery, given current production levels, but which would fluctuate proportionally with an increase or decrease in production levels.

As part of our beyond-the-floor analysis, we considered alternatives more stringent than the MACT floor option. We identified one option using add-on emission controls that would require the ducting of emissions from the back-end process operations to a control device, such as an incinerator. This option would also require an initial performance test of the incinerator and continuous parameter monitoring averaged daily. The capital costs of this option are estimated to be approximately $1,300,000 and the total annual costs are estimated approximately $4,800,000 per year. We estimate that an incinerator would achieve an emissions reduction of 98 percent, resulting in a HAP decrease of approximately 22.6 TPY, with a cost-effectiveness of approximately $213,000 per ton. Table B.5.1 summarizes the impacts of the proposed options.

TABLE B.5.1—NEOPRENE RUBBER PRODUCTION FACILITY BACK-END OPTION IMPACTS

| Regulatory alternatives | HAP emissions (TPY) | Capital cost (million $) | Annual cost (million$/yr) | Cost-effectiveness as compared to baseline ($/ton HAP removed) |
|---|---|---|---|---|
| Baseline | 23 | | | |
| 1 (MACT floor) | 23 | 0 | 0 | |
| 2 (Beyond-the-floor) | 0.5 | 1.3 | 4.8 | 213,000 |

In addition to the cost and emission reduction impacts shown in Table B.5.1, we estimate that the beyond-the-floor option will result in increases in criteria pollutant and carbon dioxide emissions (PM − 0.8, $SO_2$ − 0.2 TPY, $NO_X$ − 55 TPY, CO − 10 TPY, and $CO_2$ − 33,000 TPY) and an increase in energy use of approximately 560,000 million BTU/year at a cost of approximately $159,000/year.

We believe that the costs and other impacts of this beyond-the-floor option are not reasonable, given the level of emission reduction. Therefore, we are proposing Option 1, the MACT floor option. We are requesting comment on this analysis and these options.

As noted above, we have proposed and finalized a decision that the MACT standard for neoprene rubber production, prior to the implementation of the proposed emission limitation to the back-end process operations discussed in this section, provides an ample margin of safety to protect public health. Since this source category was "low risk" prior to this proposed emission limitation, we maintain that after their implementation, the rule will continue to provide an ample margin of safety to protect public health. Consequently, we do not believe it will be necessary to conduct another residual risk review under CAA section 112(f) for this source category 8 years following promulgation of new back-end process limitations, merely due to the addition of this new MACT requirement.

6. Ethylene Propylene Rubber Production

Ethylene Propylene Rubber Production is one of the source categories for which we proposed and finalized RTR decisions on December 12, 2007 (72 FR 70543) and December 16, 2008 (73 FR 76220), respectively.

a. Overview of the Source Category

Ethylene propylene rubber is an elastomer prepared from ethylene and propylene monomers. Common uses for these elastomers include radiator and heater hoses, weather stripping, door and window seals for cars, construction plastics blending, wire and cable insulation and jackets, and single-ply roofing membranes.

For the Ethylene Propylene Rubber Production source category, we have proposed and finalized a decision not to revise the standards for this source category based on our RTR. As noted above, this decision was proposed on December 12, 2007 and finalized on December 16, 2008. Since the Ethylene Propylene Rubber Production source category was determined to be "low risk" (maximum lifetime cancer risk less than 1-in-1 million), we did not believe it was necessary to conduct a facility-wide or demographic risk analysis. Therefore, we are not addressing the RTR in this notice for this source category.

b. What other actions are we proposing?

*SSM Provisions.* The proposed changes to the SSM provisions for the Group I Polymers and Resins MACT, which apply to the Ethylene Propylene Rubber Production source category, are discussed above in section V.B.1.f.

*Significant Emission Points Not Previously Regulated.* We identified in the provisions of the Group I Polymers and Resins MACT standard that apply to the Ethylene Propylene Rubber Production source category the absence of a standard for a significant emissions source in the category. Specifically, the rule requires that emissions from Group 1 front-end process vents be routed to a control device that achieves 98 percent reduction in organic HAP emissions but does not require the control of hydrogen halides and halogens from the outlet of combustion devices. All three currently-operating facilities in this source category control the organic HAP emissions in accordance with the requirements in the rule (*i.e.,* reduce organic HAP emissions by 98 percent). This represents the MACT floor for this source category. However, one facility routes a chlorinated organic compound to a flare, which results in emissions of HCl that are not regulated by the current MACT requirements. When chlorinate organics are burned in a flare, there are variations in the combustion which likely results in the formation of combustion by-products. These combustion by-products could include trace chlorinated compounds such as dioxins and furans. Due to the level of HCl emissions resulting from the combustion of chlorinated organic compounds in Group 1 streams, we are proposing to require control of these HCl emissions for the Ethylene Propylene Rubber Production source category.

As part of our beyond-the-floor analysis, we considered alternatives to reduce these HCl emissions, which are more stringent than the MACT floor option. We identified the option of eliminating the exemption from the requirement to control hydrogen halides and halogens from the outlet of combustion devices. The one facility reports around 20 TPY of HCl emissions resulting from the combustion of chlorinated organic compounds in a flare. The other two facilities indicated that they do not emit any HCl emissions resulting from the combustion of chlorinated organic compounds. We estimated that the capital costs for the facility to replace the flare with an incinerator followed by a scrubber to reduce the HCl would be approximately $985,000 and the total annual costs are estimated to be approximately $446,000 per year. While there would be no additional reduction in organic HAP from this requirement, the HCl emissions would be reduced by 99 percent, or 19.6 TPY. The cost-effectiveness of this option would be approximately $21,000 per ton. However, this ethylene propylene rubber process is co-located with the halobutyl rubber process, which also vents a vent stream containing chlorinated organic compounds to a flare, resulting in HCl emissions. We estimated the costs of a single incinerator and scrubber to control the streams containing chlorinated organics from both the ethylene propylene rubber and halobutyl rubber processes. The estimated capital cost of this control scenario is $1,100,000 and the annual cost is $640,000 per year. This would still achieve the same HCl emission reduction from the ethylene propylene

rubber process (19.6 TPY), and the overall cost-effectiveness considering the reductions from the ethylene propylene rubber and halobutyl rubber would be around $6,700 per ton. Table B.6.1 summarizes the impacts of the proposed options.

TABLE B.6.1—ETHYLENE PROPYLENE RUBBER PRODUCTION FACILITY FRONT-END OPTIONS IMPACTS

| Regulatory alternatives | HAP emissions (TPY HAP) | Capital cost ($million) | Annual cost ($million/yr) | Cost-effectiveness as compared to baseline ($/ton HAP removed) |
|---|---|---|---|---|
| Baseline | 20 | | | |
| 1 (MACT floor) | 20 | 0 | 0 | |
| 2 (Beyond-the-floor) | 0.2 | *1.1 | *0.6 | *6,700 |

*Assuming a shared control incinerator/scrubber combination is used for both the ethylene propylene rubber and halobutyl rubber processes.

In addition to the cost and emission reduction impacts shown in Table B.6.1, we estimate that the beyond-the-floor option will result in increases in criteria pollutant and carbon dioxide emissions (PM − 0.03 TPY, $SO_2$ − 0.006 TPY, $NO_X$ − 2 TPY, CO − 0.4 TPY, and $CO_2$ − 1,200 TPY), the generation of approximately 29 million gallons/year of wastewater, and an increase in energy use of approximately 21,000 million BTU/year at a cost of approximately $7,000/year.

We believe that the costs and other impacts of this beyond-the-floor option are reasonable, given the level of emission reduction. Therefore, we are proposing Option 2, the beyond-the-floor option. We are requesting comment on this analysis and these options.

As noted above, we have proposed and finalized a decision that the MACT standard for ethylene propylene rubber production, prior to the implementation of the proposed emission limitation discussed in this section, provides an ample margin of safety to protect public health. Since this source category was "low risk" prior to this proposed emission limitation, we maintain that after its implementation, which will only further reduce HAP emissions, the rule will continue to provide an ample margin of safety to protect public health. Consequently, we do not believe it will be necessary to conduct another residual risk review under CAA section 112(f) for this source category 8 years following promulgation of new limitations, merely due to the addition of this new MACT requirement.

7. Butyl Rubber Production

Butyl Rubber Production is one of the source categories for which we proposed and finalized RTR decisions on December 12, 2007 (72 FR 70543) and December 16, 2008 (73 FR 76220), respectively.

a. Overview of the Source Category

The Butyl Rubber Production source category includes any facility that manufactures copolymers of isobutylene and isoprene. A typical composition of butyl rubber is approximately 97 percent isobutylene and 3 percent isoprene. Modified, derivative, and halogenated copolymers and latexes are also included in this source category. Butyl rubber is typically made by a precipitation (slurry) polymerization process in which isobutylene and isoprene are copolymerized in methyl chloride solvent. Butyl rubber is very impermeable to common gases and resists oxidation. Uses for butyl rubber include tires, tubes, and tire products; automotive mechanical goods; adhesives, caulks, and sealants; and pharmaceutical uses. A specialty group of butyl rubbers are halogenated butyl rubbers, which are produced commercially by dissolving butyl rubber in hydrocarbon solvent and contacting the solution with gaseous or liquid elemental halogens such as chlorine or bromine. For the purpose of the MACT standards, this source category is divided into two subcategories: butyl rubber and halobutyl rubber.

For the Butyl Rubber Production source category, we have proposed and finalized a decision not to revise the standards for this source category based on our RTR. As noted above, this decision was proposed on December 12, 2007 and finalized on December 16, 2008. Since the Butyl Rubber Production source category was determined to be "low risk" (maximum lifetime cancer risk less than 1-in-1 million), we did not believe it was necessary to conduct a facility-wide or demographic risk analysis. Therefore, we are not addressing the RTR in this notice for this source category.

b. What other actions are we proposing?

*SSM Provisions.* The proposed SSM changes to the Group I Polymers and Resins MACT, which apply to the Butyl Rubber Production source category, are discussed above in section V.B.1.f.

*Significant Emission Points Not Previously Regulated.* We identified in the provisions of the Group I Polymers and Resins MACT standard that apply to both Butyl Rubber Production subcategories the absence of standards for two significant emissions sources in each of the Butyl Rubber Production subcategories. Specifically, these situations are HCl emissions from front-end process vents and emissions from back-end process operations.

The rule requires that emissions from Group 1 front-end process vents be routed to a control device that achieves 98 percent reduction in organic HAP emissions but does not require the control of hydrogen halides and halogens from the outlet of combustion devices. Both facilities in these subcategories control the organic HAP emissions in accordance with the requirements in the rule (*i.e.,* reduce organic HAP emissions by 98 percent). This represents the MACT floor for these subcategories. However, these facilities route a chlorinated organic compound to a flare, which results in emissions of HCl that are exempted from the current MACT requirements. Due to the level of HCl emissions resulting from the combustion of chlorinated organic compounds in Group 1 streams, we are proposing to require control of these HCl emissions for both the Butyl Rubber Production and Halobutyl Rubber Production subcategories.

As there is only one facility in each subcategory, the existing level of control for organic HAP emissions represents the MACT floor. As part of our beyond-the-floor analysis, we considered alternatives to reduce the HCl emissions, which are more stringent than the MACT floor option. For front-end process vents, we identified the option of eliminating the exemption

from the requirement to control hydrogen halides and halogens from the outlet of combustion devices. The butyl rubber facility reported HCl emissions of 30.1 TPY, while the halobutyl rubber facility reported 76.8 TPY. Since scrubbers could not be installed on the outlet of these combustion devices to reduce the HCl emissions by 99 percent, the butyl rubber facility and the halobutyl rubber facility would need to install new incinerators followed by scrubbers to comply with this beyond-the-floor requirement. We estimate that the capital costs for this would be $669,000 for the butyl rubber facility and $984,000 for the halobutyl rubber facility. The total annual costs would be around $235,000 per year for the butyl rubber facility and $424,000 per year for the halobutyl rubber facility. Since there would be no additional reduction in organic HAP emissions from what is being achieved by the current controls, the only emission reduction would a 99 percent reduction in HCl emissions, or 29.8 TPY for the butyl rubber facility and 76 TPY for the halobutyl rubber facility. Thus, the cost-effectiveness of these beyond-the-floor options would be approximately $7,900 per ton for butyl rubber and $6,000 per ton for halobutyl rubber. However, this halobutyl rubber process is co-located with an ethylene propylene rubber process, which also vents a vent stream containing chlorinated organic compounds to a flare, resulting in HCl emissions. As these streams could be controlled using the same equipment at this facility, we estimated the costs of a single incinerator and scrubber to control the streams containing chlorinated organics from both the ethylene propylene rubber and halobutyl rubber processes. The estimated capital cost of this control scenario is $1,100,000 and the annual cost is $640,000 per year. This would still achieve the same HCl emission reduction from the halobutyl rubber process (76 TPY), and the overall cost-effectiveness considering the reductions from the ethylene propylene rubber and halobutyl rubber would be around $6,700 per ton. Tables B.7.1 and B.7.2 summarize the impacts of the proposed options.

TABLE B.7.1—BUTYL RUBBER PRODUCTION FACILITY FRONT-END OPTIONS IMPACTS

| Regulatory alternatives | HAP emissions (TPY HAP) | Capital cost ($million) | Annual cost ($million/yr) | Cost-effectiveness as compared to baseline ($/ton HAP removed) |
|---|---|---|---|---|
| Baseline | 30.1 | ..... | ..... | ..... |
| 1 (MACT floor) | 30.1 | 0 | 0 | ..... |
| 2 (Beyond-the-floor) | 0.3 | 0.6 | 0.2 | $7,900 |

TABLE B.7.2—HALOBUTYL RUBBER PRODUCTION FACILITY FRONT-END OPTIONS IMPACTS

| Regulatory alternatives | HAP emissions (TPY HAP) | Capital cost ($million) | Annual cost ($million/yr) | Cost-effectiveness as compared to baseline ($/ton HAP removed) |
|---|---|---|---|---|
| Baseline | 76.8 | ..... | ..... | ..... |
| 1 (MACT floor) | 76.8 | 0 | 0 | ..... |
| 2 (Beyond-the-floor) | 0.8 | *1.1 | *0.6 | *$6,700 |

*Assuming a shared control incinerator/scrubber combination is used for both the ethylene propylene rubber and halobutyl rubber processes.

In addition to the cost and emission reduction impacts shown in Table B.7.1 for butyl rubber production, we estimate that the beyond-the-floor option will result in increases in criteria pollutant and carbon dioxide emissions (PM − 0.004 TPY, $SO_2$ − 0.001 TPY, $NO_X$ − 2 TPY, CO − 0.05 TPY, and $CO_2$ − 160 TPY), the generation of approximately 31 million gallons/year of wastewater, and an increase in energy use of around 3,000 million BTU/year at a cost of approximately $3,000/year.

In addition to the cost and emission reduction impacts shown in Table B.6.2 for halobutyl rubber production, we estimate that the beyond-the-floor option will result in increases in criteria pollutant and carbon dioxide emissions (PM − 0.03 TPY, $SO_2$ − 0.006 TPY, $NO_X$ − 2 TPY, CO − 0.4 TPY, and $CO_2$ − 1,200 TPY), the generation of approximately 29 million gallons/year of wastewater, and an increase in energy use of around 21,000 million BTU/year at a cost of approximately $7,000/year.

We believe that the costs and other impacts of these beyond-the-floor options are reasonable, given the level of emission reduction. Therefore, we are proposing Option 2, the beyond-the-floor option, for both the Butyl Rubber Production and Halobutyl Rubber Production subcategories. We are requesting comment on this analysis and these options.

We also noted that there are no back-end process operation emission limits for either the Butyl Rubber Production or Halobutyl Rubber Production subcategories. As there is only one facility in each subcategory, the back-end process operations emissions level currently being achieved by these facilities represents the MACT floor. The annual emissions from the uncontrolled back-end process operations at the butyl rubber facility are approximately 26 TPY, and 35 TPY at the halobutyl facility. There are two separate dryer vent streams at the butyl rubber facility, with one stream controlled. The controlled stream emits around 28 TPY of hexane. The regenerative thermal oxidizer used to control emissions achieves approximately 98-percent control. There are four separate dryer vents at the halobutyl facility and one vent is controlled. The controlled vent emits around 18 TPY of hexane. The regenerative thermal oxidizer used to control emissions achieves approximately 97-percent control of the hexane emissions. The four uncontrolled vents collectively emit around 35 TPY of hexane. Therefore, we have determined that the MACT floors

for these processes are these emission levels, given current production levels, but which would fluctuate proportionally with an increase or decrease in production levels.

As part of our beyond-the-floor analysis, we considered alternatives more stringent than the MACT floor option. We identified one option using add-on emission controls that would require the ducting of emissions from the uncontrolled back-end process operations to a control device, such as an incinerator. This option would also require an initial performance test of the incinerator and continuous parameter monitoring averaged daily. For the Butyl Rubber Production subcategory, the capital costs of this option are estimated to be approximately $235,000 and the total annual costs are estimated to be approximately $181,000. For the Halobutyl Rubber Production subcategory, the capital costs of this option are estimated to be approximately $950,000 and the total annual costs are estimated to be approximately $1,600,000 per year. We estimate that an incinerator would achieve an emissions reduction of 98 percent, resulting in a HAP decrease of approximately 26 TPY for the Butyl Rubber Production subcategory and 34 for Halobutyl Rubber Production subcategory. The associated cost-effectiveness values would be approximately $7,000 per ton for Butyl Rubber Production subcategory and $47,000/ton for Halobutyl Rubber Production subcategory. Tables B.7.3 and B.7.4 summarize the impacts of the proposed options.

TABLE B.7.3—BUTYL RUBBER PRODUCTION SUBCATEGORY FACILITY BACK-END OPTION IMPACTS

| Regulatory alternatives | HAP emissions (TPY HAP) | Capital cost ($million) | Annual cost ($million/yr) | Cost-effectiveness as compared to baseline ($/ton HAP removed) |
|---|---|---|---|---|
| Baseline | 54 | | | |
| 1 (MACT floor) | 54 | 0 | 0 | |
| 2 (Beyond-the-floor) | 28 | 0.2 | 0.2 | $7,000 |

TABLE B.7.4—HALOBUTYL RUBBER PRODUCTION SUBCATEGORY FACILITY BACK-END OPTION IMPACTS

| Regulatory alternatives | HAP Emissions (TPY HAP) | Capital cost ($million) | Annual cost ($million/yr) | Cost-effectiveness as compared to baseline ($/ton HAP removed) |
|---|---|---|---|---|
| Baseline | 53 | | | |
| 1 (MACT floor) | 53 | 0 | 0 | |
| 2 (Beyond-the-floor) | 19 | 1 | 1.6 | $47,000 |

In addition to the cost and emission reduction impacts shown in Table B.7.3 for Butyl Rubber Production subcategory, we estimate that the beyond-the-floor option will result in increases in criteria pollutant and carbon dioxide emissions (PM − 0.01, $SO_2$ − 0.003 TPY, $NO_X$ − 8 TPY, CO − 0.2 TPY, and $CO_2$ − 600 TPY) and an increase in energy use of approximately 10,000 million BTU/year at a cost of approximately $6,000/year.

In addition to the cost and emission reduction impacts shown in Table B.7.4 for Halobutyl Rubber Production subcategory, we estimate that the beyond-the-floor option will result in increases in criteria pollutant and carbon dioxide emissions (PM −0.25, $SO_2$ −0.05 TPY, $NO_X$ −17 TPY, CO −3 TPY, and $CO_2$ −10,500 TPY) and an increase in energy use of approximately 170,000 million BTU/year at a cost of approximately $49,000/year.

We believe that the costs and other impacts of the beyond-the-floor option for back-end process operations for the Butyl Rubber Production subcategory are reasonable, given the level of emission reduction. Therefore, we are proposing Option 2 for the Butyl Rubber Production subcategory, the beyond-the-floor option. We are requesting comment on this analysis and these options.

We believe that the costs and other impacts of the beyond-the-floor option for the Halobutyl Rubber Production subcategory back-end process operations are not reasonable, given the level of emission reduction. Therefore, we are proposing Option 1, the MACT floor option. We are requesting comment on this analysis and these options.

As noted above, we have proposed and finalized a decision that the MACT standard for the Butyl Rubber Production source category, prior to the implementation of the proposed emission limitations to the front-end process vent and back-end process operations discussed in this section, provides an ample margin of safety to protect public health. Since both subcategories of this source category were "low risk" prior to these proposed emission limitations, we maintain that after their implementation, which will only further reduce HAP emissions, the rule will continue to provide an ample margin of safety to protect public health. Consequently, we do not believe it will be necessary to conduct another residual risk review under CAA section 112(f) for this source category 8 years following promulgation of new front-end process vent and back-end process limitations, merely due to the addition of these new MACT requirements.

*C. What are the results and proposed decisions for the Marine Tank Vessel Loading Operations source category?*

1. Overview of the Source Category and MACT Standards

The NESHAP for MTVLO were promulgated on September 19, 1995 (60 FR 48388), and codified at 40 CFR part 63, subpart Y. The MTVLO MACT-based standards apply to major sources and regulate HAP emissions from: Land-based terminals, off-shore terminals, and the Alyeska Pipeline Service Company's Valdez Marine Terminal.

MTVLO are conducted at terminals that load liquid commodities in bulk, such as crude oil, gasoline, and other fuels, and some chemicals and solvent mixtures. The cargo is pumped from the terminal's large, above-ground storage tanks through a network of pipes into a storage compartment (tank) on the vessel. Emissions occur as vapors are displaced from the tank as it is being filled. Most MTVLO facilities are either independent terminals or are associated with petroleum refineries or synthetic organic chemical manufacturers.

For purposes of the MTVLO analysis, we considered only emissions from those sources that are part of the MTVLO source category. We recognize that there are additional sources of emissions at these facilities that are not part of the MTVLO source category. Those emission sources include emissions from hatch leaks or J tubes during transit, lightering operations, ballasting wastewater from non-segregated ballasting, cleaning of the cargo tank (especially when changing products), and ventilating the cargo tank prior to loading. We are investigating these sources to understand their emissions and any controls used to reduce those emissions and request information about these sources that are currently not part of the MTVLO source category.

The primary emission sources of displaced vapors associated with MTVLO activities include open tank hatches and overhead vent systems. Other possible emission points are hatch covers or domes, pressure or vacuum relief valves, seals, and vents. The MACT standards require control of all displaced vapors that result from product loading at affected sources irrespective of the point from which those vapors are emitted. Typical control devices used to reduce HAP emissions at affected facilities include vapor collection systems routed to either combustion or recovery devices, such as flares, incinerators, absorbers, carbon adsorbers, and condensers.

When we developed the MTVLO MACT, we estimated that approximately 300 major source facilities with MTVLO would be subject to the MACT standards. However, data in the 2005 NEI were only available for 152 facilities subject to the MACT standards and the analyses discussed in this section are based on these 152 facilities. We believe the 152 facilities emit HAP that are representative of HAP emissions within the source category because, based on available information, we expect that the rest of the facilities in the source category generally emit the same HAP as do the 152 modeled facilities. In addition, we expect that these 152 terminals represent the larger-emitting terminals, based on the specific terminals included in the 2005 NEI and the average reported emissions from these terminals (2.8 TPY of HAP on average).

Marine terminals with MTVLO located at petroleum refineries are not part of the MTVLO source category, but are subject to the MTVLO MACT-based standards because the Refinery NESHAP, 40 CFR part 63, subpart CC, incorporate those requirements by reference. However, marine terminals that are part of the Petroleum Refineries source category were not included in this risk assessment because they are not in the MTVLO source category. For these reasons, we are proposing to exclude refineries from the additional control requirements that are being proposed in this action. Loading operations at marine terminals that are part of the Petroleum Refineries source category will be addressed in a separate RTR rulemaking action.

2. What data were used in our risk analyses?

We initially created a preliminary data set for the source category using data in the 2002 NEI Final Inventory, Version 1 (made publicly available on February 26, 2006), which we reviewed and changed where necessary to ensure that the proper facilities were included and that emissions from the proper processes were allocated to the MTVLO 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) requesting comments on and updates to this data set, as well as the data sets for the other source categories included in the notice. Comments received in response to the ANPRM were reviewed and considered, and adjustments were made to the data set where we concluded the comments supported such adjustment. After making appropriate changes to the data set based on this public data review process, we created the data set on which we based the initial proposal. This data set was used to conduct the risk assessment and other analyses for the MTVLO source category that formed the basis for the actions included in the October 2008, proposal.

Since the initial October 2008 proposal, we have continued to scrutinize the existing data set and have evaluated all additional data that became available subsequent to the proposal. Uncertainty about possible changes in the industry led us to extract more recent data from the NEI and, ultimately, to replace the entire 2002 NEI–based MTVLO data set with a data set based on the 2005 NEI. Additionally, we continue to work with industry representatives to resolve data issues found with facilities modeled with a MIR above 1-in-1 million (discussed in the next section) using the 2005 NEI data. The industry's review to date is provided in the docket for public review and comment.

The 2005 NEI-based data set shows 420 TPY of total HAP emissions from the 152 modeled facilities in the data set. Hexane, methyl tertiary butyl ether, toluene, methanol, benzene, and xylenes account for the majority of the HAP emissions from loading operations included in the MTVLO source category at the 152 facilities in the data set (approximately 350 TPY, or 79 percent of the total HAP emissions by mass). These facilities also reported relatively small emissions of 56 other HAP.

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

We have conducted a revised inhalation risk assessment for the MTVLO source category. We have also conducted an assessment of facility-wide risks and performed a demographic analysis of population risks. Table C.1 provides an overall summary of the results of the revised inhalation risk assessment.

TABLE C.1—MARINE TANK VESSEL LOADING OPERATIONS REVISED INHALATION RISK ASSESSMENT RESULTS *

| Number of facilities [1] | Maximum individual cancer risk (in 1 million) [2] | | Population at risk ≥ 1-in-1 million | 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 | |
| 152 Modeled Facilities ..... | 20 | 60 | 71,000 | 0.01 | 0.3 | 0.9 | $HQ_{REL}$ = 1 benzene |
| 300 Major Source Facilities Subject to the MTVLO MACT Standard. | 20 | 60 | 140,000 | 0.02 | 0.3 | 0.9 | $HQ_{REL}$ = 1 benzene |

* All results are for impacts out to 50 km from every source in the category.
[1] There were 152 facilities in the data set that were modeled. We believe that these facilities are representative of the entire source category and that the maximum risks arising from any individual facility in the source category are properly characterized. The population risks were scaled up based on a linear relationship.
[2] Maximum individual excess lifetime cancer risk.
[3] Maximum TOSHI. The target organ with the highest TOSHI for the MTVLO source category is the reproductive system.
[4] The maximum estimated acute exposure concentration was divided by available short-term threshold values to develop an array of HQ values. HQ values shown use the lowest available acute threshold value, which, in most cases, is the REL. When HQ values exceed 1, we also show HQ values using the next lowest available acute threshold. See section IV.A of this preamble for explanation of acute threshold values.

The inhalation risk modeling was performed using actual emissions level data. As shown in Table C.1, the results of the revised inhalation risk assessment indicate the maximum lifetime individual cancer risk could be as high as 20-in-1 million, the maximum chronic non-cancer TOSHI value could be up to 0.3. The total estimated national cancer incidence from these facilities based on actual emission levels at the 152 modeled facilities is 0.01 excess cancer cases per year or one case in every 100 years. The total estimated cancer incidence for the MTVLO source category could, however, be as high as 0.02, or one case in every 50 years, considering that there may be 300 facilities in the source category. The maximum off-facility-site acute HQ value could be as high as 1, based on the actual emissions level and the REL value for benzene.

In evaluating potential differences between actual emission levels and emissions allowable under the MACT-based standards, we investigated the specific controls in use at facilities associated with cancer risks greater than 1-in-1 million and determined that the highest factor for one of these facilities was 3.0, based on the ability of these facilities to achieve 98-percent control of emissions where only 97-percent emissions control is required by the MACT standards for another facility, they could, under MACT, increase emissions by a factor of 3. Therefore, the maximum individual cancer risk based on MACT-allowable emissions is estimated to be up to 60-in-1 million, and the maximum chronic non-cancer TOSHI value is up to 0.9.

Table C.2 displays the results of the facility-wide risk assessment. This assessment was conducted based on actual emission levels for the 152 modeled facilities.

TABLE C.2—MARINE TANK VESSEL LOADING OPERATIONS FACILITY-WIDE RISK ASSESSMENT RESULTS

| | |
|---|---|
| Maximum facility-wide individual cancer risk (in 1 million) ..... | 200 |
| MTVLO source category contribution to this maximum facility-wide individual cancer risk [1] ..... | 10% |
| Maximum facility-wide chronic non-cancer TOSHI ..... | 4 |
| MTVLO source category contribution to this maximum facility-wide non-cancer TOSHI [1] ..... | 20% |

[1] Percentage shown reflects MTVLO source category contribution to the maximum facility-wide risks at the facility with the maximum risk value shown.

The maximum individual cancer risk from all HAP emissions at a facility that contains sources subject to the MTVLO MACT standards is estimated to be 200-in-1 million, and the maximum chronic non-cancer TOSHI value is estimated to be 4. The highest facility-wide cancer risk for a facility that includes a MTVLO source is primarily driven by emissions associated with sources subject to the organic liquids distribution (OLD) NESHAP, 40 CFR part 63, subpart EEEE, and the highest facility-wide non-cancer risk is primarily driven by chemical manufacturing processes. The OLD and chemical manufacturing process emissions will be addressed as part of our effort to develop integrated requirements for the chemical manufacturing sector. We intend to develop integrated rules for the chemical manufacturing sector over the next 2 years.

The results of the demographic analyses performed to investigate the distribution of risks above 1-in-1 million, based on actual emissions levels for the population living within 5 km of the facilities, among various demographic groups are provided in a report available in the docket for this action and summarized in Table C.3 below.

TABLE C.3—MARINE TANK VESSEL LOADING OPERATIONS DEMOGRAPHIC RISK ANALYSIS RESULTS

| Emissions basis | Maximum risk (in 1 million) | Population with risk greater than 1-in-1 million | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Total (millions) | Minority % | African American % | Other and multi-racial % | Hispanic or Latino % | Native American % | Below the poverty level % | Over 25 W/O a HS diploma % |
| Nationwide ..... | n/a | 285 | 25 | 12 | 12 | 14 | 0.9 | 13 | 13 |
| Source Category ..... | 20 | 0.06 | 29 | 7 | 21 | 38 | 0.6 | 15 | 19 |
| Facility-wide ..... | 200 | 0.8 | 38 | 18 | 39 | 14 | 0.5 | 18 | 18 |

The results of the demographic analysis show that, for the MTVLO source category, of the 60,000 people with cancer risk greater than 1-in-1 million, 29 percent could be classified as a "Minority," 38 percent are included in the "Hispanic or Latino" demographic group, 21 percent are included in the "Other and Multiracial" demographic group, 15 percent are included in the "Below Poverty Level" demographic group, and 19 percent are included in the "Over 25 Without a High School Diploma" demographic group. The percentage of the population within 5 km of the terminal and with a cancer risk greater than 1-in-1 million is higher than the typical distribution of these demographic groups across the United States. The facility-wide demographic analysis shows that many more people (800,000) are at cancer risk greater than 1-in-1 million. As with the MTVLO analysis, many of the demographic groups have disparate impacts compared to the distribution across the United States.

Details of these 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.

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

a. October 2008 Proposed Decision

In October 2008, we proposed that the risks were acceptable because the risk results indicated that cancer risks to the individual most exposed to emissions from the category were greater than 1-in-1 million, but less than 100-in-1 million, and there were no other significant health impacts. We identified one emissions control option that would reduce risks in the ample margin of safety determination. We proposed that such control was not necessary to protect public health with an ample margin of safety in light of the high costs and limited additional health protection it would provide. We also proposed that emissions from the source category posed no potential for adverse environmental effects, did not pose potential for human health multipathway risks, and were unlikely to cause acute or chronic non-cancer health impacts. Therefore, we proposed that the existing standards provided an ample margin of safety and proposed to re-adopt the existing MACT standards to satisfy section 112(f) of the CAA.

b. Risk Acceptability

The revised risk analysis we performed for this proposal indicates that the cancer risks to the individual most exposed is 20-in-1 million based on actual emissions and 30-in-1 million based on MACT-allowable emissions. The cancer incidence and the number of people exposed to cancer risks of 1-in-1 million or greater are relatively low, based on actual emissions. The analyses show no potential for adverse environmental effects or human health multipathway effects, and that chronic, non-cancer health impacts are unlikely. The revised assessment did indicate that an acute non-cancer HQ as high as 1 could occur, based on the REL value. Our additional analysis of facility-wide risks shows that the maximum facility-wide cancer risk is 200-in-1 millions and the maximum facility-wide non-cancer TOSHI is 4. It also shows that the MTVLO processes located at the facilities with these maximum risk values contribute approximately 10 and 20 percent to such risks, respectively. Our additional analyses of the demographics of the exposed population show disparities in risks between demographic groups, but MTVLO represent a small portion of the population at risk. Based on this low cancer risk level and in consideration of other health measures and factors, including the low cancer incidence (one case in every 100 years) and the low maximum non-cancer risk level (TOSHI of 0.3 based on actual emissions and 0.5 based on MACT-allowable emissions), we propose that the risks from the MTVLO source category are acceptable.

c. Ample Margin of Safety

Because we are proposing that the risks are acceptable, but still above 1-in-1 million, we then reconsidered our 2008 ample margin of safety decision.

We have not identified any additional control options or any changes to the previously-analyzed control option that would further reduce risks from MTVLO that have cancer risks above 1-in-1 million. Our analysis does not indicate a change in the emissions reductions that could be achieved or in the cost of control for the control option considered, but ultimately rejected, in the October 2008 proposal. Therefore, we continue to propose that the current MACT-based standards provide an ample margin of safety to protect public health and the environment, and we are proposing to re-adopt the existing MACT standards to satisfy section 112(f) of the CAA.

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

In the October 10, 2008 proposal, as part of our technology review, we stated that we had not identified any advancements in practices, processes, and control technologies applicable to the emission sources in the MTVLO source category that would result in decreased emissions, and, on that basis, proposed to re-adopt the existing MACT standards to satisfy section 112(d)(6) of the CAA. In that review, we examined the regulatory requirements and/or technical analyses for subsequently-promulgated air toxics regulations applicable to source categories with emission sources similar to those in the MTVLO source category, and we searched the RBLC for controls applicable to VOC- and HAP-emitting processes in the MTVLO source category that might further reduce HAP emissions. In addition to reviewing subsequent regulatory actions applicable to similar types of emissions, such as those from loading racks or transfer operations, we also conducted a review for other VOC and organic HAP-emitting processes that would have similar, technology-transferable controls.

We conducted a further review in conjunction with this proposed rulemaking. The existing MACT

standards require collection and control for MTVLO facilities that load at least 10 million barrels per year (bbl/yr) of gasoline. As part of our technology review, we identified vapor collection and processors (recovery), as a possible control for additional gasoline loading MTLVO facilities. Recovery technology is appropriate for controlling mixtures of compounds and gasoline is the highest-quantity commodity loaded, based on our review of the Waterborne Commerce Statistics Center (WCSC) database for the United States. The WCSC database contains detailed information on the types and quantities of commodities loaded and unloaded at United States ports, harbors, waterways, and canals.

As part of our technology review, we evaluated gasoline loading thresholds of 0.5, 1.0, and 5 million bbl/yr gasoline loaded. Specifically, we found that MTVLO facilities loading 5 million bbl/yr have approximately 25 tons per year of HAP emissions. Facilities with this level of HAP emissions are subject to the control requirements under the existing rule. Therefore, loading in excess of 5 million bbl/yr of gasoline is already required to be controlled under the current standard.

We estimated the cost-effectiveness and overall impacts of the vapor collection and recovery options as shown in Table C.4. As discussed earlier, the 5 million bbl/yr threshold would not achieve any HAP or VOC reductions beyond those required under the current rule. For the 1 million bbl/yr threshold, we estimate an additional 190 TPY of HAP emissions and 2,600 TPY of VOC emission reduction can be achieved. The cost-effectiveness of these controls is $74,000 per ton of HAP emission reduction and $5,500 per ton of VOC emission reduction. While the HAP cost-effectiveness is higher than our historical values, the VOC cost-effectiveness is within the range of acceptability. For the 0.5 million bbl/yr option, the additional costs of controls is disproportionate to the additional emission reduction. As such, we are proposing to reduce the threshold in the current rule from 10 million bbl/yr to 1 million bbl/yr.

TABLE C.4—COST-EFFECTIVENESS AND NATIONWIDE IMPACTS FOR VAPOR COLLECTION AND RECOVERY CONTROLS FOR SOURCES WITH GASOLINE LOADING

| Gasoline loading threshold (million bbl/yr) | Capital cost (million $) | Total annualized cost (million $) | Recovery credit (million $) | Net annualized cost (million $) | HAP emission reduction (TPY) | HAP cost-effectiveness ($/ton) | VOC emission reduction (TPY) | VOC cost-effectiveness ($/ton) |
|---|---|---|---|---|---|---|---|---|
| 5 | 0 | 0 | 0 | 0 | 0 | ..... | 0 | ..... |
| 1 | 22 | 16 | 1 | 14 | 190 | 74,000 | 2,600 | 5,500 |
| 0.5 | 36 | 22 | 2 | 20 | 240 | 85,000 | 3,200 | 6,300 |

The current rule requires a 97 percent HAP reduction for those facilities with a loading of 10 million bbl/yr. To foster the use of vapor recovery rather than combustion of the vapors, we considered additional formats for the standard. We looked to similar MACT standards for gasoline loading of tank trucks and rail cars. Based on our review of these standards, we believe that vapor recovery is capable of achieving an emission limit of less than or equal to 10 milligrams of total organic compound emissions per liter of gasoline loaded (mg/l). The 10 mg/l emission limit also approximates the 97-percent control that is required for the larger-emitting, existing MTVLO subcategories. Thus, we propose to provide facilities the option of either meeting the 97-percent control requirement or the equivalent emission limit of 10 mg/l.

In summary, as a result of the technology review under section 112(d)(6) of the CAA, we are proposing to lower the existing threshold for control of emissions from gasoline loading from 10 million bbl/yr to 1 million bbl/yr and to provide facilities the option of either meeting the 97-percent control requirement or the equivalent emission limit of 10 mg/l.

6. What other actions are we proposing?

a. SSM Provisions

We reviewed the SSM provisions of the MTVLO NESHAP. The MTVLO NESHAP do contain an SSM exemption because they specify in 40 CFR 63.560, Table 1 that 40 CFR 63.6(f)(1) applies. Consistent with *Sierra Club* v. *EPA,* EPA is proposing that standards in this rule would apply at all times. We determined that there are currently several cross-references in the MTVLO NESHAP that could cause some confusion regarding periods of SSM. We also determined that the NESHAP do not specifically address recordkeeping and reporting requirements during periods of malfunction. We are, therefore, proposing several revisions to 40 CFR part 63, subpart Y to address these issues. We are also proposing to add language to 40 CFR 63.563(b)(1) to clarify the conditions during which performance tests shall be conducted. We are further proposing to revise 40 CFR 63.560, Table 1 to specify that the SSM included provisions in 40 CFR 63.6(f)(1), 40 CFR 63.7(e)(1), and 40 CFR 63.10(c)(10)–(11) of the *General Provisions* do not apply. Finally, we are proposing to promulgate an affirmative defense against civil penalties for exceedances of emission standards caused by malfunctions, as well as criteria for establishing the affirmative defense.

EPA has attempted to ensure that we have removed any provisions in the regulatory text 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 overlooked.

b. Significant Emission Points Not Previously Regulated

We also conducted a review of the MTVLO NESHAP to determine whether there were significant emissions sources for which standards were not previously developed. In this review, we identified two subcategories, those facilities emitting less than 10/25 TPY of HAP, and those facilities located more than 0.5 miles from shore, for which the current NESHAP do not include emission standards. As discussed below, we considered two levels of control (submerged fill and vapor recovery) for these two subcategories.

Submerged fill reduces the amount of emissions generated from the loading of vessels by reducing turbulence and misting. Use of this technique results in a 60-percent reduction in emissions compared to splash loading. We have determined that submerged fill is currently used by most, if not all, of the facilities. We reached this conclusion

based on information obtained through contact with industry representatives and the Coast Guard about submerged filling. Existing Coast Guard rules (46 CFR 153.282) require that "the discharge point of a cargo tank filling line must be not higher above the bottom of the cargo tank or sump than 10 centimeters (approximately 4 inches) or the radius of the filling line, whichever is greater." According to Coast Guard representatives, the radius of the fill lines can be up to 6 inches. We are proposing that the submerged fill technique is the MACT floor.

We next undertook an evaluation of potential beyond-the-floor options for the two identified subcategories. The only option beyond the floor is the application of vapor collection and processors, which were the basis for the emissions standards applicable to other MTVLO, at existing facilities in two subcategories of the MTVLO NESHAP (60 FR 48388). We examined the use of these controls by sources in the two subcategories in the context of the original MACT standards, but rejected their use as a beyond the floor option because they were not cost effective. As described above under the technology review, we are proposing to lower the threshold for using vapor collection and processing at MTVLO facilities loading gasoline from 10 million bbl/yr to 1 million bbl/yr. We are also proposing to provide facilities the option of either meeting the 97-percent control requirement or the equivalent emission limit of 10 mg/l. For the reasons set forth above, we are proposing these same requirements as a beyond the floor measure for these two subcategories. As for those facilities that do not load 1 million bbl/yr, we are proposing no additional controls as part of our beyond the floor analysis.

In conclusion, we are proposing in this action to set submerged fill as the floor level of control for these two MTVLO subcategories. Additionally, we are proposing vapor recovery as a beyond-the-floor option for those two MTVLO subcategories if they load 1 million bbl/yr or more of gasoline.

As noted above, we are proposing that the MACT standards, prior to the implementation of the proposed emission limitations discussed in this section, provide an ample margin of safety to protect public health. Therefore, we maintain that after implementation, which will further reduce HAP emissions, the rule will continue to provide an ample margin of safety to protect public health. Consequently, we do not believe it will be necessary to conduct another residual risk review under CAA section 112(f) for this source category 8 years following promulgation of these limitations.

*D. What are the results and proposed decisions for the Pharmaceuticals Production source category?*

1. Overview of the Source Category and MACT Standard

The National Emission Standards for Pharmaceuticals Production were promulgated on September 21, 1998 (63 FR 50280) and codified at 40 CFR part 63, subpart GGG. The Pharmaceuticals Production MACT standards apply to major sources of HAP. We identified 27 facilities currently subject to the Pharmaceuticals Production MACT standards.

The pharmaceutical manufacturing process consists of chemical production operations that produce drugs and medication. These operations include chemical synthesis (deriving a drug's active ingredient) and chemical formulation (producing a drug in its final form).

Emission sources at pharmaceutical production facilities include breathing and withdrawal losses from chemical storage tanks, venting of process vessels, leaks from piping and equipment used to transfer HAP compounds (equipment leaks), and volatilization of HAP from wastewater streams.

Typical control devices used to reduce HAP emissions from process vents include flares, incinerators, scrubbers, carbon adsorbers, and condensers. Emissions from storage vessels are controlled by floating roofs or by routing them to a control device. Emissions from wastewater are controlled by a variety of methods, including equipment modifications (*e.g.,* fixed roofs on storage vessels and oil water separators; covers on surface impoundments containers, and drain systems), treatment to remove the HAP (steam stripping, biological treatment), control devices, and work practices. Emissions from equipment leaks typically are reduced by leak detection and repair work practice programs, and in some cases, by equipment modifications.

2. What data were used in our risk analyses?

We initially created a preliminary data set 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 data set and made changes where necessary to ensure the proper facilities were included and to ensure the proper processes were allocated to the Pharmaceuticals Production 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 data set, as well as to the data sets for the other source categories addressed in that ANPRM. Comments received in response to the ANPRM were reviewed and considered, and we made adjustments to the data set where we concluded the comments supported such adjustment. After making appropriate changes to the data set based on this public data review process, the data set on which we based the initial proposal was created. This data set was used to conduct the risk assessment and other analyses for the Pharmaceuticals Production source category that formed the basis for the proposed RTR review actions included in the October 10, 2008 proposal.

We have continued to scrutinize the existing data set and have evaluated any additional data that has become available since the October 10, 2008 proposal. Since the time of the proposal, we identified an error in the latitude/longitude coordinates of one emission point at one facility. This error has been corrected in the data set, and no other changes have been made to it since the proposal.

Methylene chloride, methanol, acetonitrile, and toluene account for the majority of the HAP emissions from these facilities (approximately 890 TPY, or 85 percent of the total HAP emissions by mass). These facilities also reported relatively small emissions of 54 other HAP. For more detail, see the memo in the docket for this action describing the risk assessment inputs and models for the Pharmaceuticals Production source category.

We estimate that MACT-allowable emissions from this source category could be up to 25 percent greater than the actual emissions, primarily from process vents, as it is possible that the control devices used at some facilities achieve greater emission reductions from these emission sources than what is required by the MACT standard. For more detail about this estimate of the ratio of actual to MACT-allowable emissions, see the memo in the docket for this action describing the estimation of MACT-allowable emission levels and associated risks and impacts.

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

We have conducted a revised inhalation risk assessment for the

Pharmaceuticals Production source category. We have also conducted an assessment of facility-wide risk and performed a demographic analysis of population risks. Table D.1 provides an overall summary of the results of the revised inhalation risk assessment.

TABLE D.1—PHARMACEUTICALS PRODUCTION REVISED INHALATION RISK ASSESSMENT RESULTS *

| Number of facilities [1] | Maximum individual cancer risk (in 1 million) [2] | | Population at risk ≥ 1-in-1 million | 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 | |
| 27 | 3 | 4 | 2,000 | 0.0008 | 0.2 | 0.4 | $HQ_{REL}$ = 2 glycol ethers, chloroform<br>$HQ_{AEGL-1}$ = 0.001 chloroform |

* All results are for impacts out to 50 km from every source in the category.
[1] Number of facilities evaluated in the risk analysis.
[2] Maximum individual excess lifetime cancer risk.
[3] Maximum TOSHI. The target organ with the highest TOSHI for the Pharmaceutical Production source category is the nervous system.
[4] The maximum estimated acute exposure concentration was divided by available short-term threshold values to develop an array of HQ values. HQ values shown use the lowest available acute threshold value, which, in most cases, is the REL. When HQ values exceed 1, we also show HQ values using the next lowest available acute threshold. See section IV.A of this preamble for explanation of acute threshold values.

The inhalation risk modeling was performed using actual emissions level data. As shown in Table D.1, the results of the revised inhalation risk assessment indicate the maximum lifetime individual cancer risk could be as high as 3-in-1 million, the maximum chronic non-cancer TOSHI value could be up to 0.2. The total estimated national cancer incidence from these facilities based on actual emission levels is 0.0008 excess cancer cases per year, or one case in every 1,250 years. The maximum off-facility-site acute HQ value could be as high as 2, based on the actual emissions level and the REL value for chloroform. The HQ value at this level occurs at a location adjacent to one facility fenceline for only a few (13) hours per year. This maximum exceedance of the REL value corresponds to an $HQ_{AEGL-2}$ equal to 0.001. We also note a possible exceedance of the short-term REL value for glycol ethers at one other facility ($HQ_{REL}$ = 2). There are no other appropriate acute threshold values available for glycol ethers on which to base a comparison of potential risk.

Our analysis of potential differences between actual emission levels and emissions allowable under the MACT standards indicated that MACT-allowable emission levels may be up to 25 percent greater than actual emission levels. Considering this difference, the risk results from the revised inhalation risk assessment indicate the maximum lifetime individual cancer risk could be as high as 4-in-1 million, and the maximum chronic non-cancer TOSHI value could be up to 0.4 at the MACT-allowable emissions level.

Table D.2 displays the results of the facility-wide risk assessment. This assessment was conducted based on actual emission levels.

TABLE D.2—PHARMACEUTICALS PRODUCTION FACILITY-WIDE RISK ASSESSMENT RESULTS

| | |
|---|---|
| Maximum facility-wide individual cancer risk (in 1 million) | 40 |
| Pharmaceuticals Production source category contribution to this maximum facility-wide individual cancer risk [1] | <1% |
| Maximum facility-wide chronic non-cancer TOSHI | 0.8 |
| Pharmaceuticals Production source category contribution to this maximum facility-wide chronic non-cancer TOSHI [1] | <1% |

[1] Percentage shown reflects Pharmaceuticals Production source category contribution to the maximum facility-wide risks at the facility with the maximum risk value shown.

The maximum individual cancer risk from all HAP emissions at a facility that contains sources subject to the Pharmaceuticals Production MACT standards is estimated to be 40-in-1 million, and the maximum chronic non-cancer TOSHI value is estimated to be 0.8. At the facility where these maximum risk values occur, the estimated proportion of the risk attributable to the Pharmaceuticals Production source category processes is less than one percent for both cancer and non-cancer risk. The highest facility-wide cancer risk for a facility that includes a pharmaceuticals production source is primarily driven by acrylonitrile-butadiene-styrene (ABS) resin production processes, and the highest facility-wide non-cancer risk is primarily driven by pesticide manufacturing processes. These ABS resin and pesticide manufacturing processes will be addressed in future residual risk and technology reviews.

The results of the demographic analyses performed to investigate the distribution of risks above 1-in-1 million, based on actual emissions levels for the population living within 5 km of the facilities, among various demographic groups are provided in a report available in the docket for this action and summarized in Table D.3 below.

TABLE D.3—PHARMACEUTICALS PRODUCTION DEMOGRAPHIC RISK ANALYSIS RESULTS

| Emissions basis | Maximum risk (in 1 million) | Population with risk greater than 1-in-1 million | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Total (millions) | Minority % | African American % | Other and multiracial % | Hispanic or Latino % | Native American % | Below the poverty level % | Over 25 W/O a HS diploma % |
| Nationwide | n/a | 285 | 25 | 12 | 12 | 14 | 0.9 | 13 | 13 |
| Source category | 3 | 0.002 | 12 | 4 | 8 | 34 | 0.5 | 32 | 25 |
| Facility-wide | 40 | 0.03 | 18 | 14 | 4 | 12 | 0.3 | 21 | 15 |

The results of the demographic analysis show that, for the Pharmaceuticals Production source category, of the population of 2,000 people with cancer risk greater than 1-in-1 million, 34 percent are included in the "Hispanic or Latino" demographic group, 32 percent are included in the "Below Poverty Level" demographic group, and 25 percent are included in the "Over 25 Without a High School Diploma" demographic group. The percentage of the population within 5 km of a pharmaceuticals production facility and with a cancer risk greater than 1-in-1 million is higher than seen for these demographic categories based on the distribution of these demographic groups across the United States. The table also shows that the results of the facility-wide demographic analysis are higher than seen across the U.S, for the those included in the "African American," "Below Poverty Level," and the "Over 25 Without a High School Diploma" demographic groups, but the risks are lower than these levels for the other demographic groups.

Details of these 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.

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

a. October 2008 Proposed Decision

In our October 10, 2008 proposal, we stated that the risks were acceptable because the risk results indicated that cancer risks to the individual most exposed to emissions from the category of 10-in-1 million were greater than 1-in-1 million but less than 100-in-1 million. We then analyzed other risk factors and emissions control options in the ample margin of safety determination. In this analysis, we found emissions from the source category posed no potential for an adverse environmental effect, did not pose potential for human health multi-pathway risks, and were unlikely to cause acute or chronic non-cancer health impacts. We also identified one emissions control option that would reduce risks. We proposed that such control was not necessary to protect public health with an ample margin of safety in light of the high cost and limited additional health protection it would provide. Therefore, we proposed that the existing standard provided an ample margin of safety, and we proposed to re-adopt the existing MACT standard to satisfy section 112(f) of the CAA.

b. Risk Acceptability

The revised inhalation risk analysis we performed for this proposal indicates that the cancer risks to the individual most exposed is 3-in-1 million based on actual emissions and up to 4-in-1 million based on MACT-allowable emissions. The cancer incidence and the number of people exposed to cancer risks of 1-in-1 million or greater are not significantly changed from the risk identified in the October 2008 proposal. Similarly, the risk analysis continued to show no potential for an adverse environmental effect or human health multi-pathway effects, and that chronic non-cancer health impacts are unlikely. The revised assessment did indicate that an acute non-cancer HQ as high as 2 could occur, based on the REL value at a location adjacent to the facility fenceline for only a few (13) hours per year. However, we do not believe this situation warrants additional control considering the overall health effects. While our additional analysis of facility-wide risks showed that the maximum facility-wide cancer risk is 40-in-1 million, it also showed that pharmaceutical sources located at such facilities contributed less than 1 percent to such risk. The facility-wide analysis indicates that the maximum chronic non-cancer risks are unlikely to cause health impacts. Our additional analysis of the demographics of the exposed population may show disparities in risks between demographic groups. Based on this low cancer risk level and in consideration of other health measures and factors, including the low cancer incidence (one case in every 1,250 years) and the low maximum non-cancer risk level (TOSHI of 0.2 based on actual emissions and 0.4 based on MACT-allowable emissions), we propose that the risks from the Pharmaceuticals Production source category are acceptable.

c. Ample Margin of Safety

Because we are proposing that the risks are acceptable, but still above 1-in-1 million, we then re-considered our 2008 ample margin of safety decision.

We have not identified any additional control options or any changes to the previously-analyzed control option that would affect emissions reductions or the costs of control. Therefore, we continue to propose that the current MACT standards provide an ample margin of safety to protect public health and the environment, and we are proposing to re-adopt the existing MACT standards to satisfy section 112(f) of the CAA.

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

In the October 10, 2008 proposal, we identified no developments in practices, processes, and control technologies applicable to the emission sources and thus we did not propose any additional controls as necessary under CAA section 112(d)(6). In that review, we examined the regulatory requirements and/or technical analyses for subsequently promulgated air toxics regulations with similar types of emissions sources as those in the Pharmaceuticals Production source category, and we conducted a search of the RBLC for controls for VOC- and HAP-emitting processes in the Pharmaceuticals Production source category. We have not identified any additional developments in practices, processes, and control technologies since the proposal date. Thus, we are again proposing that it is not necessary to revise the existing MACT standards pursuant to section 112(d)(6).

6. What other actions are we proposing?

a. SSM Provisions

We propose to eliminate the SSM exemption in the Pharmaceuticals

Production MACT standards. Consistent with *Sierra Club* v. *EPA,* EPA proposes that standards in this rule would apply at all times. We are proposing several revisions to 40 CFR part 63, subpart GGG. Specifically, we are proposing to revise Table 1 to indicate that the requirements in 40 CFR 63.6(e) of the *General Provisions* do not apply. The 40 CFR 63.6(e) requires owner 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 63.1250(g)(3). The 40 CFR 63.6(e) 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 proposing to remove the exemption provisions for periods of SSM in 40 CFR 63.1250(g), require that delay of equipment leak repair plans be contained in a separate document in 40 CFR 63.1255(g)(4), revise 40 CFR 63.1257(a) to specify the conditions for performance tests, and revise the SSM associated monitoring, recordkeeping, and reporting requirements in 40 CFR 63.1258(b)(8), 40 CFR 63.1259(a), and 40 CFR 63.1260(i) to require reporting and recordkeeping for periods of malfunction. We are also proposing to revise Table 1 to specify that 40 CFR 63.6(f)(1), 40 CFR 63.7(e)(1), the last sentence of 40 CFR 63.8(d)(3), 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, we are proposing to promulgate an affirmative defense against civil penalties for exceedances of emission standards caused by malfunctions, as well as criteria for establishing the affirmative defense. EPA has attempted to ensure that we have not incorporated into 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.

b. Rule Improvements Review

We are proposing to correct an editorial error in 40 CFR 63.1257(e)(2)(iii)(A)(6)(ii). That section specifies several criteria under which the inlet to the equalization tank may be considered as the inlet to the biological treatment process for the purposes of performance tests to show compliance with the standards in 40 CFR 63.1256(a)(2)(i). This section incorrectly provides that only one of the listed criteria must be met for the inlet to the equalization tank to be considered the inlet to the biological treatment process. Instead, it should specify that all of the criteria must be met. Thus, we are proposing to revise this section by changing the "or" before each clause to "and," to clarify that all the criteria of 40 CFR 63.1256(e)(2)(iii)(A)(6)(ii) must be met for the inlet to the equalization tank to be considered as the inlet to the biological treatment process.

*E. What are the results and proposed decisions for the Printing and Publishing Industry source category?*

1. Overview of the Source Category and MACT Standard

The National Emission Standards for the Printing and Publishing Industry were promulgated on May 30, 1996 (61 FR 27132) and codified at 40 CFR part 63, subpart KK. The Printing and Publishing Industry MACT standards apply to major sources of HAP. We identified 172 facilities currently subject to the Printing and Publishing Industry MACT standards.

Printing and publishing facilities are those facilities that use rotogravure, flexography, and other methods, such as lithography, letterpress, and screen printing, to print on a variety of substrates, including paper, plastic film, metal foil, and vinyl. The Printing and Publishing Industry MACT standards include two subcategories: (1) Publication rotogravure printing and (2) product and packaging rotogravure and wide-web flexographic printing. Emissions at printing and publishing facilities result from the evaporation of solvents in the inks and from cleaning solvents. The emission points include printing presses and associated dryers and ink and solvent storage. Control techniques include recovery devices, combustion devices, and the use of non-HAP/low-HAP inks and cleaning solvents.

2. What data were used in our risk analyses?

We initially created a preliminary data set 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 data and made changes where necessary to ensure the proper facilities were included and to ensure the proper processes were allocated to the Printing and Publishing Industry 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 on and updates to this data set, as well as to the data sets for the other source categories addressed in that ANPRM. Comments received in response to the ANPRM were reviewed and considered, and we made adjustments to the data set where we concluded the comments supported such adjustment. After making appropriate changes to the data set based on this public data review process, the data set on which we based the initial proposal was created. This data set was used to conduct the risk assessment and other analyses for the Printing and Publishing Industry source category that formed the basis for the proposed RTR actions included in the October 2008 proposal.

We have continued to scrutinize the existing data set and have evaluated any additional data that became available since the October 2008 proposal. Since the time of the proposal, we identified errors in some HAP that were reported to be emitted and several facilities that were included have permanently closed. The data set was updated to correct the errors and remove the facilities that have closed.

Toluene accounts for the majority of the HAP emissions from these facilities (approximately 7,105 TPY, or 83 percent of the total HAP emissions by mass). These facilities also reported relatively small emissions of 58 other HAP. These emissions are primarily from the evaporation of HAP present in the inks and other materials applied with rotogravure and flexographic processes.

We estimate that MACT-allowable emissions from emission points within this source category could be up to five times greater than the actual emissions because some capture systems and control devices used on printers at some facilities could achieve greater emission reductions (in the range of 98 to possibly 100 percent) than what is required by the MACT standard (92 percent). For more detail about this estimate of the ratio of actual to MACT-allowable emissions, see the memo in the docket for this action describing the estimation of MACT-allowable emission levels and associated risks and impacts.

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

We have conducted a revised inhalation risk assessment for the Printing and Publishing Industry source category. We have also conducted an assessment of facility-wide risk, and performed a demographic analysis of

population risks. Table E.1 provides an overall summary of the results of the revised inhalation risk assessment.

TABLE E.1—PRINTING AND PUBLISHING INDUSTRY REVISED INHALATION RISK ASSESSMENT RESULTS *

| Number of facilities [1] | Maximum individual cancer risk (in 1 million) [2] | | Population at risk ≥ 1-in-1 million | 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 | |
| 172 ..... | 4 | 20 | 300 | 0.0006 | 0.08 | 0.4 | $HQ_{REL}$ = 10 toluene<br>$HQ_{AEGL-1}$ = 0.6 toluene |

* All results are for impacts out to 50 km from every source in the category.
[1] Number of facilities evaluated in the risk analysis.
[2] Maximum individual excess lifetime cancer risk.
[3] Maximum TOSHI. The target organ with the highest TOSHI for the Printing and Publishing Industry source category is the reproductive system.
[4] The maximum estimated acute exposure concentration was divided by available short-term threshold values to develop an array of HQ values. HQ values shown use the lowest available acute threshold value, which in most cases is the REL. When HQ values exceed 1, we also show HQ values using the next lowest available acute threshold. See section IV.A. of this preamble for explanation of acute threshold values.

The inhalation risk modeling was performed using actual emissions level data. As shown in Table E.1, the risks based on these actual emission levels indicate the maximum lifetime individual cancer risk could be as high as 4-in-1 million, the maximum chronic non-cancer TOSHI value could be up to 0.08. The total estimated national cancer incidence from these facilities based on the actual emission levels is 0.0006 excess cancer cases per year, or one case in every 1,666 years. The maximum off-facility-site acute HQ value could be as high as 10, based on the actual emissions level and the REL value for toluene. The HQ value at this level occurs at a location adjacent to one facility fenceline for only a few (90) hours per year. This maximum exceedance of the REL value corresponds to an $HQ_{AEGL-1}$ equal to 0.6.

Our analysis of potential differences between actual emission levels and emissions allowable under the MACT standard indicated that MACT-allowable emission levels may be up to five times greater than actual emission levels. Assuming this worst case difference occurred at the highest risk facility, the scaled risk results from the revised inhalation risk assessment would 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 up to 0.4.

Table E.2 displays the results of the facility-wide risk assessment. This assessment was conducted based on actual emission levels.

TABLE E.2—PRINTING AND PUBLISHING INDUSTRY FACILITY-WIDE RISK ASSESSMENT RESULTS

| | |
|---|---|
| Maximum facility-wide individual cancer risk (in 1 million) ..... | 20 |
| Printing and Publishing Industry source category contribution to this maximum facility-wide individual cancer risk [1] ..... | < 1% |
| Maximum facility-wide chronic non-cancer TOSHI ..... | [1] 20 |
| Printing and Publishing Industry source category contribution to this maximum facility-wide chronic non-cancer TOSHI [2] ..... | [3] < 1% |

[1] After risk modeling was complete, EPA received data that identified an error in emissions that caused this highest TOSHI value. After revising the emissions value, the highest facility-wide TOSHI is 2 from a different facility.
[2] Percentage shown reflects Printing and Publishing Industry source category contribution to the maximum facility-wide risks at the facility with the maximum risk value shown.
[3] This percentage reflects the Printing and Publishing Industry source category contribution to the highest facility-wide TOSHI of 2, as noted in footnote 1 to this table.

The maximum individual cancer risk from all HAP emissions at a facility that contains sources subject to the Printing and Publishing Industry MACT standards is estimated to be 20-in-1 million, and the maximum chronic non-cancer TOSHI value is estimated to be 20. At the facilities where these maximum risk values occur, the estimated proportion of the risk attributable to the Printing and Publishing Industry source category processes is less than one percent for both cancer and non-cancer risk.

The results of the demographic analyses performed to investigate the distribution of risks above 1-in-1 million, based on actual emissions levels for the population living within 5 km of the facilities, among various demographic groups are provided in a report available in the docket for this action and summarized in Table E.3 below.

TABLE E.3—PRINTING AND PUBLISHING INDUSTRY DEMOGRAPHIC RISK ANALYSIS RESULTS

| Emissions basis | Maximum risk (in 1 million) | Population with risk greater than 1-in-1 million | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Total (millions) | Minority % | African American % | Other and multiracial % | Hispanic or Latino % | Native American % | Below the poverty level % | Over 25 W/O a HS diploma % |
| Nationwide ..... | n/a | 285 | 25 | 12 | 12 | 14 | 0.9 | 13 | 13 |
| Source Category ..... | 4 | 0.00005 | 0 | 0 | 0 | 0 | 0 | 11 | 5 |

TABLE E.3—PRINTING AND PUBLISHING INDUSTRY DEMOGRAPHIC RISK ANALYSIS RESULTS—Continued

| Emissions basis | Maximum risk (in 1 million) | Population with risk greater than 1-in-1 million | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Total (millions) | Minority % | African American % | Other and multiracial % | Hispanic or Latino % | Native American % | Below the poverty level % | Over 25 W/O a HS diploma % |
| Facility-wide ..... | 20 | 0.05 | 14 | 8 | 5 | 5 | 0.3 | 9 | 11 |

The results of the Printing and Publishing Industry source category demographic analysis show that for the 50 people living within 5 km of a printing and publishing industry facility and with a cancer risk greater than 1-in-1 million is less than the national averages for the demographic categories displayed in Table E.3, based on the typical distribution of these demographic groups across the United States. The table also shows that the results of the demographic analysis for the facility-wide emissions are similarly less than the national averages for these demographic groups. This means the emissions from these sources do not create any significant disparate risk impacts.

Details of these assessments and analyses can be found in the residual risk documentation as referenced in section IV.A of this preamble, which is available in the docket for this action.

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

a. October 2008 Proposed Decision

In our October 10, 2008 proposal, the risk results indicated that cancer risk to the individual most exposed to emissions from the category was 0.05-in-1 million, which is less than 1-in-1 million (*i.e.,* were "low risk"). Therefore, we did not conduct an additional ample margin of safety analysis for the proposed rule.

b. Risk Acceptability

While at the time of the October 10, 2008 proposal this source category showed low risks (cancer risks to the individual most exposed to emissions from the category were less than 1-in-1 million), in our revised analysis we found that cancer risks to the individual most exposed to emissions from the category were 4-in-1 million based on actual emissions and as high as 20-in-1 million based on MACT-allowable emissions. This change in risk is primarily the result of a cancer health benchmark value becoming available for ethyl benzene. The cancer incidence and the number of people exposed to cancer risks of 1-in-1 million or greater are relatively low, based on actual emissions. The analyses show no potential for an adverse environmental effect or human health multi-pathway effects, and that chronic non-cancer health impacts are unlikely. The revised assessment did indicate that an acute non-cancer HQ as high as 10 could occur, based on the REL value for toluene at a location adjacent to the facility fenceline for up to 90 hours per year. However, given the fact that this potential impact does not exceed the AEGL–1 value for toluene ($HQ_{AEGL-1}$ = 0.6) we do not believe this situation warrants additional control considering the overall health effects. Our additional analysis of facility-wide risks showed that the maximum facility-wide cancer risk is 20-in-1 million and the maximum facility-wide non-cancer TOSHI is 20. It also showed that the printing and publishing processes located at the facilities with these maximum risk values contribute less than 1 percent to such risks. As previously mentioned, our additional analysis of the demographics of the exposed population suggests there are not large disparities in risks between demographic groups.

Based on this low cancer risk level and in consideration of other health measures and factors, including the low cancer incidence (one case in every 1,666 years), the low maximum non-cancer risk level (TOSHI of 0.08 based on actual emissions and 0.4 based on MACT-allowable emissions), relatively low facility-wide risks which are not attributable to the printing and publishing category, and the lack of disparate impacts in the demographic analysis, we propose that the risks from the Printing and Publishing Industry source category are acceptable.

c. Ample Margin of Safety

Because we are proposing that the risks are acceptable, but still above 1-in-1 million, we then re-considered our 2008 ample margin of safety decision. Based on these analyses, we continue to propose that the current MACT standards provide an ample margin of safety to protect public health and the environment, and we are proposing to re-adopt the existing MACT standards to satisfy section 112(f) of the CAA.

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

In the October 2008 proposal, we identified no advancements in practices, processes, and control technologies applicable to the emission sources in the Printing and Publishing Industry source category in our technology review, and thus we proposed that it was not necessary to revise the existing MACT standards pursuant to section 112(d)(6) of the CAA. In that review we examined the regulatory requirements and/or technical analyses for subsequently promulgated air toxics regulations with similar types of emissions sources as those in the Printing and Publishing Industry source category, and we conducted a search of the RBLC for controls for VOC- and HAP-emitting processes in the Printing and Publishing Industry source category. We re-examined these same sources of information to identify any new developments since the time of the October 2008 proposal. For the purposes of this proposal, we examined the option of retrofitting permanent total enclosures onto those controlled presses that do not already have permanent total enclosures. A permanent total enclosure improves the capture of solvent HAP from inks and delivers the additional captured solvent HAP to a control device. We estimate the cost-effectiveness of this retrofit to be over $50,000 per additional ton of HAP controlled. We find the cost of this retrofit to 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 pursuant to section 112(d)(6) of the CAA.

6. What other actions are we proposing?

We propose to eliminate the SSM exemption in the Printing and Publishing Industry MACT standard. Consistent with *Sierra Club* v. *EPA,* EPA proposes that standards in this rule would apply at all times. We are proposing several revisions to 40 CFR part 63, subpart KK regarding the standards that apply during periods of

SSM. Specifically, we are proposing to revise Table 1 to indicate that the requirements of 40 CFR 63.6(e) of the *General Provisions* do not apply. Section 63.6(e) 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 40 CFR 63.823. The 40 CFR 63.6(e) 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 revise 40 CFR 63.827 to specify the conditions for performance tests and to revise 40 CFR 63.829 and 40 CFR 63.830 to require reporting and recordkeeping for periods of malfunction. We are proposing to revise Table 1 to specify that 40 CFR 63.6(f)(1), 40 CFR 63.7(e)(1), the last sentence of 40 CFR 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, we are proposing to promulgate an affirmative defense against civil penalties for exceedances of emission standards caused by malfunctions, as well as criteria for establishing the affirmative defense. EPA has attempted to ensure that we have not incorporated into 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.

*F. What are the results and proposed decisions for Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants source category?*

1. Overview of the Source Category and MACT Standard

The National Emission Standards for Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants were promulgated on June 22, 1999 (64 FR 33202) and codified at 40 CFR part 63, subpart CCC. The Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants MACT standards (*i.e.,* Steel Pickling MACT standard) apply to major sources of HAP. We estimate that there are approximately 80 facilities subject to the MACT standards that are currently performing steel pickling and/or acid regeneration. Many of these facilities are located adjacent to integrated iron and steel manufacturing plants or electric arc furnace steelmaking facilities (mini-mills) that produce steel from scrap. Facilities that regenerate HCl may or may not be located at steel pickling operations.

The Steel Pickling source category consists of facilities that pickle steel, using HCl as the pickling acid, and facilities that regenerate the HCl after use, but does not include facilities which pickle steel using acids other than HCl.

Steel pickling is a treatment process in which the heavy oxide crust or mill scale that develops on the steel surface during hot forming or heat treating is removed chemically in a bath of aqueous acid solution. Pickling is a process applied to metallic substances that removes surface impurities, stains, or crusts to prepare the metal for subsequent plating (*e.g.,* with chromium) or other treatment, such as galvanization or painting.

The HAP emission points from the steel pickling and acid regeneration processes include spray roasters, steel pickling baths, steel pickling sprays, and tank vents.

Typical control devices used to reduce HAP emissions from steel pickling facilities include a packed tower scrubber, sieve tray scrubber, or horizontal packed bed scrubber. Each type of scrubber is coupled with a demister. The general trend in scrubber installations at steel pickling facilities is to replace older scrubbers with sieve tray scrubbers, which generate less scrubber effluent (blowdown). For acid regeneration roasters, a cyclone or a Venturi pre-concentrator is generally used before the emissions are scrubbed in one or two counter-current packed tower absorbers.

2. What data were used in our risk analyses?

For the Steel Pickling source category, we compiled preliminary data sets using data in the 2005 NEI. We reviewed these data and made changes where necessary. We also contacted several facilities to verify the emissions and emissions release characteristic data, and we made updates to the data set based on the information received from these communications. This updated data set comprises the data set that was used to conduct the risk assessments and other analyses that form the basis for this proposed action. Hydrochloric acid and chlorine account for all of the HAP emissions from the Steel Pickling source category (approximately 248 and 164 TPY, respectively).

Our analysis of potential differences between actual emission levels and emissions allowable under the MACT standards indicate that actual emissions and allowable emissions are approximately the same as allowable emissions. The available data indicate that pickling processes throughout the industry are equipped with controls that achieve the HCl and chlorine emission limits required by the MACT standards. For more detail about this estimate of the ratio of actual to MACT-allowable emissions, see the memo in the docket for this action describing the estimation of MACT-allowable emission levels and associated risks and impacts.

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

We have conducted an inhalation risk assessment for the Steel Pickling source category. We have also conducted an assessment of facility-wide risk and performed a demographic analysis of population risks. Table F.1 provides an overall summary of the inhalation risk assessment results.

TABLE F.1—STEEL PICKLING INHALATION RISK ASSESSMENT RESULTS *

| Number of facilities [1] | Maximum chronic non-cancer TOSHI [2] | | Population at risk from HI > 1 | Maximum off-site acute non-cancer HQ [3] |
|---|---|---|---|---|
| | Actual emissions level | Allowable emissions level | | |
| 51 Modeled Facilities | 2 | 2 | 30 | $HQ_{REL}$ = 0.4 chlorine |

TABLE F.1—STEEL PICKLING INHALATION RISK ASSESSMENT RESULTS *—Continued

| Number of facilities [1] | Maximum chronic non-cancer TOSHI [2] | | Population at risk from HI > 1 | Maximum off-site acute non-cancer HQ [3] |
|---|---|---|---|---|
| | Actual emissions level | Allowable emissions level | | |
| 80 Major Source Facilities Subject to the MACT Standard | 2 | 2 | 50 | $HQ_{REL}$ = 0.4 chlorine |

* All results are for impacts out to 50 km from every source in the category.
[1] There are 51 facilities in the data set that were modeled. It is believed that these facilities are representative of the entire source category and that the maximum risks are characterized. The population risks were scaled up based on a linear relationship.
[2] Maximum TOSHI. The target organ with the highest TOSHI for the Steel Pickling source category is the neurological system.
[3] The maximum estimated acute exposure concentration was divided by available short-term threshold values to develop an array of HQ values. HQ values shown use the lowest available acute threshold value, which, in most cases, is the REL. When HQ values exceed 1, we also show HQ values using the next lowest available acute threshold. See section IV.A of this preamble for explanation of acute threshold values.

The results of the inhalation risk assessment indicated there are no cancer risks or incidences attributable to emissions from the Steel Pickling source category because there were no emissions of any HAP with cancer dose-response values (*i.e.,* no known carcinogens are emitted from these sources). As shown in Table F.1, the maximum chronic non-cancer TOSHI value could be as high as 2. The maximum off-facility-site acute HQ value could be as high as 0.4, based on the actual emissions level and the REL value for chlorine. As our analysis of potential differences between actual emission levels and emissions allowable under the MACT standards indicate, actual emissions are approximately the same as MACT-allowable emissions, and the risk results for actual emissions are approximately the same as those for MACT-allowable emissions.

Table F.2 displays the results of the facility-wide risk assessment. This assessment was conducted based on actual emission levels for the 51 modeled facilities.

TABLE F.2—STEEL PICKLING FACILITY-WIDE RISK ASSESSMENT RESULTS

| | |
|---|---|
| Maximum Facility-Wide Individual Cancer Risk (in 1 million) | 100 |
| Steel Pickling source category contribution to this maximum facility-wide individual cancer risk | [1] NA |
| Maximum Facility-Wide Chronic Non-cancer TOSHI | 10 |
| Steel Pickling source category contribution to this maximum facility-wide chronic non-cancer TOSHI [2] | < 1% |

[1] The Steel Pickling source category does not contribute to the facility-wide cancer risks, as the facilities in this source category do not report emissions of any HAP with cancer dose-response values.
[2] Percentage shown reflects Steel Pickling source category contribution to the maximum facility-wide risks at the facility with the maximum risk value shown.

The maximum individual cancer risk from all HAP emissions at a facility that contains sources subject to the Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants MACT standards is estimated to be 100-in-1 million, and the maximum chronic non-cancer TOSHI value is estimated to be 10. As noted previously, there were no emissions of any HAP with cancer dose-response values from the Steel Pickling source category; therefore, this source category does not contribute to the maximum facility-wide cancer risk of 100-in-1 million. At the facility where the maximum TOSHI risk value occurs, the estimated proportion of the risk attributable to the Steel Pickling source category processes is less than one percent. The highest facility-wide cancer risk for a facility that includes a steel pickling or HCL regeneration source is primarily driven by iron and steel processes and coke oven emissions. The iron and steel processes will be addressed in a future residual risk review, some coke oven processes (charging, top side, and door leaks) have been addressed in a previous rulemaking action (70 FR 19992), and other coke oven processes (pushing, quenching, and battery stacks) will be addressed in a future residual risk review.

The results of the demographic analyses performed to investigate the distribution of TOSHI greater than 1, based on actual emissions levels for the population living within 5 km of the facilities, among various demographic groups are provided in a report available in the docket for this action and summarized in Table F.3 below.

TABLE F.3—STEEL PICKLING DEMOGRAPHIC RISK ANALYSIS RESULTS

| Emissions basis | Maximum respiratory hazard index | Population with TOSHI greater than 1-in-1 million | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Total (millions) | Minority % | African American % | Other and multiracial % | Hispanic or Latino % | Native American % | Below the poverty level % | Over 25 W/O a HS diploma % |
| Nationwide | n/a | 175 | 32 | 16 | 15 | 16 | 0.6 | 13 | 13 |
| Source Category | 2 | 0.000045 | 0 | 0 | 0 | 9 | 0 | 6 | 9 |
| Facility-wide | 10 | 0.0017 | 41 | 34 | 6 | 1 | 0.2 | 11 | 13 |

The results of the Steel Pickling source category demographic analysis show that there are 45 people exposed to an HI of one or greater from the source category and 1,700 people exposed to an HI of one or greater for the facility-wide emissions. Of this relatively small number of people for the source category, none of the groups shows a disparate impact compared to the national distribution of non-cancer risk. The facility-wide analysis shows a higher percentage population with an HI of one or more only for those that could be classified as a "Minority" and for those included in the "African American" demographic group.

Details of these assessments and analyses can be found in the residual risk documentation as referenced in section IV.A of this preamble, which is available in the docket for this action.

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

a. Risk Acceptability

The Steel Pickling source category does not emit HAP that are known, probable, or possible carcinogens; therefore, based on actual and MACT-allowable emission levels, cancer risks are less than 1-in-1 million to the individual most exposed. The analyses we performed for this proposal show no potential for an adverse environmental effect or human health multi-pathway effects, and that acute non-cancer health impacts are unlikely. We determined that emissions from the Steel Pickling source category would result in chronic non-cancer TOSHI approximately equal to 2 for the individual most exposed based on either actual emissions or MACT-allowable emissions. This HI value is for one facility, which has had compliance issues with the MACT standards. The emissions data used in our analysis include emissions that are in excess of what is allowed by the MACT standards. Work is underway between this facility, OECA at EPA, and the State to improve compliance. The next highest HI from any facility in the source category is 0.1. Based on this, we do not anticipate that MACT-allowable emissions for the sources in this category, or actual emissions when a source is in compliance with the MACT standards, would result in adverse chronic non-cancer health effects. Our additional analysis of facility-wide risks showed that the maximum facility-wide cancer risk is 100-in-1 million and the maximum facility-wide non-cancer TOSHI is 10. It also showed that the steel pickling processes located at the facilities with these maximum risk values did not contribute to the cancer risk and contributed less than 1 percent to these non-cancer risks. Our additional analysis of the demographics of the exposed population may show disparities in risks between demographic groups. Based on this cancer risk level and in consideration of other health measures and factors, including the cancer incidence (no cases) and the low maximum non-cancer risk level (TOSHI of 0.2), the lack of disparate impacts in the demographic analysis, and the small contribution to the facility-wide risks, we propose that the risks from the Steel Pickling source category are acceptable.

b. Ample Margin of Safety

We are proposing that the risks are acceptable, and while cancer risks were not above 1-in-1 million (the level at which we generally perform an ample margin of safety analysis), we decided to consider other factors before making a decision regarding the need for standards to reduce risks.

Based on these analyses, we continue to propose that the current MACT standards provide an ample margin of safety to protect public health and the environment, and we are proposing to re-adopt the existing MACT standards to satisfy section 112(f) of the CAA.

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

We evaluated developments in practices, processes, and control technologies applicable to the Steel Pickling source category. This included a search of the RBLC and the internet. The only advancement that we identified was one technology that is being used instead of steel pickling for some applications which is called the smooth clean surface (SCS) process. The SCS process uses patented roller brushes to remove scale from steel sheets and coils. However, this technology leaves the last layer of scale, resulting in a product that is rust-resistant, but is not conducive to in-line galvanizing, painting, enameling or electrolytic plating. Additionally, some types of forming, including hydroforming, cold reduction and deep draw cannot be used with SCS treated steel. It is therefore not a viable replacement for steel pickling operations. Another technology, eco pickled surface (EPS), could potentially become a low-emission alternative for steel pickling. EPS blasts steel with an acid-free slurry which, like steel pickling, removes all layers of scale. However, EPS only became commercially available in 2009 and it is not yet a proven technology. Thus, it is premature to consider it as a replacement for steel pickling operations.

Because we determined that the only identified development is not technologically feasible at this time, we are proposing that it is not necessary to revise the MACT standards pursuant to section 112(d)(6).

6. What other actions are we proposing?

We propose to eliminate the SSM exemption in the Steel Pickling MACT standards. Consistent with *Sierra Club* v. *EPA,* EPA proposes that standards in this rule would apply at all times. We are proposing several revisions to 40 CFR part 63, subpart CCC regarding the standards that apply during periods of SSM. Specifically, we are proposing to revise Table 1 to indicate that the requirements in 40 CFR 63.6(e) of the *General Provisions* do not apply. The 40 CFR 63.6(e) requires owner 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 40 CFR 63.1159(c). The 40 CFR 63.6(e) 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 revise 40 CFR 63.1161 to specify the conditions for performance tests, to revise the SSM-associated reporting and recordkeeping requirements in 40 CFR 63.1164 and 40 CFR 63.1165 to require reporting and recordkeeping for periods of malfunction, and to revise Table 1 to specify that 40 CFR 63.6(f)(1), 40 CFR 63.7(e)(1), the last sentence of 40 CFR 63.8(d)(3), 40 CFR 63.10(b)(2)(i),(ii), (vi), 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, we are proposing to promulgate an affirmative defense against civil penalties for exceedances of emission standards caused by malfunctions, as well as criteria for establishing the affirmative defense. EPA has attempted to ensure that we have not incorporated into 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. Summary of Proposed Actions

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

For the technology review for the chromium electroplating and anodizing source categories, we are proposing to amend the rules to prohibit the addition of PFOS-based WAFS to the electroplating or anodizing tanks. For these source categories, we are also proposing to require several housekeeping requirements to minimize emissions of chromium-laden fugitive dust from chromium electroplating operations and for owners and operators to incorporate these housekeeping procedures in the facility operation and maintenance plan. For MTVLO, we are proposing to lower the existing threshold for control of emissions from gasoline loading from 10 million bbl/yr to 1 million bbl/yr.

For the Group I Polymers and Resins, Pharmaceuticals Production, and Printing and Publishing Industry MACT standards, which were addressed in the October 10, 2008 proposal, we have reaffirmed our previous determinations that there have been no developments in practices, processes, or control technologies. Thus, we are continuing to propose that it is not necessary to revise the existing MACT requirements based on our CAA section 112(d)(6) review.

For the Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants source category, we have determined that there have been no developments in practices, processes, or control technologies since the promulgation of the MACT standards, and we are proposing that it is not necessary to revise the existing MACT requirements based on our CAA section 112(d)(6) review.

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

For the Epichlorohydrin Elastomers Production, Hypalon™ Production, Nitrile Butadiene Rubber Production, Polybutadiene Rubber Production, Styrene-Butadiene Rubber and Latex Production, MTVLO, Pharmaceuticals Production, and Printing and Publishing Industry MACT standards source categories, which were addressed in the October 10, 2008 proposal, we have reaffirmed our proposed determinations that the MACT standards for these source categories provide an ample margin of safety to protect public health and prevent adverse environmental effects. Thus, we are continuing to propose to re-adopt each of these standards for purposes of meeting the requirements of CAA sections 112(f)(2).

For the Hard Chromium Electroplating, Decorative Chromium Electroplating, Chromium Anodizing, and Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants MACT standards source categories, 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).

*C. What other actions are we proposing?*

We propose to amend the Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks, Group I Polymers and Resins, MTVLO, Pharmaceuticals Production, Printing and Publishing Industry, and Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants 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 against 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, which addressed similar provisions in the *General Provisions* that apply to many MACT standards.

We are also proposing requirements for two MACT standards under the authority of section 112(d)(2) and (3) of the CAA to address emission points for which emission standards were previously not developed. For the MTVLO MACT standard, we are proposing to add the requirement to perform submerged fill for existing facilities for two subcategories, those emitting less than 10/25 tons of HAP, and those located more than 0.5 miles from shore. For the Group I Polymers and Resins MACT standard source categories, we propose to add MACT standards limiting emissions from the back-end process operations from the Butyl Rubber Production subcategory, the Halobutyl Rubber Production subcategory, the Epichlorohydrin Rubber Production source category, the Nitrile Butadiene Rubber Production source category, and the Neoprene Rubber Production source category. We also propose to revise the MACT standards for front-end process vents from the Butyl Rubber Production subcategory, the Halobutyl Rubber Production subcategory, and the Ethylene Propylene Rubber Production source category by requiring control of HCl emissions resulting from the combustion of chlorinated organic compounds.

In addition, we are proposing minor changes to two MACT standards to improve compliance and correct errors. For the Chromium Electroplating MACT standard source categories, we are proposing to clarify that testing can be performed by either Method 306 or Method 306A, and we are proposing to revise Method 306B to correct inconsistencies between the amendments made to subpart N in 2004 (69 FR 42885) and Method 306B. In addition, to eliminate a discrepancy between the Chromium Electroplating MACT standard and the *General Provisions* to part 63, we are also proposing to revise the trigger for semiannual compliance reports to be consistent with *General Provisions* to part 63. For the Pharmaceuticals Production MACT standards, we are proposing to correct one typographical error.

## 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. 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.

## 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. |
| 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 No. EPA–HQ–OAR–2010–0600 (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 rule have been submitted for approval to OMB under the Paperwork Reduction Act, 44 U.S.C. 3501, *et seq.*

The proposed revisions to the SSM provisions for all of the standards being amended with this proposed rule will reduce the reporting burden associated with having to prepare and submit an SSM report. We are not proposing any new paperwork requirements to the Pharmaceuticals Production, Printing and Publishing Industry, and Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants MACT standards. Revisions and burden associated with amendments to the Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks; Group I Polymers and Resins; and MTVLO MACT standards are discussed in the following paragraphs. The OMB has previously approved the information collection requirements contained in the existing regulations being amended with this proposed rule (*i.e.,* 40 CFR part 63, subparts N, U, Y, KK, CCC, and GGG) under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501, *et seq.* The OMB control numbers for EPA's regulations in 40 CFR are listed in 40 CFR part 9. Burden is defined at 5 CFR 1320.3(b).

#### 1. Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks MACT Standard

The ICR document prepared by EPA for the amendments to the Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks MACT standards has been assigned EPA ICR number 1611.08. Burden changes associated with these amendments would result from new recordkeeping and reporting requirements associated with the new housekeeping requirements being proposed with today's action. The estimated average burden per response is 11 hours; the frequency of response is annual for all respondents that must comply with the rule's reporting requirements and the estimated average number of likely respondents per year is 590. The cost burden to respondents resulting from the collection of information includes the total capital cost annualized over the equipment's expected useful life (about $171,000), a total operation and maintenance component (about $534,000 per year), and a labor cost component (about $500,000 per year).

#### 2. Group I Polymers and Resins MACT Standard

The ICR document prepared by EPA for the amendments to the Group I Polymers and Resins MACT standards has been assigned EPA ICR number 2410.01. Burden changes associated with these amendments would result from new recordkeeping and reporting requirements associated with the new back-end process operation emission limits for epichlorohydrin, neoprene, nitrile butadiene rubber, and butyl rubber and the HCl emission limits from the front-end process vents for ethylene propylene rubber and butyl rubber being proposed with this action. The estimated average burden per response is 237 hours; the frequency of response is annual for all respondents that must comply with the rule's reporting requirements and the estimated average number of likely respondents per year is 19. The cost burden to respondents resulting from the collection of information includes the total capital cost annualized over the equipment's expected useful life (averaging $2,800), a total operation and maintenance component (averaging $1,000 per year), and a labor cost component (averaging $1.1 million per year).

#### 3. Marine Tank Vessel Loading Operations MACT Standard

The ICR document prepared by EPA for the amendments to the MTVLO MACT standards has been assigned EPA ICR number 1679.08. Burden changes associated with these amendments would result from new recordkeeping and reporting requirements associated with the vapor recovery requirements being proposed with today's action. The estimated average burden per response is 46 hours; the frequency of response is annual for all respondents that must comply with the rule's reporting requirements and the estimated average number of likely respondents per year is 18. The cost burden to respondents resulting from the collection of information includes the total capital cost annualized over the equipment's expected useful life (averaging $3,780), a total operation and maintenance component (averaging $108 per year), and a labor cost component (averaging $165,000 per year).

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.

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 these ICR, under Docket ID number EPA–HQ–OAR–2010–0600. 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, Office of Management and Budget, 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 October 21, 2010, a comment to OMB is best assured of having its full effect if OMB receives it by November 22, 2010. 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 Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act 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 Small Business Administration'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.

This proposed rule will not impose emission measurements or reporting requirements on small entities beyond those specified in existing regulations, nor does it change the level of any

emission standard for amendments to all of the MACT standards proposed today, with the exception of the proposed amendments to the hard and decorative chromium electroplating and chromium anodizing tanks MACT standard. The new housekeeping requirements and PFOS use restrictions proposed by these amendments to the hard and decorative chromium electroplating and chromium anodizing tanks MACT standard may impact small entities, but those impacts have been estimated to be nominal.

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.

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 under the provisions of Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1531–1538 for State, local, or tribal governments or the private sector. The proposed rule would not result in expenditures of $100 million or more for State, local, and tribal governments, in aggregate, or the private sector in any 1 year. The proposed rule imposes no enforceable duties on any State, local, or tribal governments or the private sector. Thus, this proposed rule is not subject to the requirements of sections 202 or 205 of the 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. None of the facilities subject to this action are owned or operated by State governments, and, because no new requirements are being promulgated, nothing in this proposal will supersede State regulations. 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 Agency 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, and EPA's risk assessments (included in the docket for this proposed rule) demonstrate that the existing regulations are health protective.

*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 EO 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 National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law 104–113, 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards (VCS) in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. VCS 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 Agency 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 environmental justice. Its main provision directs Federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice 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 environmental justice 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 environmental justice issues in EPA rulemakings is an evolving science. The EPA offers the demographic analyses in this 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 this analysis, we analyzed risks due to the inhalation of HAP in two separate ways. In the first approach, we focus the analysis on the total populations residing within 5 km of each facility (source category and facility-wide), regardless of their estimated risks, and examine the distributions of estimated risk across the various demographic groups within those 5 km circles. In the other, we focus the analysis only on the populations within 5 km of any facility who are estimated to have HAP exposures 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), once again examining the distributions of those risks across various demographic groups. In each approach, we compare the percentages of particular demographic groups to the total number of people in those demographic groups. In this preamble, we only present the results of the second approach since it focuses on the significant risks from either the source category or the facility-wide emissions. The results of both approaches are documented in memos to the docket for each of the source categories covered in this proposal.

As described in the preamble, for the Epichlorohydrin Elastomers Production, Hypalon ™ Production, Nitrile Butadiene Rubber Production, Polybutadiene Rubber Production, Styrene-Butadiene Rubber and Latex Production, MTVLO, Pharmaceuticals Production, and Printing and Publishing Industry MACT standard source categories, which were addressed in the October 10, 2008, proposal, we have reaffirmed our proposed determinations that the MACT standards for these source categories provide an ample margin of safety to protect public health and prevent adverse environmental effects. For the Hard Chromium Electroplating, Decorative Chromium Electroplating, Chromium Anodizing, and Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants MACT standard source categories, we propose the MACT standards provide an ample margin of safety to protect public health and prevent adverse environmental effects.

Our analyses also show that, for all the source categories evaluated, there is no potential for an adverse environmental effect or human health multipathway effects, and that acute and chronic non-cancer health impacts are unlikely. Our additional analysis of facility-wide risks showed that the maximum facility-wide cancer risks for all source categories are within the range of acceptable risks, and that the maximum chronic non-cancer risks are unlikely to cause health impacts. Our additional analysis of the demographics of the exposed population may show disparities in risks between demographic groups for all three categories; EPA has determined that, although there may be a disparity in risks between demographic groups, no group is exposed to unacceptable level of risk. The proposed rule would not relax the control measures on sources regulated by the rule, and, therefore, would not increase risks to any populations exposed to these sources.

**List of Subjects in 40 CFR Part 63**

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

Dated: September 14, 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 N—[Amended]

2. Section 63.341 is amended by:

a. Adding, in alphabetical order in paragraph (a), definitions for "affirmative defense," "contains hexavalent chromium," and "perfluorooctyl sulfonate (PFOS)-based fume suppressant"; and

b. Revising paragraph (b)(10) to read as follows:

**§ 63.341 Definitions and nomenclature.**

(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.

* * * * *

*Contains hexavalent chromium* means, the substance consists of, or contains 0.1 percent or greater by weight, chromium trioxide, chromium (VI) oxide, chromic acid, or chromic anhydride.

* * * * *

*Perfluorooctyl sulfonate (PFOS)-based fume suppressant* means a fume suppressant that contains 1 percent or greater PFOS by weight.

* * * * *

(b) * * *

(10) $VR_{tot}$ = the average total ventilation rate for the three test runs as determined at the outlet by means of the Method 306 or 306A testing specified in appendix A of this part in dscm/min.

3. Section 63.342 is amended by:

a. Revising paragraph (a);

b. Revising paragraph (b)(1);

c. Adding paragraph (c)(1)(iv);

d. Adding paragraph (c)(2)(vi);

e. Adding paragraph (d)(3);

f. Redesignating paragraphs (e)(2) and (e)(3) as paragraphs (e)(3) and (e)(4);

g. Adding new paragraph (e)(2);

h. Revising newly designated paragraph (e)(4);

i. Adding paragraph (f)(3)(i)(F); and

j. Adding Table 2 to read as follows:

**§ 63.342 Standards.**

(a)(1) At all times, each owner or operator must operate and maintain any affected source subject to the requirements of this subpart, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the owner or operator to make any further efforts to reduce emissions if levels required by this standard have been achieved. 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.

(2) Each owner or operator of an affected source subject to the provisions of this subpart shall comply with these requirements in this section on and after the compliance dates specified in § 63.343(a). All affected sources are regulated by applying maximum achievable control technology.

* * * * *

(b) * * *

(1) The emission limitations in this section apply during tank operation as defined in § 63.341, and during periods of startup and shutdown as these are

routine occurrences for affected sources subject to this subpart. In response to an action to enforce the standards set forth in this subpart, you may assert a civil defense to a claim for civil penalties for exceedances of such standards that are caused by a 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.

(i) 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 of paragraph (b)(1)(ii) of this section, and must prove by a preponderance of evidence that:

(A) The excess emissions were caused by a sudden, short, infrequent, and unavoidable failure of air pollution control and monitoring equipment, or of a process to operate in a normal an usual manner; and could not have been prevented through careful planning, proper design or better operation and maintenance practices; and did not stem from any activity or event that could have been foreseen and avoided, or planned for; and were not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(B) 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

(C) 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

(D) 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

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

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

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

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

(I) The owner or operator has prepared a written root cause analysis 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 the best monitoring methods and engineering judgment, the amount of excess emissions that were the result of the malfunction.

(ii) *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 (FAX) 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 (b)(1)(i) of this section.

* * * * *

(c)(1) * * *

(iv) After 3 years from date of publication of the final rule amendments in the **Federal Register**, the owner or operator of an affected open surface hard chromium electroplating tank shall not add PFOS-based fume suppressants to any affected open surface hard chromium electroplating tank.

* * * * *

(2) * * *

(vi) After 3 years from date of publication of the final rule amendments in the **Federal Register**, the owner or operator of an affected enclosed hard chromium electroplating tank shall not add PFOS-based fume suppressants to any affected enclosed hard chromium electroplating tank.

* * * * *

(d) * * *

(3) After 3 years from date of publication of the final rule amendments in the **Federal Register**, the owner or operator of an affected decorative chromium electroplating tank or an affected chromium anodizing tank shall not add PFOS-based fume suppressants to any affected decorative chromium electroplating tank or chromium anodizing tank.

(e) * * *

(2) After 3 years from date of publication of the final rule amendments in the **Federal Register**, the owner or operator of an affected decorative chromium electroplating tank using a trivalent chromium bath shall not add PFOS-based fume suppressants to any affected decorative chromium electroplating tank.

* * * * *

(4) Each owner or operator of an existing, new, or reconstructed decorative chromium electroplating tank that had been using a trivalent chromium bath that incorporated a wetting agent and ceases using this type of bath must fulfill the reporting requirements of § 63.347(i)(3) and comply with the applicable emission limitation within the timeframe specified in § 63.343(a)(7).

(f) * * *

(3) * * *

(i) * * *

(F) The plan shall include housekeeping procedures, as specified in Table 2 of this section.

* * * * *

TABLE 2 TO § 63.342—HOUSEKEEPING PRACTICES

| For | You must: | At this minimum frequency |
|---|---|---|
| 1. Any substance that contains hexavalent chromium. | (a) Store the substance in a closed container in an enclosed storage area; AND | At all times. |
| | (b) Use a closed container when transporting the substance from the enclosed storage area. | Whenever transporting substance. |
| 2. Each affected tank, to minimize spills of bath solution that result from dragout. | (a) Install drip trays that collect and return to the tank any bath solution that drips or drains from parts as the parts are removed from the tank; OR | Prior to operating the tank. |

TABLE 2 TO § 63.342—HOUSEKEEPING PRACTICES—Continued

| For | You must: | At this minimum frequency |
|---|---|---|
| | (b) Contain and return to the tank all solution that drains or drips from parts as the parts are removed from the tank. | Whenever removing parts from an affected tank. |
| 3. Each spraying operation for removing excess chromic acid from parts removed from an affected tank. | Install a splash guard to minimize overspray and to ensure that any hexavalent chromium laden liquid is returned to the electroplating or anodizing tank. | Prior to any such spraying operation. |
| 4. Each operation that involves the handling or use of any substance that contains hexavalent chromium. | Clean up, or otherwise contain, all spills of the substance. | Within 1 hour of the spill. |
| 5. All surfaces within the enclosed storage area, open floor area, walkways around affected tanks, or any surface potentially contaminated with hexavalent chromium that accumulates or potentially accumulates dust. | (a) Clean the surfaces using one or more of the following methods:<br>(i) HEPA vacuuming;<br>(ii) Hand-wiping with a damp cloth;<br>(iii) Wet mopping;<br>(iv) Other cleaning method approved by the permitting agency; OR | At least once every 7 days. |
| | (b) Apply a non-toxic chemical dust suppressant to the surfaces. | According to manufacturer's recommendations. |
| 6. All buffing, grinding, or polishing operations. | Separate the operation from any affected electroplating or anodizing operation by installing a physical barrier; the barrier may take the form of plastic strip curtains. | Prior to beginning the buffing, grinding, or polishing operation. |
| 7. All chromium or chromium-containing wastes generated from housekeeping activities. | Store, dispose, recover, or recycle the wastes using practices that do not lead to fugitive dust and in accordance with hazardous waste requirements. | At all times. |

4. Section 63.343 is amended by adding paragraph (a)(8) to read as follows:

**§ 63.343 Compliance provisions.**

(a) * * *

(8) No later than 6 months from date of publication of the final amendments in the **Federal Register**, the owner or operator of an affected source that is subject to the standards in paragraphs § 63.342(c) or (d) shall implement the housekeeping procedures specified in Table 2 of § 63.342.

* * * * *

5. Section 63.344 is amended by:

a. Revising paragraph (a);

b. Revising paragraphs (e)(3)(iii), (e)(3)(iv), and (e)(3)(v); and

c. Revising paragraphs (e)(4)(ii) and (e)(4)(iv) to read as follows:

**§ 63.344 Performance test requirements and test methods.**

(a) *Performance test requirements.* Performance tests shall be conducted using the test methods and procedures in this section. 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. Performance test results shall be documented in complete test reports that contain the information required by paragraphs (a)(1) through (9) of this section. The test plan to be followed shall be made available to the Administrator prior to the testing, if requested.

* * * * *

(e) * * *

(3) * * *

(iii) Perform Method 306 or 306A testing and calculate an outlet mass emission rate.

(iv) Determine the total ventilation rate from the affected sources ($VR_{inlet}$) by using equation 1:

$$VR_{tot} \times \frac{IDA_i}{\sum IA_{total}} = VR_{inlet} \qquad (1)$$

where $VR_{tot}$ is the average total ventilation rate in dscm/min for the three test runs as determined at the outlet by means of the Method 306 or 306A testing; $IDA_i$ is the total inlet area for all ducts associated with affected sources; $\Sigma IA_{total}$ is the sum of all inlet duct areas from both affected and nonaffected sources; and $VR_{inlet}$ is the total ventilation rate from all inlet ducts associated with affected sources.

(v) Establish the allowable mass emission rate of the system ($AMR_{sys}$) in milligrams of total chromium per hour (mg/hr) using equation 2:

$$\sum VR_{inlet} \times EL \times 60 \text{ minutes/hour} = AMR_{sys} \qquad (2)$$

where $\Sigma$ $VR_{inlet}$ is the total ventilation rate in dscm/min from the affected sources, and EL is the applicable emission limitation from § 63.342 in mg/dscm. The allowable mass emission rate ($AMR_{sys}$) calculated from equation 2 should be equal to or

more than the outlet three-run average mass emission rate determined from Method 306 or 306A testing in order for the source to be in compliance with the standard.

(4) * * *

(ii) Determine the total ventilation rate for each type of affected source ($VR_{inlet,a}$) using equation 3:

$$VR_{tot} \times \frac{IDA_{i,a}}{\sum IA_{total}} = VR_{inlet,a} \qquad (3)$$

where $VR_{tot}$ is the average total ventilation rate in dscm/min for the three test runs as determined at the outlet by means of the Method 306 or 306A testing; $IDA_{i,a}$ is the total inlet duct area for all ducts conveying chromic acid from each type of affected source performing the same operation, or each type of affected source subject to the same emission limitation; $\Sigma IA_{total}$ is the sum of all duct areas from both affected and nonaffected sources; and $VR_{inlet,a}$ is the total ventilation rate from all inlet ducts conveying chromic acid from each type of affected source performing the same operation, or each type of affected source subject to the same emission limitation.

* * * * *

(iv) Establish the allowable mass emission rate of the system ($AMR_{sys}$) in milligrams of total chromium per hour (mg/hr) using equation 8, including each type of affected source as appropriate:

$$AMR_{hcl} + AMR_{hc2} + AMR_{dc} + AMR_{ca} = AMR_{sys} \qquad (8)$$

The allowable mass emission rate calculated from equation 8 should be equal to or more than the outlet three-run average mass emission rate determined from Method 306 or 306A testing in order for the source to be in compliance with the standards.

* * * * *

6. Section 63.346 is amended by revising paragraphs (b)(4) and (b)(13) to read as follows:

**§ 63.346 Recordkeeping requirements.**

* * * * *

(b) * * *

(4) Records of actions taken during periods of malfunction to minimize emissions in accordance with § 63.342(a)(1), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation;

* * * * *

(13) For sources using fume suppressants to comply with the standards, records of the date and time that fume suppressants are added to the electroplating or anodizing bath and records of the fume suppressant manufacturer and product name;

* * * * *

7. Section 63.347 is amended by:

a. Redesignating paragraphs (g)(3)(xii) and (g)(3)(xiii) as (g)(3)(xiii) and (g)(3)(xiv), respectively, and adding a new paragraph (g)(3)(xii);

c. Revising paragraphs (h)(2)(i) introductory text and (h)(2)(i)(A) to read as follows:

**§ 63.347 Reporting requirements.**

* * * * *

(g) * * *

(3) * * *

(xii) 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 § 63.342(a)(1), including actions taken to correct a malfunction.

* * * * *

(h) * * *

(2) * * *

(i) If either of the following conditions is met, semiannual reports shall be prepared and submitted to the Administrator:

(A) The total duration of excess emissions (as indicated by the monitoring data collected by the owner or operator of the affected source in accordance with § 63.343(c)) is 1 percent or greater of the total operating time for the reporting period; or

* * * * *

8. Table 1 to Subpart N is amended by:

a. Removing entry 63.7(e);

b. Adding entries 63.7(e)(1) and 63.7(e)(2)–(4) to read as follows:

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

| General provisions reference | Applies to Subpart N | Comment |
|---|---|---|
| * * | * * | * * * |
| 63.7(e)(1) | No | See § 63.344(a). Any cross reference to § 63.7(e)(1) in any other general provision incorporated by reference shall be treated as a cross-reference to § 63.344(a). |
| 63.7(e)(2)–(4) | Yes | Subpart N also contains test methods specific to affected sources covered by that subpart. |
| * * | * * | * * * |

## Subpart U—[Amended]

9. Section 63.480 is amended by revising paragraph (j) to read as follows:

**§ 63.480 Applicability and designation of affected sources.**

* * * * *

(j) *Applicability of this subpart.* Paragraphs (j)(1) through (4) of this section shall be followed during periods of non-operation of the affected source or any part thereof.

(1) The emission limitations set forth in this subpart and the emission limitations referred to in this subpart shall apply at all times except during periods of non-operation of the affected source (or specific portion thereof) resulting in cessation of the emissions to which this subpart applies. However, if a period of non-operation of one portion of an affected source does not affect the ability of a particular emission point to comply with the emission limitations to which it is subject, then that emission

point shall still be required to comply with the applicable emission limitations of this subpart during period of non-operation.

(2) The emission limitations set forth in subpart H of this part, as referred to in § 63.502, shall apply at all times except during periods of non-operation of the affected source (or specific portion thereof) in which the lines are drained and depressurized resulting in cessation of the emissions to which § 63.502 applies.

(3) The owner or operator shall not shut down items of equipment that are required or utilized for compliance with this subpart during times when emissions (or, where applicable, wastewater streams or residuals) are being routed to such items of equipment if the shutdown would contravene requirements of this subpart applicable to such items of equipment.

(4) In response to an action to enforce the standards set forth in this subpart, you may assert a civil defense to a claim for civil penalties for exceedances of such standards that are caused by a 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.

(i) 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 of paragraph (j)(4)(ii) of this section, and must prove by a preponderance of evidence that:

(A) The excess emissions were caused by a sudden, short, infrequent, and unavoidable failure of air pollution control and monitoring equipment, or a process to operate in a normal and usual manner; and could not have been prevented through careful planning, proper design, or better operation and maintenance practices; and did not stem from any activity or event that could have been foreseen and avoided, or planned for; and were not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(B) 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

(C) 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

(D) 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

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

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

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

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

(I) The owner or operator has prepared a written root cause analysis 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 the best monitoring methods and engineering judgment, the amount of excess emissions that were the result of the malfunction.

(ii) *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 (FAX) transmission as soon as possible, but no later than 2 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 (j)(4)(i) of this section.

10. Section 63.481 is amended by revising paragraph (c) to read as follows:

**§ 63.481 Compliance dates and relationship of this subpart to existing applicable rules.**

* * * * *

(c) With the exceptions provided in paragraphs (c)(1) through (4) of this section, existing affected sources shall be in compliance with this subpart no later than June 19, 2001, as provided in § 63.6(c), unless an extension has been granted as specified in paragraph (e) of this section.

(1) Existing affected sources producing epichlorohydrin elastomer, halobutyl rubber, neoprene rubber, and nitrile butadiene rubber shall be in compliance with the applicable emission limitation in § 63.494(a)(4) no later than 1 year from date of publication of the final rule amendments in the **Federal Register**.

(2) Existing affected sources producing butyl rubber shall be in compliance with § 63.494(a)(4)(i) no later than 3 years from date of publication of the final rule amendments in the **Federal Register**.

(3) Existing affected sources producing butyl rubber, halobutyl rubber, and ethylene propylene rubber shall be in compliance with § 63.485(q)(1) no later than 3 years from date of publication of the final rule amendments in the **Federal Register**.

(4) Compliance with § 63.502 is covered by paragraph (d) of this section.

* * * * *

11. Section 63.482 is amended by adding in alphabetical order a definition for "affirmative defense," and revising the definition of "initial start-up" in paragraph (b) to read as follows:

**§ 63.482 Definitions.**

* * * * *

(b) * * *

*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.

* * * * *

*Initial start-up* means the first time a new or reconstructed affected source begins production of an elastomer product, or, for equipment added or changed as described in § 63.480(i), the first time the equipment is put into operation to produce an elastomer product. Initial start-up does not include operation solely for testing equipment. Initial start-up does not include subsequent start-ups of an affected source or portion thereof following shutdowns or following changes in product for flexible operation units or following recharging of equipment in batch operation.

* * * * *

12. Section 63.483 is amended by revising paragraph (a) to read as follows:

**§ 63.483 Emission standards.**

(a) At all times, each owner or operator must operate and maintain any affected source subject to the requirements of this subpart, including associated air pollution control equipment and monitoring equipment,

in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the owner or operator to make any further efforts to reduce emissions if levels required by this standard have been achieved. 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. Except as allowed under paragraphs (b) through (d) of this section, the owner or operator of an existing or new affected source shall comply with the provisions in:

(1) Section 63.484 for storage vessels;

(2) Section 63.485 for continuous front-end process vents;

(3) Sections 63.486 through 63.492 for batch front-end process vents;

(4) Sections 63.493 through 63.500 for back-end process operations;

(5) Section 63.501 for wastewater;

(6) Section 63.502 for equipment leaks;

(7) Section 63.504 for additional test methods and procedures;

(8) Section 63.505 for monitoring levels and excursions; and

(9) Section 63.506 for general reporting and recordkeeping requirements.

* * * * *

13. Section 63.484 is amended by revising paragraph (b)(4) to read as follows:

**§ 63.484 Storage vessel provisions.**

* * * * *

(b) * * *

(4) Storage vessels located downstream of the stripping operations at affected sources subject to the back-end residual organic HAP limitation located in § 63.494(a)(1) through (3), that are complying through the use of stripping technology, as specified in § 63.495;

* * * * *

14. Section 63.485 is amended by revising paragraphs (q) introductory text and (q)(1) introductory text to read as follows:

**§ 63.485 Continuous front-end process vent provisions.**

* * * * *

(q) Group 1 halogenated continuous front-end process vents must comply with the provisions of § 63.113(a)(1)(ii) and § 63.113(c), with the exceptions noted in paragraphs (q)(1) and (2) of this section.

(1) All Group 1 and Group 2 halogenated continuous front-end process vents at existing affected sources producing butyl rubber, halobutyl rubber, or ethylene propylene rubber using a solution process, must comply with § 63.113(a)(1)(ii) and § 63.113(c).

* * * * *

15. Section 63.489 is amended by revising paragraph (b)(4)(ii)(C) to read as follows:

**§ 63.489 Batch front-end process vents—monitoring equipment.**

* * * * *

(b) * * *

(4) * * *

(ii) * * *

(C) The owner or operator may prepare and implement a gas stream flow determination plan that documents an appropriate method which will be used to determine the gas stream flow. The plan shall require determination of gas stream flow by a method which will at least provide a value for either a representative or the highest gas stream flow anticipated in the scrubber during representative operating conditions. The plan shall include a description of the methodology to be followed and an explanation of how the selected methodology will reliably determine the gas stream flow, and a description of the records that will be maintained to document the determination of gas stream flow. The owner or operator shall maintain the plan as specified in § 63.506(a).

* * * * *

16. Section 63.491 is amended by revising paragraph (e)(2)(ii) to read as follows:

**§ 63.491 Batch front-end process vents—recordkeeping requirements.**

* * * * *

(e) * * *

(2) * * *

(ii) Monitoring data recorded during periods of monitoring system breakdowns, repairs, calibration checks, and zero (low-level) and high-level adjustments shall not be included in computing the batch cycle daily averages. In addition, monitoring data recorded during periods of non-operation of the EPPU (or specific portion thereof) resulting in cessation of organic HAP emissions shall not be included in computing the batch cycle daily averages.

* * * * *

17. Section 63.493 is revised to read as follows:

**§ 63.493 Back-end process provisions.**

Owners and operators of new and existing affected sources shall comply with the requirements in §§ 63.494 through 63.500. Owners and operators of affected sources whose only elastomer products are latex products, liquid rubber products, or products produced in a gas-phased reaction process are not subject to the provisions of §§ 63.494 through 63.500. If latex or liquid rubber products are produced in an affected source that also produces another elastomer product, the provisions of §§ 63.494 through 63.500 do not apply to the back-end operations dedicated to the production of one or more latex products or to the back-end operations during the production of a latex product.

18. Section 63.494 is amended by:

a. Revising the section heading;

b. Revising paragraph (a) introductory text;

c. Revising paragraph (a)(4) and the introductory text of paragraph (a)(5);

d. Adding paragraph (a)(6);

e. Revising paragraph (b);

f. Revising paragraph (c); and

g. Revising paragraph (d) to read as follows:

**§ 63.494 Back-end process provisions—residual organic HAP and emission limitations.**

(a) The monthly weighted average residual organic HAP content of all grades of styrene butadiene rubber produced by the emulsion process, polybutadiene rubber and styrene butadiene rubber produced by the solution process, and ethylene-propylene rubber produced by the solution process that is processed, shall be measured after the stripping operation [or the reactor(s), if the plant has no stripper(s)] as specified in § 63.495(d), and shall not exceed the limits provided in paragraphs (a)(1) through (3) of this section, as applicable. Owners or operators of these affected sources shall comply with the requirements of paragraphs (a)(1) through (3) of this section using either stripping technology or control or recovery devices. The organic HAP emissions from all back-end process operations at affected sources producing butyl rubber, epichlorohydrin elastomer, halobutyl rubber, neoprene, and nitrile butadiene rubber shall not exceed the limits determined in accordance with paragraph (a)(4) of this section, as applicable.

* * * * *

(4) The organic HAP emissions from back-end processes at affected sources producing butyl rubber, epichlorohydrin elastomer, halobutyl

rubber, neoprene, and nitrile butadiene rubber shall not exceed the limits determined in accordance with paragraphs (a)(4)(i) through (v) of this section for any consecutive 12-month period. The specific limitation for each elastomer type shall be determined based on the emissions level provided in paragraphs (a)(4)(i) through (v) of this section divided by the base year production level. The limitation shall be calculated and submitted in accordance with § 63.499(f)(1).

(i) For butyl rubber, the organic HAP emission limitation, in units of Mg organic HAP emissions per Mg of butyl rubber produced, shall be calculated by dividing 28 Mg/yr by the mass of butyl rubber produced in 2009, in Mg.

(ii) For epichlorohydrin elastomer, the organic HAP emission limitation, in units of Mg organic HAP emissions per Mg of epichlorohydrin elastomer produced, shall be calculated by dividing 36 Mg/yr by the mass of epichlorohydrin elastomer produced in 2009, in Mg.

(iii) For halobutyl rubber, the organic HAP emission limitation, in units of Mg organic HAP emissions per Mg of halobutyl rubber produced, shall be calculated by dividing 53 Mg/yr by the mass of halobutyl rubber produced in 2006, in Mg.

(iv) For neoprene, the organic HAP emission limitation, in units of Mg organic HAP emissions per Mg of neoprene produced, shall be calculated by dividing 23 Mg/yr by the mass of neoprene produced in 2009, in Mg.

(v) For nitrile butadiene rubber, the organic HAP emission limitation, in units of Mg organic HAP emissions per Mg of nitrile butadiene rubber produced, shall be calculated by dividing 1.7 Mg/yr by the mass of nitrile butadiene rubber produced in 2009, in Mg.

(5) For EPPU that produce both an elastomer product with a residual organic HAP limitation listed in paragraphs (a)(1) through (3) of this section, and a product listed in paragraphs (a)(5)(i) through (iv) of this section, only the residual HAP content of the elastomer product with a residual organic HAP limitation shall be used in determining the monthly average residual organic HAP content.

* * * * *

(6) There are no back-end process operation residual organic HAP or emission limitations for Hypalon™ and polysulfide rubber production. There are also no back-end process operation residual organic HAP limitations for latex products, liquid rubber products, products produced in a gas-phased reaction process, styrene butadiene rubber produced by any process other than a solution or emulsion process, polybutadiene rubber produced by any process other than a solution process, or ethylene-propylene rubber produced by any process other than a solution process.

(b) If an owner or operator complies with the residual organic HAP limitations in paragraph (a)(1) through (3) of this section using stripping technology, compliance shall be demonstrated in accordance with § 63.495. The owner or operator shall also comply with the recordkeeping provisions in § 63.498, and the reporting provisions in § 63.499.

(c) If an owner or operator complies with the residual organic HAP limitations in paragraph (a)(1) through (3) of this section using control or recovery devices, compliance shall be demonstrated using the procedures in § 63.496. The owner or operator shall also comply with the monitoring provisions in § 63.497, the recordkeeping provisions in § 63.498, and the reporting provisions in § 63.499.

(d) If the owner or operator complies with the residual organic HAP limitations in paragraph (a)(1) through (3) of this section using a flare, the owner or operator of an affected source shall comply with the requirements in § 63.504(c).

19. Section 63.495 is amended by:

a. Revising the section heading;

b. Revising paragraph (a);

c. Revising paragraph (b)(5); and

d. Adding paragraph (g) to read as follows:

**§ 63.495 Back-end process provisions—procedures to determine compliance with residual organic HAP limitations using stripping technology and organic HAP emissions limitations.**

(a) If an owner or operator complies with the residual organic HAP limitations in § 63.494(a)(1) through (3) using stripping technology, compliance shall be demonstrated using the periodic sampling procedures in paragraph (b) of this section, or using the stripper parameter monitoring procedures in paragraph (c) of this section. The owner or operator shall determine the monthly weighted average residual organic HAP content for each month in which any portion of the back-end of an elastomer production process is in operation. A single monthly weighted average shall be determined for all back-end process operations at the affected source.

(b) * * *

(5) The monthly weighted average shall be determined using the equation in paragraph (f) of this section. All representative samples taken and analyzed during the month shall be used in the determination of the monthly weighted average.

* * * * *

(g) Compliance with the organic HAP emission limitations determined in accordance with § 63.494(a)(4) shall be demonstrated in accordance with paragraphs (g)(1) through (5) of this section.

(1) Calculate your organic HAP emission limitation in accordance with § 63.494(a)(4)(i) through (v), as applicable, record it, and submit it in accordance with § 63.499(f)(1).

(2) Each month, calculate and record the organic HAP emissions from all back end process operations using engineering assessment. Engineering assessment includes, but is not limited to, the following:

(i) Previous test results, provided the test was representative of current operating practices.

(ii) Bench-scale or pilot-scale test data obtained under conditions representative of current process operating conditions.

(iii) Design analysis based on accepted chemical engineering principles, measurable process parameters, or physical or chemical laws or properties. Examples of analytical methods include, but are not limited to:

(A) Use of material balances;

(B) Estimation of flow rate based on physical equipment design, such as pump or blower capacities;

(C) Estimation of organic HAP concentrations based on saturation conditions; and

(D) Estimation of organic HAP concentrations based on grab samples of the liquid or vapor.

(3) Each month, record the mass of elastomer product produced.

(4) Each month, calculate and record the sums of the organic HAP emissions and the mass of elastomer produced for the month and the previous 11 months.

(5) Each month, divide the total mass of organic HAP emitted for the 12-month period by the total mass of elastomer produced during the 12-month period. This value must be recorded in accordance with § 63.498(e) and reported in accordance with § 63.499(f)(2).

20. Section 63.496 is amended by:

a. Revising the section heading;

b. Revising paragraph (a);

c. Revising paragraph (c)(2); and

d. Revising paragraph (d) to read as follows:

**§ 63.496 Back-end process provisions—procedures to determine compliance with residual organic HAP limitations using control or recovery devices.**

(a) If an owner or operator complies with the residual organic HAP limitations in § 63.494(a)(1) through (3) using control or recovery devices, compliance shall be demonstrated using the procedures in paragraphs (b) and (c) of this section. Previous test results conducted in accordance with paragraphs (b)(1) through (6) of this section may be used to determine compliance in accordance with paragraph (c) of this section.

* * * * *

(c) * * *

(2) A facility is in compliance if the average of the organic HAP contents calculated for all three test runs is below the residual organic HAP limitations in § 63.494(a)(1) through (3).

(d) An owner or operator complying with the residual organic HAP limitations in § 63.494(a)(1) through (3) using a control or recovery device, shall redetermine the compliance status through the requirements described in paragraph (b) of this section whenever process changes are made. The owner or operator shall report the results of the redetermination in accordance with § 63.499(d). For the purposes of this section, a process change is any action that would reasonably be expected to impair the performance of the control or recovery device. For the purposes of this section, the production of an elastomer with a residual organic HAP content greater than the residual organic HAP content of the elastomer used in the compliance demonstration constitutes a process change, unless the overall effect of the change is to reduce organic HAP emissions from the source as a whole. Other examples of process changes may include changes in production capacity or production rate, or removal or addition of equipment. For the purposes of this paragraph, process changes do not include: Process upsets; unintentional, temporary process changes; or changes that reduce the residual organic HAP content of the elastomer.

21. Section 63.497 is amended by:

a. Revising the section heading to § 63.497;

b. Revising paragraph (a) introductory text; and

c. Revising paragraph (d) introductory text to read as follows:

**§ 63.497 Back-end process provisions—monitoring provisions for control and recovery devices used to comply with residual organic HAP limitations.**

(a) An owner or operator complying with the residual organic HAP limitations in § 63.494(a)(1) through (3) using control or recovery devices, or a combination of stripping and control or recovery devices, shall install the monitoring equipment specified in paragraphs (a)(1) through (6) of this section, as appropriate.

* * * * *

(d) The owner or operator of an affected source with a controlled back-end process vent using a vent system that contains bypass lines that could divert a vent stream away from the control or recovery device used to comply with § 63.494(a)(1) through (3) shall comply with paragraph (d)(1) or (2) of this section. Equipment such as low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and pressure relief valves needed for safety purposes are not subject to this paragraph.

* * * * *

22. Section 63.498 is amended by:

a. Revising paragraph (a) introductory text;

b. Revising paragraph (a)(3);

c. Adding paragraph (a)(4);

d. Revising paragraph (b) introductory text;

e. Revising paragraph (b)(3);

f. Revising paragraph (c) introductory text;

g. Revising paragraph (d) introductory text;

h. Revising paragraph (d)(5)(ii)(B);

i. Revising paragraph (d)(5)(ii)(E); and

j. Adding paragraph (e) to read as follows:

**§ 63.498 Back-end process provisions—recordkeeping.**

(a) Each owner or operator shall maintain the records specified in paragraphs (a)(1) through (3), and paragraphs (b) through (d) of this section, as appropriate.

* * * * *

(3) If the back-end process operation is subject to a residual organic HAP limitation in § 63.494(a)(1) through (3), whether compliance will be achieved by stripping technology, or by control or recovery devices.

(4) If the back-end process operation is subject to an emission limitation in § 63.494(a)(4), the organic HAP emission limitation calculated in accordance with § 63.494(a)(4)(i) through (v), as applicable.

(b) Each owner or operator of a back-end process operation using stripping technology to comply with a residual organic HAP limitation in § 63.494(a)(1) through (3), and demonstrating compliance using the periodic sampling procedures in § 63.495(b), shall maintain the records specified in paragraph (b)(1), and in paragraph (b)(2) or paragraph (b)(3) of this section, as appropriate.

* * * * *

(3) If the organic HAP contents for all samples analyzed during a month are below the appropriate level in § 63.494(a), the owner or operator may record that all samples were in accordance with the residual organic HAP limitations in § 63.494(a)(1) through (3), rather than calculating and recording a monthly weighted average.

(c) Each owner or operator of a back-end process operation using stripping technology to comply with a residual organic HAP limitation in § 63.494(a)(1) through (3), and demonstrating compliance using the stripper parameter monitoring procedures in § 63.495(c), shall maintain the records specified in paragraphs (c)(1) through (3) of this section.

* * * * *

(d) Each owner or operator of a back-end process operation using control or recovery devices to comply with a residual organic HAP limitation in § 63.494(a)(1) through (3) shall maintain the records specified in paragraphs (d)(1) through (5) of this section. The recordkeeping requirements contained in paragraphs (d)(1) through (4) pertain to the results of the testing required by § 63.496(b), for each of the three required test runs.

* * * * *

(5) * * *

(ii) * * *

(B) Monitoring data recorded during periods of monitoring system breakdowns, repairs, calibration checks, and zero (low-level) and high-level adjustments shall not be included in computing the hourly or daily averages. In addition, monitoring data recorded during periods of non-operation of the EPPU (or specific portion thereof) resulting in cessation of organic HAP emissions shall not be included in computing the hourly or daily averages. Records shall be kept of the times and durations of all such periods and any other periods of process or control device operation when monitors are not operating.

* * * * *

(E) For flares, records of the times and duration of all periods during which the pilot flame is absent shall be kept rather than daily averages. The records specified in this paragraph are not required during periods when emissions are not routed to the flare.

* * * * *

(e) If the back-end process operation is subject to an organic HAP emission limitation in § 63.494(a)(4), the records

specified in paragraphs (e)(1) through (4) of this section.

(1) The applicable organic HAP emission limitation determined in accordance with § 63.494(a)(4)(i) through (v).

(2) The organic HAP emissions from all back-end process operations for each month, along with documentation of all calculations and other information used in the engineering assessment to estimate these emissions.

(3) The mass of elastomer product produced each month.

(4) The total mass of organic HAP emitted for each 12-month period divided by the total mass of elastomer produced during the 12-month period, determined in accordance with § 63.495(g)(5).

23. Section 63.499 is amended by:

a. Revising paragraph (a)(3);

b. Revising paragraph (b) introductory text;

c. Revising paragraph (c) introductory text;

d. Revising paragraph (d) introductory text; and

e. Adding paragraph (f) to read as follows:

**§ 63.499 Back-end process provisions—reporting.**

(a) * * *

(3) If the back-end process operation is subject to a residual organic HAP limitation in § 63.494(a)(1) through (3), whether compliance will be achieved by stripping technology, or by control or recovery devices.

(b) Each owner or operator of a back-end process operation using stripping to comply with a residual organic HAP limitation in § 63.494(a)(1) through (3), and demonstrating compliance by stripper parameter monitoring, shall submit reports as specified in paragraphs (b)(1) and (2) of this section.

* * * * *

(c) Each owner or operator of an affected source with a back-end process operation control or recovery device that shall comply with a residual organic HAP limitation in § 63.494(a)(1) through (3) shall submit the information specified in paragraphs (c)(1) through (3) of this section as part of the Notification of Compliance Status specified in § 63.506(e)(5).

* * * * *

(d) Whenever a process change, as defined in § 63.496(d), is made that causes the redetermination of the compliance status for the back-end process operations subject to a residual organic HAP limitation in § 63.494(a)(1) through (3), the owner or operator shall submit a report within 180 days after the process change, as specified in § 63.506(e)(7)(iii). The report shall include:

* * * * *

(f) If the back-end process operation is subject to an organic HAP emission limitation in § 63.494(a)(4), the owner and operator must submit the information specified in paragraphs (f)(1) and (2) of this section.

(1) The applicable organic HAP emission limitation determined in accordance with § 63.494(a)(4)(i) through (v) shall be submitted no later than 180 days from the date of publication of the final rule amendments in the **Federal Register**.

(2) In the periodic report required to be submitted by § 63.506(e)(6), the total mass of organic HAP emitted for each of the rolling 12-month periods in the reporting period divided by the total mass of elastomer produced during the corresponding 12-month period, determined in accordance with § 63.495(g)(5).

24. Section 63.501 is amended by revising paragraph (c)(2) to read as follows:

**§ 63.501 Wastewater provisions.**

* * * * *

(c) * * *

(2) Back-end streams at affected sources that are subject to a residual organic HAP limitation in § 63.494(a)(1) through (3) and that are complying with these limitations through the use of stripping technology.

25. Section 63.502 is amended by revising paragraph (b)(4) to read as follows:

**§ 63.502 Equipment leak and heat exchange system provisions.**

* * * * *

(b) * * *

(4) Surge control vessels and bottoms receivers located downstream of the stripping operations at affected sources subject to the back-end residual organic HAP limitation located in § 63.494(a)(1) through (3), that are complying through the use of stripping technology, as specified in § 63.495;

* * * * *

**§ 63.503 [Amended]**

26. Section 63.503 is amended by removing and reserving paragraph (f)(1).

27. Section 63.504 is amended by revising paragraph (a)(1) introductory text to read as follows:

**§ 63.504 Additional requirements for performance testing.**

(a) * * *

(1) Performance tests shall be conducted at maximum representative operating conditions achievable during one of the time periods described in paragraph (a)(1)(i) of this section, without causing any of the situations described in paragraph (a)(1)(ii) of this section to occur. 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.

* * * * *

28. Section 63.505 is amended by:

a. Revising paragraph (e)(4);

b. Revising paragraph (g)(1)(v)(A);

c. Revising paragraph (g)(1)(v)(B);

d. Removing paragraphs (g)(1)(v)(C) through (g)(1)(v)(E);

e. Revising paragraph (g)(2)(ii)(B); and

f. Adding paragraph (j) to read as follows:

**§ 63.505 Parameter monitoring levels and excursions.**

* * * * *

(e) * * *

(4) An owner or operator complying with the residual organic HAP limitations in paragraphs (a)(1) through (3) of § 63.494 using stripping, and demonstrating compliance by stripper parameter monitoring, shall redetermine the residual organic HAP content for all affected grades whenever process changes are made. For the purposes of this section, a process change is any action that would reasonably be expected to impair the performance of the stripping operation. For the purposes of this section, examples of process changes may include changes in production capacity or production rate, or removal or addition of equipment. For purposes of this paragraph, process changes do not include: Process upsets; unintentional, temporary process changes; or changes that reduce the residual organic HAP content of the elastomer.

* * * * *

(g) * * *

(1) * * *

(v) * * *

(A) Monitoring system breakdowns, repairs, calibration checks, and zero (low-level) and high-level adjustments; or

(B) Periods of non-operation of the affected source (or portion thereof), resulting in cessation of the emissions to which the monitoring applies.

(2) * * *

(ii) * * *

(B) Subtract the time during the periods of monitoring system breakdowns, repairs, calibration checks, and zero (low-level) and high-level adjustments from the total amount of time determined in paragraph (g)(2)(ii)(A) of this section, to obtain the

operating time used to determine if monitoring data are insufficient.

* * * * *

(j) *Excursion definition for back-end operations subject to § 63.494(a)(4).* An excursion means when the total mass of organic HAP emitted for any consecutive 12-month period divided by the total mass of elastomer produced during the 12-month period, determined in accordance with § 63.495(g), is greater than the applicable emission limitation, determined in accordance with § 63.494(a)(4)(i) through (v) and submitted in accordance with § 63.499(f)(1).

29. Section 63.506 is amended by:

a. Revising paragraph (b)(1);

b. Revising paragraph (d)(7);

c. Revising paragraph (e)(3) introductory text;

d. Removing and reserving paragraph (e)(3)(viii);

e. Revising paragraph (e)(3)(ix)(B);

f. Revising paragraph (e)(6)(iii)(E);

g. Revising paragraph (h)(1)(i);

h. Revising paragraph (h)(1)(ii)(C);

i. Revising paragraph (h)(1)(iii);

j. Revising paragraph (h)(2)(iii); and

k. Removing and reserving paragraph (h)(2)(iv)(A) to read as follows:

**§ 63.506 General recordkeeping and reporting provisions.**

* * * * *

(b) * * *

(1) *Malfunction records.* Each 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), air pollution control equipment, or monitoring equipment. Each owner or operator shall maintain records of actions taken during periods of malfunction to minimize emissions in accordance with § 63.483(a)(1), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

* * * * *

(d) * * *

(7) Monitoring data recorded during periods identified in paragraphs (d)(7)(i) and (ii) of this section shall not be included in any average computed under this subpart. Records shall be kept of the times and durations of all such periods and any other periods during process or control device or recovery device operation when monitors are not operating.

(i) Monitoring system breakdowns, repairs, calibration checks, and zero (low-level) and high-level adjustments; or

(ii) Periods of non-operation of the affected source (or portion thereof), resulting in cessation of the emissions to which the monitoring applies.

* * * * *

(e) * * *

(3) *Precompliance Report.* Owners or operators of affected sources requesting an extension for compliance; requesting approval to use alternative monitoring parameters, alternative continuous monitoring and recordkeeping, or alternative controls; requesting approval to use engineering assessment to estimate emissions from a batch emissions episode, as described in § 63.488(b)(6)(i); wishing to establish parameter monitoring levels according to the procedures contained in § 63.505(c) or (d); shall submit a Precompliance Report according to the schedule described in paragraph (e)(3)(i) of this section. The Precompliance Report shall contain the information specified in paragraphs (e)(3)(ii) through (vii) of this section, as appropriate.

* * * * *

(viii) [Reserved]

(ix) * * *

(B) Supplements to the Precompliance Report may be submitted to request approval to use alternative monitoring parameters, as specified in paragraph (e)(3)(iii) of this section; to use alternative continuous monitoring and recordkeeping, as specified in paragraph (e)(3)(iv) of this section; to use alternative controls, as specified in paragraph (e)(3)(v) of this section; to use engineering assessment to estimate emissions from a batch emissions episode, as specified in paragraph (e)(3)(vi) of this section; or to establish parameter monitoring levels according to the procedures contained in § 63.505(c) or (d), as specified in paragraph (e)(3)(vii) of this section.

* * * * *

(6) * * *

(iii) * * *

(E) 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 § 63.483(a)(1), including actions taken to correct a malfunction.

* * * * *

(h) * * *

(1) * * *

(i) The monitoring system is capable of detecting unrealistic or impossible data during periods of normal operation (*e.g.,* a temperature reading of −200 °C on a boiler), and will alert the operator by alarm or other means. The owner or operator shall record the occurrence. All instances of the alarm or other alert in an operating day constitute a single occurrence.

(ii) * * *

(C) The running average reflects a period of normal operation.

(iii) The monitoring system is capable of detecting unchanging data during periods of normal operation, except in circumstances where the presence of unchanging data is the expected operating condition based on past experience (*e.g.,* pH in some scrubbers), and will alert the operator by alarm or other means. The owner or operator shall record the occurrence. All instances of the alarm or other alert in an operating day constitute a single occurrence.

* * * * *

(2) * * *

(iii) The owner or operator shall retain the records specified in paragraphs (h)(1)(i) through (iii) of this section, for the duration specified in paragraph (h) of this section. For any calendar week, if compliance with paragraphs (h)(1)(i) through (iii) of this section does not result in retention of a record of at least one occurrence or measured parameter value, the owner or operator shall record and retain at least one parameter value during a period of normal operation.

(iv) * * *

(A) [Reserved]

* * * * *

30. Table 1 to Subpart U of part 63 is amended by:

a. Removing entry 63.6(e);

b. Revising entries 63.6(e)(1)(i) and 63.6(e)(1)(ii);

c. Revising entry 63.6(e)(2);

d. Adding entry 63.6(e)(3);

e. Removing entries 63.6(e)(3)(i) through 63.6(e)(3)(ix);

f. Revising entry 63.6(f)(1); and

e. Revising entries 63.7(e)(1) and 63.10(d)(5)(i) to read as follows:

TABLE 1 TO SUBPART U OF PART 63—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART U AFFECTED SOURCES

| Reference | Applies to Subpart U | Explanation |
|---|---|---|
| * | * * * * * * * | |
| § 63.6(e)(1)(i) | No | See § 63.483(a)(1) for general duty requirement. Any cross reference to § 63.6(e)(1)(i) in any other general provision incorporated by reference shall be treated as a cross reference to § 63.483(a)(1). |
| § 63.6(e)(1)(ii) | No. | |
| * | * * * * * * * | |
| § 63.6(e)(2) | No | [Reserved.] |
| § 63.6(e)(3) | No. | |
| § 63.6(f)(1) | No. | |
| * | * * * * * * * | |
| § 63.7(e)(1) | No | See § 63.504(a)(1). Any cross-reference to § 63.7(e)(1) in any other general provision incorporated by reference shall be treated as a cross-reference to § 63.504(a)(1). |
| * | * * * * * * * | |
| 63.10(d)(5)(i) | No. | |
| * | * * * * * * * | |

**Subpart Y—[Amended]**

31–32. Section 63.560 is amended by:

a. Revising paragraphs (a)(1), (a)(2), and (a)(3);

b. Revising paragraph (d)(6);

c. Adding paragraph (e)(1)(iv);

d. Amending Table 1 to § 63.560 as follows:

i. Revising entry 63.6(f)(1);

ii. Removing entry 63.7(e);

iii. Adding entries 63.7(e)(1) and 63.7(e)(2)–(4);

iv. Removing entries 63.10(b)(2)(i) and (b)(2)(ii)–(iii);

v. Adding entries 63.10(b)(2)(i)–(ii) and (b)(2)(iii);

vi. Removing entry 63.10(c)(10)–(13); and

vii. Adding entries 63.10(c)(10)–(11) and 63.10(c)(12)–(13) to read as follows:

**§ 63.560 Applicability and designation of affected source.**

(a) * * *

(1) The provisions of this subpart pertaining to the MACT standards in § 63.562(b) and (d) of this subpart are applicable to existing and new sources with emissions of 10 or 25 tons, as that term is defined in § 63.561, except as specified in paragraph (d) of this section, and are applicable to new sources with emissions less than 10 and 25 tons, as that term is defined in § 63.561, except as specified in paragraphs (d) and (f) of this section.

(2) Existing sources with emissions less than 10 and 25 tons are not subject to the emissions standards in § 63.562(b) and (d), except as specified in paragraph (f) of this section.

(3) The recordkeeping requirements of § 63.567(j)(4) and the emission estimation requirements of § 63.565(l) apply to existing sources with emissions less than 10 and 25 tons, except as specified in paragraph (f) of this section.

* * * * *

(d) * * *

(6) The provisions of this subpart do not apply to marine tank vessel loading operations at existing offshore loading terminals, as that term is defined in § 63.561, except existing offshore loading terminals must meet paragraphs (d)(6)(i) and (ii) of this section.

(i) The submerged fill standards of 46 CFR 153.282, and

(ii) The provisions of § 63.562(f)(1) or § 63.562(f)(2), if the terminal loads more than 1 million barrels (M barrels) of gasoline.

* * * * *

(e) * * *

(1) * * *

(iv) New and existing sources with emissions less than 10 or 25 tons, that load more than 1 M barrels of gasoline shall comply with the provisions of § 63.562(f) by [DATE 3 YEARS FROM DATE OF PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER].

* * * * *

TABLE 1 OF § 63.560—GENERAL PROVISIONS APPLICABILITY TO SUBPART Y

| Reference | Applies to affected sources in subpart Y | Comment |
|---|---|---|
| * | * * * * * * * | |
| 63.6(f)(1) | No. | |
| * | * * * * * * * | |
| 63.7(e)(1) | No. | See 63.563(b)(1). Any cross reference to 63.7(e)(1) in any other general provision incorporated by reference shall be treated as a cross-reference to 63.563(b)(1). |
| 63.7(e)(2)–(4) | Yes. | |
| * | * * * * * * * | |
| 63.10 (b)(2)(i)–(ii) | No. | |

TABLE 1 OF § 63.560—GENERAL PROVISIONS APPLICABILITY TO SUBPART Y—Continued

| Reference | Applies to affected sources in subpart Y | Comment |
|---|---|---|
| * | * * * * * * | |
| 63.10(b)(2)(iii) | Yes. | |
| * | * * * * * * | |
| 63.10(c)(10)–(11) | No. | See 63.567(m)(1) for reporting malfunctions. Any cross-reference to 63.10(c)(10) or 63.10(c)(11) in any other general provision incorporated by reference shall be treated as a cross-reference to 63.567(m)(1). |
| 63.10(c)(12)–(13) | Yes. | |
| * | * * * * * * | |

33. Section 63.561 is amended by adding in alphabetical order a definition for "affirmative defense" to read as follows:

**§ 63.561 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.

* * * * *

34. Section 63.562 is amended by:

a. Revising paragraph (a);

b. Revising paragraph (b)(1);

c. Revising paragraph (e) introductory text;

d. Adding paragraph (e)(7); and

e. Adding paragraph (f) to read as follows:

**§ 63.562 Standards.**

(a) The emissions limitations in paragraphs (b), (c), (d) and (f) of this section apply during marine tank vessel loading operations.

(b) *MACT standards, except for the VMT source*—(1)(i) Vapor collection system of the terminal. The owner or operator of a new source with emissions less than 10 and 25 tons, an existing or new source with emissions of 10 or 25 tons, and an existing source with emissions less than 10 and 25 tons that loads more than 1 M barrels of gasoline shall equip each terminal with a vapor collection system that is designed to collect HAP vapors displaced from marine tank vessels during marine tank vessel loading operations and to prevent HAP vapors collected at one loading berth from passing through another loading berth to the atmosphere, except for those commodities exempted under § 63.560(d).

(ii) *Ship-to-shore compatibility.* The owner or operator of a new source with emissions less than 10 and 25 tons, an existing or new source with emissions of 10 or 25 tons, and an existing source with emissions less than 10 and 25 tons that loads more than 1 million bbl/yr of gasoline shall limit marine tank vessel loading operations to those vessels that are equipped with vapor collection equipment that is compatible with the terminal's vapor collection system, except for those commodities exempted under § 63.560(d).

(iii) *Vapor tightness of marine vessels.* The owner or operator of a new source with emissions less than 10 and 25 tons, an existing or new source with emissions of 10 or 25 tons, and an existing source with emissions less than 10 and 25 tons that loads more than 1 million bbl/yr of gasoline shall limit marine tank vessel loading operations to those vessels that are vapor tight and to those vessels that are connected to the vapor collection system, except for those commodities exempted under § 63.560(d).

* * * * *

(e) Operation and maintenance requirements for air pollution control equipment and monitoring equipment for affected sources. At all times, owners or operators of affected sources shall operate and maintain a source, including associated air pollution control equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether acceptable 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.

* * * * *

(7) In response to an action to enforce the standards set forth in this subpart, you may assert a civil defense to a claim for civil penalties for exceedances of such standards that are caused by a malfunction, as defined in § 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.

(i) 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 of paragraph (e)(7)(ii) of this section, and must prove by a preponderance of evidence that:

(A) The excess emissions were caused by a sudden, short, infrequent, and unavoidable failure of air pollution control and monitoring equipment, or a process to operate in a normal and usual manner; and could not have been prevented through careful planning, proper design or better operation and maintenance practices; and did not stem from any activity or event that could have been foreseen and avoided, or planned for; and were not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(B) 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

(C) 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

(D) 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

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

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

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

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

(I) The owner or operator has prepared a written root cause analysis 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 the best monitoring methods and engineering judgment, the amount of excess emissions that were the result of the malfunction.

(ii) *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 (FAX) transmission as soon as possible, but no later 2 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 (e)(7)(i) of this section.

(f) The owner or operator of an existing source, that is not located at a petroleum refinery, with emissions less than 10 and 25 tons that loads more than 1 million bbl/yr of gasoline shall:

(1) Limit emissions to not more than 10 mg of total organic compounds per liter of gasoline loaded; or

(2) Reduce captured emissions by at least 97 percent by weight.

35. Section 63.563 is amended by revising paragraphs (a) introductory text and (b)(1) to read as follows:

**§ 63.563 Compliance and performance testing.**

(a) The following procedures shall be used to determine compliance with the emissions limits under § 63.562(b)(1), (c)(2), (d)(1), and (f):

* * * * *

(b) * * *

(1) *Initial performance test.* An initial performance test shall be conducted using the procedures listed in § 63.7 of subpart A of this part according to the applicability in Table 1 of § 63.560, the procedures listed in this section, and the test methods listed in § 63.565. The initial performance test shall be conducted within 180 days after the compliance date for the specific affected source. During this performance test, sources subject to MACT standards under § 63.562(b)(2), (3), (4), and (5), and (d)(2) shall determine the reduction of HAP emissions, as VOC, for all combustion or recovery devices other than flares. 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. Sources subject to RACT standards under § 63.562(c)(3), (4), and (5), and (d)(2) shall determine the reduction of VOC emissions for all combustion or recovery devices other than flares.

* * * * *

**Subpart KK—[Amended]**

36. Section 63.820 is amended by adding paragraph (c) to read as follows:

**§ 63.820 Applicability.**

* * * * *

(c) In response to an action to enforce the standards set forth in this subpart, you may assert a civil defense to a claim for civil penalties for exceedances of such standards that are caused by a malfunction, as defined in § 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 of paragraph (c)(2) of this section, and must prove by a preponderance of evidence that:

(i) The excess emissions were caused by a sudden, short, infrequent, and unavoidable failure of air pollution control and monitoring equipment, or a process to operate in a normal an usual manner; and could not have been prevented through careful planning, proper design or better operation and maintenance practices; and did not stem from any activity or event that could have been foreseen and avoided, or planned for; and 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) Your 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) The owner or operator has prepared a written root cause analysis 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 the 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 (FAX) transmission as soon as possible, but no later 2 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 (c)(1) of this section.

37. Section 63.822 is amended by adding in alphabetical order a definition for "affirmative defense" to paragraph (a) to read as follows:

**§ 63.822 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.

* * * * *

38. Section 63.823 is revised to read as follows:

**§ 63.823 Standards: General.**

(a) Table 1 to this subpart provides cross references to the 40 CFR part 63, subpart A, general provisions, indicating the applicability of the general provisions requirements to this subpart KK.

(b) Each owner or operator of an affected source subject to this subpart must at all times operate and maintain that 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.

39. Section 63.827 is amended by adding introductory text to read as follows:

**§ 63.827 Performance test methods.**

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.

* * * * *

40. Section 63.829 is amended by adding paragraphs (g) and (h) to read as follows:

**§ 63.829 Recordkeeping requirements.**

* * * * *

(g) Each 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), air pollution control equipment, or monitoring equipment.

(h) Each owner or operator of an affected source subject to this subpart shall maintain records of actions taken during periods of malfunction to minimize emissions in accordance with § 63.823(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

41. Section 63.830 is amended by:

a. Removing and reserving paragraph (b)(5); and

b. Adding paragraph (b)(6)(v) to read as follows:

**§ 63.830 Reporting requirements.**

* * * * *

(b) * * *

(5) [Reserved]

(6) * * *

(v) 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 § 63.823(b), including actions taken to correct a malfunction.

42. Table 1 to Subpart KK of part 63 is amended by:

a. Removing entry 63.6(e);

b. Adding entries 63.6(e)(1)(i), 63.6(e)(1)(ii); 63.6(e)(1)(iii), 63.6(e)(2), and 63.6(e)(3);

c. Removing entry 63.6(f);

d. Adding entries 63.6(f)(1) and 63.6(f)(2)–(f)(3);

e. Removing entry 63.7;

f. Adding entries 63.7(a)–(d), 63.7(e)(1), and 63.7(e)(2)–(e)(4);

g. Removing entry 63.8(d)–(f);

h. Adding entries 63.8(d)(1)–(2), 63.8(d)(3), and 63.8(e)–(f);

i. Removing entries 63.10(b)(1)–(b)(3), 63.10(c)(10)–(c)(15), and 63.10(d)(4)–(d)(5);

j. Adding entries 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), 63.10(b)(3), 63.10(c)(10), 63.10(c)(11), 63.10(c)(12)–(c)(14), 63.10(c)(15), 63.10(d)(4), and 63.10(d)(5) to read as follows:

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

| General provisions reference | Applicable to Subpart KK | Comment |
|---|---|---|
| * | * * | * * * * * |
| § 63.6(e)(1)(i) | No | See 63.823(b) for general duty requirement. Any cross-reference to 63.6(e)(1)(i) in any other general provision incorporated by reference shall be treated as a cross-reference to 63.823(b). |
| § 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) | Yes. | |
| * | * * | * * * * * |
| § 63.7(a)–(d) | Yes. | |
| § 63.7(e)(1) | No | See 63.827 introductory text. Any cross-reference to 63.7(e)(1) in any other general provision incorporated by reference shall be treated as a cross-reference to 63.827 introductory text. |
| § 63.7(e)(2)–(e)(4) | Yes. | |
| * | * * | * * * * * |
| § 63.8(d)(1)–(2) | Yes. | |
| § 63.8(d)(3) | Yes, except for last sentence. | |
| § 63.8(e)–(f) | Yes. | |

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

| General provisions reference | Applicable to Subpart KK | Comment |
|---|---|---|
| * | * * * * * * | |
| § 63.10(b)(1) | Yes. | |
| § 63.10(b)(2)(i) | No. | |
| § 63.10(b)(2)(ii) | No | See 63.829(g) for recordkeeping of occurrence and duration of malfunctions. See 63.829(h) for recordkeeping of actions taken during malfunction. Any cross-reference to 63.10(b)(2)(ii) in any other general provision incorporated by reference shall be treated as a cross-reference to 63.829(g). |
| § 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)(10) | No | See 63.830(b)(6)(v) for reporting malfunctions. Any cross-reference to 63.10(c)(10) in any other general provision incorporated by reference shall be treated as a cross-reference to 63.830(b)(6)(v). |
| § 63.10(c)(11) | No | See 63.830(b)(6)(v) for reporting malfunctions. Any cross-reference to 63.10(c)(11) in any other general provision incorporated by reference shall be treated as a cross-reference to 63.830(b)(6)(v). |
| § 63.10(c)(12)–(c)(14) | Yes. | |
| § 63.10(c)(15) | No. | |
| * | * * * * * * | |
| § 63.10(d)(4) | Yes. | |
| § 63.10(d)(5) | No. | |
| * | * * * * * * | |

**Subpart CCC—[Amended]**

43. Section 63.1155 is amended by adding paragraph (d) to read as follows:

**§ 63.1155 Applicability.**

* * * * *

(d) In response to an action to enforce the standards set forth in this subpart, you may assert a civil defense to a claim for civil penalties for exceedances of such standards that are caused by a malfunction, as defined in § 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 of paragraph (d)(2) of this section, and must prove by a preponderance of evidence that:

(i) The excess emissions were caused by a sudden, short, infrequent, and unavoidable failure of air pollution control and monitoring equipment, or a process to operate in a normal an usual manner; and could not have been prevented through careful planning, proper design, or better operation and maintenance practices; and did not stem from any activity or event that could have been foreseen and avoided, or planned for; and 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) Your 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) The owner or operator has prepared a written root cause analysis 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 the 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 (FAX) transmission as soon as possible, but no later 2 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.

44. Section 63.1156 is amended by adding in alphabetical order a definition for "affirmative defense" to read as follows:

**§ 63.1156 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.

* * * * *

45. Section 63.1159 is amended by adding paragraph (c) to read as follows:

**§ 63.1159 Operational and equipment standards for existing, new, or reconstructed sources.**

* * * * *

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

46. Section 63.1160 is amended by revising paragraph (b) to read as follows:

**§ 63.1160 Compliance dates and maintenance requirements.**

* * * * *

(b) *Maintenance requirements.* (1) The owner or operator shall prepare an operation and maintenance plan for each emission control device to be implemented no later than the compliance date. The plan shall be incorporated by reference into the source's title V permit. All such plans must be consistent with good maintenance practices, and, for a scrubber emission control device, must at a minimum:

(i) Require monitoring and recording the pressure drop across the scrubber once per shift while the scrubber is operating in order to identify changes that may indicate a need for maintenance;

(ii) Require the manufacturer's recommended maintenance at the recommended intervals on fresh solvent pumps, recirculating pumps, discharge pumps, and other liquid pumps, in addition to exhaust system and scrubber fans and motors associated with those pumps and fans;

(iii) Require cleaning of the scrubber internals and mist eliminators at intervals sufficient to prevent buildup of solids or other fouling;

(iv) Require an inspection of each scrubber at intervals of no less than 3 months with:

(A) Cleaning or replacement of any plugged spray nozzles or other liquid delivery devices;

(B) Repair or replacement of missing, misaligned, or damaged baffles, trays, or other internal components;

(C) Repair or replacement of droplet eliminator elements as needed;

(D) Repair or replacement of heat exchanger elements used to control the temperature of fluids entering or leaving the scrubber; and

(E) Adjustment of damper settings for consistency with the required air flow.

(v) If the scrubber is not equipped with a viewport or access hatch allowing visual inspection, alternate means of inspection approved by the Administrator may be used.

(vi) The owner or operator shall initiate procedures for corrective action within 1 working day of detection of an operating problem and complete all corrective actions as soon as practicable. Procedures to be initiated are the applicable actions that are specified in the maintenance plan. Failure to initiate or provide appropriate repair, replacement, or other corrective action is a violation of the maintenance requirement of this subpart.

(vii) The owner or operator shall maintain a record of each inspection, including each item identified in paragraph (b)(2)(iv) of this section, that is signed by the responsible maintenance official and that shows the date of each inspection, the problem identified, a description of the repair, replacement, or other corrective action taken, and the date of the repair, replacement, or other corrective action taken.

(2) The owner or operator of each hydrochloric acid regeneration plant shall develop and implement a written maintenance program. The program shall require:

(i) Performance of the manufacturer's recommended maintenance at the recommended intervals on all required systems and components;

(ii) Initiation of procedures for appropriate and timely repair, replacement, or other corrective action within 1 working day of detection; and

(iii) Maintenance of a daily record, signed by a responsible maintenance official, showing the date of each inspection for each requirement, the problems found, a description of the repair, replacement, or other action taken, and the date of repair or replacement.

47. Section 63.1161 is amended by revising paragraph (a) introductory text to read as follows:

**§ 63.1161 Performance testing and test methods.**

(a) *Demonstration of compliance.* The owner or operator shall conduct an initial performance test for each process or emission control device to determine and demonstrate compliance with the applicable emission limitation according to the requirements in § 63.7 of subpart A of this part and in this section. 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.

* * * * *

48. Section 63.1164 is amended by revising paragraph (c) to read as follows:

**§ 63.1164 Reporting requirements.**

* * * * *

(c) 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 shall be stated in a semiannual report. 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 § 63.1159(c), including actions taken to correct a malfunction. The report, to be certified by the owner or operator or other responsible official, shall be submitted semiannually and delivered or postmarked by the 30th day following the end of each calendar half.

49. Section 63.1165 is amended by:

a. Revising paragraph (a)(1);

b. Revising paragraph (a)(4);

c. Removing paragraph (a)(5) and redesignating paragraphs (a)(6) through (a)(11) as paragraphs (a)(5) through (a)(10) to read as follows:

**§ 63.1165 Recordkeeping requirements.**

(a) * * *

(1) The occurrence and duration of each malfunction of operation (*i.e.,* process equipment);

* * * * *

(4) Actions taken during periods of malfunction to minimize emissions in accordance with § 63.1259(c) and the dates of such actions (including corrective actions to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation);

* * * * *

50. Table 1 to Subpart CCC is amended by:

a. Removing entry 63.6(a)–(g);

b. Adding entries 63.6(a)–(d), 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), 63.6(f)(2)–(3), 63.6(g);

c. Removing entry 63.7–63.9;

d. Adding entries 63.7, 63.8(a)–(c), 63.8(d)(1)–(2), 63.8(d)(3), and 63.8(e)–(f);

e. Removing entry 63.10(a)–(c);

f. 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)–(v), 63.10(b)(2)(vi)–(xvi), 63.10(b)(3), 63.10(c)(1)–(9), 63.10(c)(10), 63.10(c)(11), 63.10(c)(12)–(14), and 63.10(c)(15);

g. Removing entry 63.10(d)(4)–(5);

h. Adding entries 63.10(d)(4) and 63.10(d)(5) to read as follows:

TABLE 1 TO SUBPART CCC OF PART 63—APPLICABILITY OF GENERAL PROVISIONS (40 CFR PART 63, SUBPART A) TO SUBPART CCC

| Reference | Applies to Subpart CCC | Explanation |
|---|---|---|
| * | * * | * * * * * |
| 63.6 (a)–(d) | Yes. | |
| 63.6(e)(1)(i) | No | See § 63.1259(c) for general duty requirement. Any cross-reference to § 63.6(e)(1)(i) in any other general provision incorporated by reference shall be treated as a cross-reference to § 63.1259(c). |
| 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)–(3) | Yes. | |
| 63.6(g) | Yes. | |
| * | * * | * * * * * |
| 63.7 | Yes. | |
| 63.8(a)–(c) | Yes. | |
| 63.8(d)(1)–(2) | Yes. | |
| 63.8(d)(3) | Yes, except for last sentence. | |
| 63.8(e)–(f) | Yes. | |
| * | * * | * * * * * |
| 63.10(a) | Yes. | |
| 63.10(b)(1) | Yes. | |
| 63.10(b)(2)(i) | No. | |
| 63.10(b)(2)(ii) | No | See § 63.1265(a)(1) for recordkeeping of occurrence and duration of malfunctions. See § 63.1265(a)(4) for recordkeeping of actions taken during malfunction. Any cross-reference to § 63.10(b)(2)(ii) in any other general provision incorporated by reference shall be treated as a cross-reference to § 63.1265(a)(1). |
| 63.10(b)(2)(iii) | Yes. | |
| 63.10(b)(2)(iv)–(v) | No. | |
| 63.10(b)(2)(vi)–(xiv) | Yes. | |
| 63.10(b)(3) | Yes. | |
| * | * * | * * * * * |
| 63.10(c)(1)–(9) | Yes. | |
| 63.10(c)(10) | No | See § 63.1164(c) for reporting malfunctions. Any cross-reference to § 63.10(c)(10) in any other general provision incorporated by reference shall be treated as a cross-reference to § 63.1164(c). |
| 63.10(c)(11) | No | See § 63.1164(c) for reporting malfunctions. Any cross-reference to § 63.10(c)(11) in any other general provision incorporated by reference shall be treated as a cross-reference to § 63.1164(c). |
| 63.10(c)(12)–(c)(14) | Yes. | |
| 63.10(c)(15) | No. | |
| 63.10(d)(4) | Yes. | |
| 63.10(d)(5) | No. | |
| * | * * | * * * * * |

**Subpart GGG—[Amended]**

51. Section 63.1250 is amended by revising paragraph (g) to read as follows:

**§ 63.1250 Applicability.**

* * * * *

(g) *Applicability of this subpart.* (1) Each provision set forth in this subpart shall apply at all times, except that the provisions set forth in § 63.1255 of this subpart shall not apply during periods of nonoperation of the PMPU (or specific portion thereof) in which the lines are drained and depressurized

resulting in the cessation of the emissions to which § 63.1255 of this subpart applies.

(2) The owner or operator shall not shut down items of equipment that are required or utilized for compliance with the emissions limitations of this subpart during times when emissions (or, where applicable, wastewater streams or residuals) are being routed to such items of equipment, if the shutdown would contravene emissions limitations of this subpart applicable to such items of equipment. This paragraph does not apply if the owner or operator must shut down the equipment to avoid damage to a PMPU or portion thereof.

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

(4) In response to an action to enforce the standards set forth in this subpart, you may assert a civil defense to a claim for civil penalties for exceedances of such standards that are caused by a malfunction, as defined in § 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.

(i) 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 of paragraph (g)(4)(ii) of this section, and must prove by a preponderance of evidence that:

(A) The excess emissions were caused by a sudden, short, infrequent, and unavoidable failure of air pollution control and monitoring equipment, or a process to operate in a normal and usual manner; and could not have been prevented through careful planning, proper design, or better operation and maintenance practices; and did not stem from any activity or event that could have been foreseen and avoided, or planned for; and were not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(B) 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

(C) 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

(D) 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

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

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

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

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

(I) The owner or operator has prepared a written root cause analysis 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 the best monitoring methods and engineering judgment, the amount of excess emissions that were the result of the malfunction.

(ii) *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 (FAX) transmission as soon as possible, but no later 2 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 (g)(4)(i) of this section.

* * * * *

52. Section 63.1251 is amended by adding in alphabetical order a definition for "affirmative defense" to read as follow:

**§ 63.1251 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.

* * * * *

53. Section 63.1255 is amended by revising paragraph (g)(4)(v)(A) to read as follow:

**§ 63.1255 Standards: Equipment leaks.**

* * * * *

(g) * * *

(4) * * *

(v) * * *

(A) The owner or operator may develop a written procedure that identifies the conditions that justify a delay of repair. The written procedures shall be included in a document that is maintained at the plant site. Reasons for delay of repair may be documented by citing the relevant sections of the written procedure.

* * * * *

54. Section 63.1256 is amended by revising paragraph (a)(4)(i) introductory text, and removing paragraphs (a)(4)(iii) and (iv) to read as follows:

**§ 63.1256 Standards: Wastewater.**

* * * * *

(a) * * *

(4) * * *

(i) The owner or operator shall prepare a description of maintenance procedures for management of wastewater generated from the emptying and purging of equipment in the process during temporary shutdowns for inspections, maintenance, and repair (*i.e.,* a maintenance turnaround) and during periods which are not shutdowns (*i.e.,* routine maintenance). The descriptions shall be included in a document that is maintained at the plant site and shall:

* * * * *

55. Section 63.1257 is amended by revising paragraph (a) introductory text and the first sentence of paragraph (e)(2)(iii)(A)(*6*)(*ii*) to read as follows:

**§ 63.1257 Test methods and compliance procedures.**

(a) *General.* Except as specified in paragraph (a)(5) of this section, the procedures specified in paragraphs (c), (d), (e), and (f) of this section are

required to demonstrate initial compliance with §§ 63.1253, 63.1254, 63.1256, and 63.1252(e), respectively. The provisions in paragraphs (a)(2) through (3) apply to performance tests that are specified in paragraphs (c), (d), and (e) of this section. The provisions in paragraph (a)(5) of this section are used to demonstrate initial compliance with the alternative standards specified in §§ 63.1253(d) and 63.1254(c). The provisions in paragraph (a)(6) of this section are used to comply with the outlet concentration requirements specified in §§ 63.1253(c), 63.1254(a)(2)(i), and (a)(3)(ii)(B), 63.1254(b)(i), and 63.1256(h)(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.

* * * * *

(e) * * *

(2) * * *

(iii) * * *

(A) * * *

(*6*) * * *

(*ii*) The owner or operator may consider the inlet to the equalization tank as the inlet to the biological treatment process if the wastewater is conveyed by hard-piping from either the last previous treatment process or the point of determination to the equalization tank; and the wastewater is conveyed from the equalization tank exclusively by hard-piping to the biological treatment process and no treatment processes or other waste management units are used to store, handle, or convey the wastewater between the equalization tank and the biological treatment process; and the equalization tank is equipped with a fixed roof and a closed-vent system that routes emissions to a control device that meets the requirements of § 63.1256(b)(1)(i) through (iv) and § 63.1256(b)(2)(i). * * *

* * * * *

**§ 63.1258 [Amended]**

56. Section 63.1258 is amended by removing paragraph (b)(8)(iv).

57. Section 63.1259 is amended by revising paragraph (a)(3) to read as follows:

**§ 63.1259 Recordkeeping requirements.**

* * * * *

(a) * * *

(3) *Malfunction records.* Each 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), air pollution control equipment, or monitoring equipment. Each owner or operator shall maintain records of actions taken during periods of malfunction to minimize emissions in accordance with § 63.1250(g)(3), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

* * * * *

58. Section 63.1260 is amended by revising paragraph (i) to read as follows:

**§ 63.1260 Reporting requirements.**

* * * * *

(i) 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 § 63.1250(g)(3), including actions taken to correct a malfunction.

* * * * *

59. Table 1 to Subpart GGG is amended by:

a. Removing entry 63.6(e);

b. Adding entries 63.6(e)(1)(i), 63.6(e)(1)(ii), 63.6(e)(1)(iii), 63.6(e)(2), and 63.6(e)(3);

c. Removing entry 63.6(f)–(g);

d. Adding entries 63.6(f)(1), 63.6(f)(2)–(3), 63.6(g);

e. Removing entry 63.7(e);

f. Adding entries 63.7(e)(1) and 63.7(e)(2)–(4);

g. Removing entry 63.8(d);

h. Adding entries 63.8(d)(1)–(2) and 63.8(d)(3).

i. Removing entry 63.10(c)–(d)(2);

j. Adding entries 63.10(c)(1)–(9), 63.10(c)(10), 63.10(c)(11), 63.10(c)(12)–(14), 63.10(c)(15), and 63.10(d)(1)–(2);

k. Removing entry 63.10(d)(4–5); and

l. Adding entries 63.10(d)(4) and 63.10(d)(5) to read as follows:

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

| General provisions reference | Summary of requirements | Applies to Subpart GGG | Comments |
|---|---|---|---|
| * | * * * | * * | * * |
| § 63.6(e)(1)(i) | Requirements during periods of startup, shutdown, and malfunction. | No | See 63.1250(g)(3) for general duty requirement. Any cross-reference to 63.6(e)(1)(i) in any other general provision incorporated by reference shall be treated as a cross-reference to 63.1250(g)(3). |
| § 63.6(e)(1)(ii) | Malfunction correction requirements | No. | |
| § 63.6(e)(1)(iii) | Enforceability of operation and maintenance requirements. | Yes. | |
| § 63.6(e)(2) | Reserved | No | Section reserved. |
| § 63.6(e)(3) | Startup, shutdown, and malfunction plan requirements. | No. | |
| * | * * * | * * | * * |
| 63.6(f)(1) | Applicability of nonopacity emission standards | No. | |
| 63.6(f)(2)–(3) | Methods of determining compliance and findings compliance. | Yes. | |
| 63.6(g) | Use of an alternative nonopacity emission standard. | Yes. | |

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

| General provisions reference | Summary of requirements | Applies to Subpart GGG | Comments |
|---|---|---|---|
| * | * * * * | * | * * |
| 63.7(e)(1) | Conduct of performance tests | No | See 63.1257(a) text. Any cross-reference to 63.7(e)(1) in any other general provision incorporated by reference shall be treated as a cross-reference to 63.1257(a). |
| 63.7 (e)(2)–(4) | Performance tests requirements | Yes. | |
| * | * * * * | * | * * |
| 63.8(d)(1)–(2) | CMS quality control program requirements | Yes. | |
| 63.8(d)(3) | CMS quality control program recordkeeping requirements. | Yes, except for last sentence. | |
| * | * * * * | * | * * |
| 63.10(c)(1)–(9) | Additional recordkeeping requirements for sources with continuous monitoring systems. | Yes. | |
| 63.10(c)(10) | Malfunction recordkeeping requirement | No | Subpart GGG specifies recordkeeping requirements. |
| 63.10(c)(11) | Malfunction corrective action recordkeeping requirement. | No | Subpart GGG specifies recordkeeping requirements. |
| 63.10(c)(12)–(14) | Additional recordkeeping requirements for sources with continuous monitoring systems. | Yes. | |
| 63.10(c)(15) | Additional SSM recordkeeping requirements | No. | |
| * | * * * * | * | * * |
| 63.10(d)(1)–(2) | General reporting requirements | Yes. | |
| * | * * * * | * | * * |
| 63.10(d)(4) | Progress report requirements | Yes. | |
| 63.10(d)(5) | Startup, shutdown, and malfunction report requirements. | No | Subpart GGG specifies reporting requirements. |
| * | * * * * | * | * * |

60. Appendix A to part 63, Method 306–B is amended by:

a. Revising paragraph 1.2;

b. Revising paragraph 6.1;

c. Revising paragraph 11.1;

d. Adding paragraphs 11.1.1 through 11.1.4.10; and

e. Revising paragraph 11.2.2 to read as follows:

## Appendix A to Part 63—Test Methods

### Method 306B—Surface Tension Measurement for Tanks Used at Decorative Chromium Electroplating and Chromium Anodizing Facilities

* * * * *

1.2 Applicability. This method is applicable to all chromium electroplating and chromium anodizing operations, and continuous chromium plating at iron and steel facilities where a wetting agent is used in the tank as the primary mechanism for reducing emissions from the surface of the plating solution.

* * * * *

6.1 Stalagmometer. Any commercially available stalagmometer or equivalent surface tension measuring device may be used to measure the surface tension of the plating or anodizing tank liquid provided the procedures specified in Section 11.1.2 are followed.

* * * * *

11.1 Procedure. The surface tension of the tank bath may be measured using a tensiometer, stalagmometer, or any other equivalent surface tension measuring device for measuring surface tension in dynes per centimeter.

11.1.1 If a tensiometer is used, the procedures specified in ASTM Method D 1331–89 must be followed.

11.1.2 If a stalagmometer is used, the procedures specified in Sections 11.1.2.1 through 11.1.2.3 must be followed.

11.1.2.1 Check the stalagmometer for visual signs of damage. If the stalagmometer appears to be chipped, cracked, or otherwise in disrepair, the instrument shall not be used.

11.1.2.2 Using distilled or deionized water and following the procedures provided by the manufacturer, count the number of drops corresponding to the distilled/deionized water liquid volume between the upper and lower etched marks on the stalagmometer. If the number of drops for the distilled/deionized water is not within ±1 drop of the number indicated on the instrument, the stalagmometer must be cleaned, using the procedures specified in Sections 11.1.4.1 through 11.1.4.10 of this method, before using the instrument to measure the surface tension of the tank liquid.

11.1.2.2.1 If the stalagmometer must be cleaned, as indicated in Section 11.1.2.2, repeat the procedure specified in Section 11.1.2.2 before proceeding.

11.1.2.2.2 If, after cleaning and performing the procedure in Section 11.1.2.2, the number of drops indicated for the distilled/deionized water is not within ±1 drop of the number indicated on the instrument, either use the number of drops corresponding to the distilled/deionized water volume as the reference number of drops, or replace the instrument.

11.1.3 Determine the surface tension of the tank liquid using the procedures specified by the manufacturer of the stalagmometer.

11.1.4 *Stalagmometer cleaning procedures.* The procedures specified in Sections 11.1.4.1 through 11.1.4.10 shall be used for cleaning a stalagmometer, as required by Section 11.1.2.2.

11.1.4.1 Set up the stalagmometer on its stand in a fume hood.

11.1.4.2 Place a clean 150 (mL) beaker underneath the stalagmometer and fill the beaker with reagent grade concentrated nitric acid.

11.1.4.3 Immerse the bottom tip of the stalagmometer (approximately 1 centimeter (0.5 inches)) into the beaker.

11.1.4.4 Squeeze the rubber bulb and pinch at the arrow up (1) position to collapse.

11.1.4.5 Place the bulb end securely on top end of stalagmometer and carefully draw the nitric acid by pinching the arrow up (1) position until the level is above the top etched line.

11.1.4.6 Allow the nitric acid to remain in stalagmometer for 5 minutes, then

carefully remove the bulb, allowing the acid to completely drain.

11.1.4.7 Fill a clean 150 mL beaker with distilled or deionized water.

11.1.4.8 Using the rubber bulb per the instructions in Sections 11.1.4.4 and 11.1.4.5, rinse and drain stalagmometer with deionized or distilled water.

11.1.4.9 Fill a clean 150 mL beaker with isopropyl alcohol.

11.1.4.10 Again using the rubber bulb per the instructions in Sections 11.1.4.4 and 11.1.4.5, rinse and drain stalagmometer twice with isopropyl alcohol and allow the stalagmometer to dry completely.

* * * * *

11.2.2 If a measurement of the surface tension of the solution is above the 45 dynes per centimeter limit when measured using a stalagmometer, above 35 dynes per centimeter when measured using a tensiometer, or above an alternate surface tension limit established during the performance test, the time interval shall revert back to the original monitoring schedule of once every 4 hours. A subsequent decrease in frequency would then be allowed according to Section 11.2.1.

* * * * *

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