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# Part III

# Environmental Protection Agency

## 40 CFR Part 63

## National Air Emission Standards for Hazardous Air Pollutants: Halogenated Solvent Cleaning; Final Rule

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 63**

**[EPA–HQ–OAR–2002–0009; FRL–8303–6]**

**RIN 2060–AK22**

## National Air Emission Standards for Hazardous Air Pollutants: Halogenated Solvent Cleaning

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

**ACTION:** Final rule.

**SUMMARY:** EPA is promulgating revised standards to limit emissions of methylene chloride (MC), trichloroethylene (TCE) and perchloroethylene (PCE) from facilities engaged in halogenated solvent cleaning. On December 2, 1994, EPA promulgated technology-based emission standards to control HAP emissions of halogenated solvents from halogenated solvent cleaning. Pursuant to the Clean Air Act (CAA) section 112(f), EPA has evaluated the remaining risk to public health and the environment following implementation of the technology-based rule and is promulgating more stringent standards in order to provide an ample margin of safety to protect public health. These final standards will provide further reductions of MC, PCE, and TCE beyond the 1994 national emission standards for hazardous air pollutants (NESHAP), through application of a facility-wide total MC, PCE, and TCE emission standard. In addition, EPA has reviewed the standards as required by section 112(d)(6) of the CAA and has determined that, taking into account developments in practices, processes, and control technologies, no further action beyond what is required under CAA section 112(f) is necessary at this time.

**EFFECTIVE DATE:** This final rule is effective May 3, 2007.

**ADDRESSES:** EPA has established a docket for this action under Docket ID No. EPA–HQ–OAR–2002–0009. All documents in the docket are listed on the *www.regulations.gov* Web site. Although listed in the index, some information is not publicly available (*e.g.*, Confidential Business Information (CBI) or other information whose disclosure is restricted by statute). Certain other material, such as copyrighted material, will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through *www.regulations.gov* or in hard copy at the EPA Docket Center, Docket ID No. EPA–HQ–OAR–2002–0009, EPA West Building, Room B–102, 1301 Constitution Ave., NW., Washington, DC. This Docket Facility is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The Docket telephone number is (202) 566–1744, and the telephone number for the Air and Radiation Docket is (202) 566–1742. EPA visitors are required to show photographic identification and sign the EPA visitor log. After processing through the X-ray and magnetometer machines, visitors will be given an EPA/DC badge that must be visible at all times.

Informational updates will be provided via the EPA Web site at *http://www.epa.gov/epahome/dockets.htm* as they are available.

**FOR FURTHER INFORMATION CONTACT:** For questions about the final rule amendments, contact Mr. H. Lynn Dail, EPA, Office of Air Quality Planning and Standards, Sector Policies and Programs Division, Natural Resources and Commerce Group (E143–03), Research Triangle Park, NC 27711; telephone number (919) 541–2363; fax number (919) 541–3470; e-mail address: *dail.lynn@epa.gov.* For questions on the residual risk analysis, contact Mr. Dennis Pagano, EPA, Office of Air Quality Planning and Standards, Health and Environmental Impacts Division, Sector Based Assessment Group (C539–02), Research Triangle Park, NC 27711; telephone number (919) 541–0502; fax number (919) 541–0840; e-mail address: *pagano.dennis@epa.gov.*

**SUPPLEMENTARY INFORMATION:** *Regulated Entities.* Categories and entities potentially regulated by the final rule include:

| Category | NAICS [1] code | Examples of potentially regulated entities |
|---|---|---|
| Industry | Any of numerous industries using halogenated solvent cleaning, primary affected industries include those in NAICS Codes beginning with: 331 (primary metal man.), 332 (fabricated metal man.), 333 (machinery man.), 334 (computer and electronic product man.), 335 (electrical equipment, appliance, and component man.); 336 (transportation equipment man.); 337 (furniture and related products man.); and 339 (misc. man.). | Operations at sources that are engaged in solvent cleaning using MC, PCE, or TCE. |
| Federal, State, local, and tribal government. | | Operations at sources that are engaged in solvent cleaning using MC, PCE, or TCE. |

[1] North American Industry Classification System.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by the final rule. This final rule directs an owner or operator of a facility that is subject to the 1994 NESHAP for Halogenated Solvent Cleaning (40 CFR 63.460 of subpart T), to determine whether today's final standards require the facility additionally to operate under the certain specific emission limits. If you have any questions regarding the applicability of the final rule to a particular entity, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

*Docket.* The docket number for the National Emission Standards for Hazardous Air Pollutants: Halogenated Solvent Cleaning (40 CFR part 63, subpart T) is Docket ID No. EPA–HQ–OAR–2002–0009.

*Worldwide Web (WWW).* In addition to being available in the docket, an electronic copy of the final rule is also available on the WWW. Following the Administrator's signature, a copy of the final rule will be posted on EPA's Technology Transfer Network (TTN) policy and guidance page for newly proposed or promulgated rules at *http://www.epa.gov/ttn/oarpg.* The TTN provides information and technology exchange in various areas of air pollution control.

*Judicial Review.* Under section 307(b)(1) of the Clean Air Act (CAA), judicial review of the final rule is available only by filing a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit by July 2, 2007. Under CAA section 307(d)(7)(B), only an objection to the final rule that was raised with

reasonable specificity during the period for public comment can be raised during judicial review. Moreover, under CAA section 307(b)(2), the requirements established by this final action may not be challenged separately in any civil or criminal proceedings brought by EPA to enforce these requirements.

Section 307(d)(7)(B) of the CAA further provides a mechanism for EPA to convene a proceeding for reconsideration, ''if the person raising the objection can demonstrate to the EPA that it was impracticable to raise such an objection [within the period for public comment] or if the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule.'' Any person seeking to make such a demonstration to the EPA should submit a Petition for Reconsideration to the Office of the Administrator, U.S. EPA, Room 3000, Ariel Rios Building, 1200 Pennsylvania Ave., NW., Washington, DC 20460, with a copy to both the person(s) listed in the preceding **FOR FURTHER INFORMATION CONTACT** section, and the Associate General Counsel, Air and Radiation Law Office, Office of General Counsel (Mail Code 2344A), U.S. EPA, 1200 Pennsylvania Ave., NW., Washington, DC 20004.

*Outline.* The information presented in this Preamble is organized as follows:

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## I. Background

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

Section 112 of the CAA establishes a comprehensive regulatory process to address emissions of hazardous air pollutants (HAP) from stationary sources. In accordance with CAA section 112(c), EPA identifies categories and subcategories of sources emitting one or more of the HAP listed in CAA section 112(b). CAA section 112(d) then requires us to promulgate national technology-based emission standards for each category of sources that emits or has the potential to emit any single HAP at a rate of ten tons or more per year or any combination of HAP at a rate of 25 tons or more per year (known as ''major sources''), as well as for certain area sources emitting less than those amounts. For major sources, these technology-based standards must reflect the maximum reductions of HAP achievable (after considering cost, energy requirements, and non-air health and environmental impacts) and are commonly referred to as maximum achievable control technology (MACT) standards. For area sources, CAA section 112(d)(5) provides that the standards may reflect generally available control technology or management practices in lieu of MACT, and are commonly referred to as generally available control technology (GACT) standards.

In what we refer to as the ''technology review'', CAA section 112(d)(6) then requires EPA to review the CAA section 112(d) standards and to revise them ''as necessary, taking into account developments in practices, processes and control technologies,'' no less frequently than every 8 years.

The residual risk review is described in section 112(f) of the CAA. EPA prepared 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, actual health effects to persons in proximity to emitting sources, and recommendations as to legislation regarding such remaining risk. The EPA prepared and submitted this report (''Residual Risk Report to Congress,'' EPA–453/R–99–001) in March 1999. The Congress did not act on any of the recommendations in the report; thereby, triggering the second stage of the standard-setting process, the residual risk phase.

CAA section 112(f)(2) requires us to determine whether additional standards are ''required in order to provide an ample margin of safety to protect public health.'' If the MACT standards for a 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-a-million,'' EPA must promulgate residual risk standards for the source category (or subcategory) as necessary to provide an ample margin of safety. EPA's framework for making ample margin of safety determinations under CAA section 112(f)(2) is provided in the Benzene NESHAP (54 FR 38044, September 14, 1989) which was codified by Congress in CAA section 112(f)(2)(B). The EPA also must promulgate more stringent standards to prevent an adverse environmental effect (defined in CAA section 112(a)(7) as ''any significant and widespread adverse effect * * * to wildlife, aquatic life, or other natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental quality over broad

areas.''), but must consider costs, energy, safety, and other relevant factors in doing so.

*B. What is halogenated solvent cleaning?*

Halogenated solvent cleaning machines use the halogenated solvents methylene chloride (MC), perchloroethylene (PCE), trichloroethylene (TCE), or 1,1,1,-trichloroethane (TCA) and halogenated solvent blends or their vapors to remove soils such as grease, oils, waxes, carbon deposits, fluxes, and tars from metal, plastic, fiberglass, printed circuit boards, and other surfaces. Halogenated solvent cleaning is typically performed prior to processes such as painting, plating, inspection, repair, assembly, heat treatment, and machining. Types of solvent cleaning machines include, but are not limited to, batch vapor, in-line vapor, in-line cold, and batch cold solvent cleaning machines. Buckets, pails, and beakers with capacities of 7.6 liters (2 gallons) or less are not considered solvent cleaning machines.

Halogenated solvent cleaning does not constitute a distinct industrial category, but is an integral part of many major industries. The five 3-digit NAICS Codes that use the largest quantities of halogenated solvents for cleaning are NAICS 337 (furniture and related products manufacturing), NAICS 332 (fabricated metal manufacturing), NAICS 335 (electrical equipment, appliance, and component manufacturing), NAICS 336 (transportation equipment manufacturing), and NAICS 339 (miscellaneous manufacturing). Additional industries that use halogenated solvents for cleaning include NAICS 331 (primary metals), NAICS 333 (machinery), and NAICS 334 (electronic equipment manufacturing). Non-manufacturing industries such as railroad (NAICS 482), bus (NAICS 485), aircraft (NAICS 481), and truck (NAICS 484) maintenance facilities; automotive and electric tool repair shops (NAICS 811); and automobile dealers (NAICS 411) also use halogenated solvent cleaning machines. We estimated that there were approximately 16,400 batch vapor, 8,100 in-line, and perhaps as many as 100,000 batch cold cleaning machines in the U.S. prior to promulgation of the MACT standards. More recent information shows that the current number of cleaning machines is much lower than these pre-MACT estimates. We currently estimate the number of sources in this source category to be about 3,800 cleaning machines located at 1,900 facilities in the U.S. This estimate is based on information we collected in 1998 and reflects the decreases in HAP emissions and demand that were expected due to implementation of MACT control technologies and work practice standards. Information suggesting that further decreases in solvent usage and therefore, solvent emissions, have occurred in the post-MACT implementation years may reflect that either the number of sources in the source category have declined or that sources are implementing methods to recycle more solvent, resulting in reduced emissions and some cost savings.

''Solvent cleaning machine'' is defined in the **Federal Register**, 40 Code of Federal Regulations (CFR) § 63.461. Solvent cleaning machine types such as batch cleaners and in-line cleaners are also described. Both cleaner types can be designed to use either solvent at room temperature (cold cleaners) or solvent vapor (vapor cleaners).

Continuous web cleaners are a subset of in-line cleaners that are used to clean products such as films, sheet metal, and wire in rolls or coils. The workload is uncoiled and conveyorized throughout the cleaning machine at speeds in excess of 11 feet per minute and recoiled or cut as it exits the machine. Emission points from continuous cleaners are similar to emission points from other inline cleaners. Continuous cleaners are semi-enclosed, with emission points where the workload enters and exits the machine. Squeegee rollers reduce carry out emissions by removing excess solvent from the exiting workload. Some continuous machines have exhaust systems similar to those used with some other in-line cleaners.

*C. What are the health effects of halogenated solvent cleaning?*

MC, PCE, TCA, and TCE are the primary halogenated solvents used for solvent cleaning. The health effects of these four solvents were described in the proposed rule of August 17, 2006 (71 FR 47680), which is available for review in docket EPA–HQ–OAR–2002–0009. All four produce acute and/or chronic non-cancer health effects at sufficient concentrations; three of the four have been classified as probable or possible human carcinogens by either EPA or other governmental or international agencies. Carbon tetrachloride and chloroform are no longer used as degreasing solvents; therefore, their health effects were not discussed in the proposed rule.

The Agency's Integrated Risk Information System's (IRIS) toxicological reviews of PCE, TCE and MC are currently being developed or revised. The current schedule indicates that the new or final IRIS toxicological reviews of the carcinogens PCE, TCE and MC are not expected until late 2008 for PCE, mid 2009 for MC, and late 2010 for TCE. A publicly available draft revised toxicological review of the non-carcinogenic HAP TCA, has been released for external peer review. A final revised IRIS toxicological review of TCA is not expected until late 2007. The National Research Council (NRC) released a report in 2006 that described their findings after a comprehensive review of the health effects of TCE, focusing on critical issues in developing an objective, realistic, and scientifically based health risk assessment for TCE. This report is available at *http://www.nas.edu/catalog/11707.html.* Toxicity or status information for the four HAPs may be obtained from the following Web sites: EPA's Toxicity database at *http://www.epa.gov/ttn/atw/toxsource/table1.pdf* shows the benchmarks for the four HAPs used in the risk assessment. Specific information underlying the values used may be found at the following locations: California EPA's Web site at *http://www.oehha.ca.gov/air/hot_spots/index.html* has the background information on PCE and TCE used to develop the cancer potency values.

The Agency for Toxic Substances and Disease Registry's Web site at *http://www.atsdr.cdc.gov/toxpro2.html* has the background information used to develop the non-cancer values for MC and PCE.

EPA's IRIS Web site at *http://www.epa.gov/iris/index.html* provides the information supporting the cancer potency value for MC.

Status reports for IRIS chemical reassessments, (*i.e.*, TCA) are available at *http://cfpub.epa.gov/iristrac/index.cfm.*

*D. What does the 1994 halogenated solvent cleaning NESHAP require?*

On December 2, 1994, we promulgated national emission standards for halogenated solvent cleaning (59 FR 61801, (December 2, 1994)) and required existing sources to comply with the national emission standards by December 2, 1996.

The promulgated standards in 40 CFR Subpart T include multiple alternatives to allow owners or operators maximum compliance flexibility. The final rules for the halogenated solvent cleaning source category are available in the docket, EPA–HA–OAR–2002–0009.

## II. Summary of the Proposed Rule

The August 17, 2006 proposed rule would have required all owners and

operators of halogenated solvent cleaning machines that are subject to the 1994 NESHAP (40 CFR Part 63, subpart T), except for cold batch area source cleaning machines subject to GACT, to comply with a facility-wide solvent emission limit, summarized in Table 1 of this Preamble. As proposed, the standards would be in addition to the requirements of the 1994 NESHAP.

Specifically, we co-proposed two facility-wide emission limits for facilities that use multiple HAP solvents, 25,000 kg/yr and 40,000 kg/yr of MC equivalent emissions, and solicited comments on which of these two options would be the most appropriate. We developed a method for facilities using multiple HAP solvents to determine their emission limit by calculating their MC-equivalent emissions using the toxicity-weighting equation, which is shown as equation 1, below. We proposed that where more than one halogenated solvent is used at a facility, the owner or operator would be required to calculate the facility's weighted halogenated solvent cleaning emissions using equation 1 and to comply with the limit in the last row of Table 1 of this Preamble. For owners or operators of facilities that use a single halogenated solvent (MC, TCE or PCE), we proposed that the owner or operator of each affected facility would be required to ensure that its emissions of the single halogenated solvent would not exceed the single-solvent limits specified in Table 1 of this Preamble.

TABLE 1.—SUMMARY OF THE PROPOSED FACILITY-WIDE ANNUAL EMISSION LIMITS

| Solvents emitted | Proposed facility-wide annual emission limits in kg/yr—option 1 | Proposed facility-wide annual emission limits in kg/yr—option 2 |
|---|---|---|
| PCE only | [a] 3,200 [b] (26,700) | [a] 2,000 [b] (16,700) |
| TCE only | 10,000 | 6,250 |
| MC only | 40,000 | 25,000 |
| Multiple solvents—Calculate the MC-weighted emissions using equation 1 | 40,000 | 25,000 |

[a] *PCE emission limit calculated using California EPA (CalEPA) Unit Risk Estimate (URE).*
[b] *PCE emission limit calculated using the EPA Office of Prevention, Pesticides and Toxic Substances (OPPTS) Unit Risk Estimate (URE).*

*Equation 1:*

(kgs/yr of PCE emissions × A)+(kgs/yr of TCE emissions × B) + (kgs/yr of MC emissions) = MC weighted emissions in kgs/yr

In equation 1, the facility emissions of PCE and TCE are weighted according to their carcinogenic potency relative to that of MC. Thus, ''A'' in the equation is the ratio of the cancer unit risk estimate (URE) for PCE to the URE for MC, and the ''B'' in the equation is the ratio of the URE for TCE to the URE for MC. Because the IRIS assessment for PCE is in process, we requested comment on the use of the CalEPA URE, the OPPTS URE, or other values in deriving the PCE emission limit for the final rule. See 71 FR 47680. As explained in our proposal, the value of ''A'' would be 1.5 or 12.5, depending on whether we used the OPPTS URE or the CalEPA URE value for PCE. The value for ''B'' is 4.25. At proposal, we stated that there may be other approaches for deriving emissions standards for facilities that use multiple HAP. We requested comment on other possible methods for establishing emission limits at facilities using more than one of the listed HAP solvents.

Further, at proposal we presented and discussed our evaluation of four other emission limits that would reduce residual risk. These emission limits are summarized below:

- 100,000 level—Sources would reduce MC-equivalent emissions to no more than 100,000 kg/yr (220,000 lbs/yr).
- 60,000 level— Sources would reduce MC-equivalent emissions to no more than 60,000 kg/yr (132,000 lbs/yr).
- 15,000 level— Sources would reduce MC-equivalent emissions to no more than 15,000 kg/yr (33,000 lbs/yr).
- 6,000 level—Sources would reduce MC-equivalent emissions to no more than 6,000kg/yr (13,200 lbs/yr).

See 71 FR 47680–81 for further discussion of these four emission levels.

We proposed a compliance deadline of two years after the effective date of the final rule for existing sources by resolving the seemingly conflicting provisions of section 112(f)(4)(A) and 112(i), and by determining that CAA section 112(i) was the controlling provision for compliance deadlines for existing sources with regard to standards promulgated under CAA section 112(f)(2). This proposal was based on our belief that the proposed compliance date was realistic for any affected facility that has to plan a control strategy, purchase and install the control device(s), and bring the control device(s) online.

See 71 FR 47683–84 for a complete discussion of the proposed facility-wide solvent emission limit, compliance options, and our rationale for proposing the facility-wide solvent emission limit.

*A. Issuance of the Notice of Data Availability (NODA)*

We received comments on the proposed rule from industry, states, solvent manufacturers, industry associations and district air associations. Industry's comments were primarily submitted by four specific sectors: Narrow tubing manufacturing facilities, facilities that manufacture specialized products requiring continuous web cleaning, aerospace manufacturing and maintenance facilities, and military depot maintenance facilities. Additional comments were submitted by facilities that use multiple halogenated solvent cleaning machines. Comments and data submitted by the four industry sectors focused on the unique nature and size of the halogenated solvent cleaning machines they use in their cleaning operations. These data and information were otherwise not available to EPA at proposal. The commenters expressed concern about their ability to comply with the proposed emission limits because of technical and economic difficulties. They also expressed an inability to meet the proposed compliance deadline. Based on these comments and our desire to reconcile these concerns, we issued a Notice of Data Availability (NODA) on December 14, 2006 (71 FR 75182). In addition, in order to have adequate time to address these concerns, we asked for and received an extension of our December 15, 2006 court-ordered promulgation deadline to April 16, 2007. The NODA was intended to gather more information, especially from these four industry sectors, on the availability of technology or methods to meet the proposed emission limits, the costs to achieve the proposed emission limits, and the time required to achieve the proposed emission limits.

As a result of the NODA, EPA received significant comments from responders associated with the above-noted industries, industry associations, and commenters that were not associated with the above-noted industries. They provided additional data and information that were directly relevant to the promulgation of the proposed facility-wide emission limits. These data and information were otherwise not available to EPA at proposal. A more complete description of the comments received may be found in section V of this Preamble and in the docket for this rule.

## III. Summary of Final Rule

### *A. What does the final rule require?*

Using the data from comments on the proposal and NODA, we re-evaluated the costs and technical feasibility of complying with the proposed emission limits. The re-analysis resulted in a final rule that changed from what we proposed, especially for four industry sectors: narrow tubing manufacturing facilities, facilities that manufacture specialized products requiring continuous web cleaning, aerospace manufacturing and maintenance facilities, and military depot maintenance facilities.

#### 1. What are the requirements for Halogenated Solvent Cleaning Machines?

EPA is promulgating a facility-wide emission limit of 60,000 kg/yr MC equivalent, as shown in Table 2 of this Preamble, applicable to all existing halogenated solvent cleaning machines with the exception of halogenated solvent cleaning machines used by the following industries: Facilities that manufacture narrow tubing, facilities that manufacture specialized products requiring continuous web cleaning, aerospace manufacturing and maintenance facilities, and military depot maintenance facilities.

This final rule also requires owners or operators of halogenated solvent cleaning machines that use any one of the halogenated solvents covered by this rule (*i.e.*, MC, PCE or TCE), with the exception of the halogenated solvent cleaning machines used by the above-noted industries, to ensure that facility-wide solvent emissions from all halogenated solvent cleaning activities are less than or equal to the limit for the single halogenated solvent specified in Table 2 of this Preamble.

This final rule also requires halogenated solvent cleaning machines that are constructed or reconstructed after August 17, 2006, with the exception of halogenated solvent cleaning machines associated with the above-noted industries, to comply with the 60,000 kg/yr MC equivalent emission limit upon the effective date of this rule or upon startup, whichever occurs later. The revised requirements apply in addition to the 1994 NESHAP.

For area sources subject to the 1994 NESHAP and constructed or reconstructed after August 17, 2006, the final rule revisions add to the previous 1994 NESHAP by requiring implementation of the 60,000 kg/yr MC equivalent facility-wide emission limit upon the effective date of this rule or upon startup, whichever occurs later. This final rule also limits the use of any one of the halogenated solvents covered by this rule (*i.e.*, MC, PCE or TCE), at area sources, to the limits for the single halogenated solvent specified in Table 2 of this Preamble. The area sources in the halogenated solvent cleaning source category that are subject to GACT are not subject to these additional standards. These area sources are cold batch cleaning machines.

When a facility's total halogenated solvent emissions from its degreasing operations exceed the applicable emission limits, the facility must implement means to comply with these amended standards. In addition, under this final rule, the 1994 NESHAP requirements for all halogenated solvent cleaning machines remain applicable. Compliance with the 60,000 kg/yr MC equivalent emission limit is demonstrated by determining the annual PCE, TCE, and MC emissions for all cleaning machines at the facility, using Equation 1 as necessary, and comparing to the emission limits in Table 2.

There are no other additional equipment monitoring or work practice requirements associated with the facility-wide annual emissions limit. Annual emissions of PCE, TCE, and MC are determined based on records of the amounts and dates of the solvents added to cleaning machines during the year, the amounts and dates of solvents removed from cleaning machines during the year, and the amounts and dates of the solvents removed from cleaning machines in solid waste. Records of the calculation sheets showing how the annual emissions were determined must be maintained. A facility will determine compliance with the standards by comparing their annual MC-equivalent emissions to the limits specified in Table 2 of this final rule.

TABLE 2.—SUMMARY OF THE FACILITY-WIDE ANNUAL EMISSION LIMITS

| Solvents emitted | Final general halogenated solvent cleaning facility-wide annual emission limits in kg/yr | Final military maintenance facility-wide annual emission limits in kg/yr |
|---|---|---|
| PCE only | 4,800 | 8,000 |
| TCE only | 14,100 | 23,500 |
| MC only | 60,000 | 100,000 |
| Multiple solvents—Calculate the MC-weighted emissions using equation 1 | 60,000 | 100,000 |

*Equation 1:*

(kgs/yr of PCE emissions × A)+(kgs/yr of TCE emissions × B) + (kgs/yr of MC emissions) = MC weighted Emissions in kgs/yr

In this equation, the facility emissions of PCE and TCE are weighted according to their carcinogenic potency relative to that of MC. Thus, ''A'' in the equation is the ratio of the URE for PCE to the URE for MC, and the ''B'' in the equation is the ratio of the URE for TCE to the URE for MC. The value of ''A'' is 12.5 (see section C below). The value for ''B'' is 4.25.

#### 2. What are the requirements for halogenated solvent cleaning machines at military depot maintenance facilities?

For existing halogenated solvent cleaning machines in use at military depot maintenance facilities where multiple halogenated solvents are emitted, the final rule sets a facility-wide emission limit of 100,000 kg/yr of MC equivalent emissions as indicated in Table 2 of this Preamble. This final rule also limits the use of any one of the halogenated solvents covered by this rule (*i.e.*, MC, PCE or TCE), to the limits for the single halogenated solvent specified in Table 2 of this Preamble. In

addition, the 1994 NESHAP requirements remain applicable.

For halogenated solvent cleaning machines that are constructed or reconstructed after August 17, 2006 and that are used at military depot maintenance facilities, the final rule revisions add to the previous 1994 NESHAP by requiring implementation of the 100,000 kg/yr MC equivalent emission limit upon the effective date of this rule or upon startup, whichever occurs later.

Military Depot Maintenance Facilities are Government-owned industrial centers that operate solely for the purpose of repairing, modifying, converting and refitting worn and/or damaged military assets for redistribution to military units and are subject to the 1994 NESHAP. Depot level maintenance includes the repair, fabrication, manufacture, rebuilding, assembly overhaul, modification, refurbishment, test, analysis, repair-process design, in-service engineering, upgrade, painting and disposal of parts, assemblies, subassemblies, software, components, or end items that require industrial shop facilities, tooling, support equipment, and/or personnel of higher technical skills, or processes beyond the military installation's organizational level capability.

3. What are the requirements for continuous web cleaners and halogenated solvent cleaning machines at narrow tube manufacturing and aerospace facilities?

The requirements set forth in this final rule are not applicable to continuous web cleaning machines, halogenated solvent cleaning machines that are located at narrow tubing manufacturing facilities, and the aerospace manufacturing and maintenance industry and facilities. Narrow tube manufacturing facilities primarily engage in the production of small diameter (mechanical and hypodermic size) cold drawn metallic, seamless tubes from materials such as stainless steel, nickel alloys, titanium and its alloys, and alloys of zirconium with a portion of the outside diameters 1/4'' or less (a subset of NAICS 331210), and are subject to the 1994 NESHAP. Aerospace manufacturing and maintenance facilities manufacture, rework, or repair aircraft such as airplanes, helicopters, missiles, rockets, and space vehicles, and are subject to the 1994 NESHAP. The 1994 NESHAP requirements remain applicable to all the continuous web and halogenated solvent cleaning machines associated with the above-noted facilities.

For the above-noted facilities, we are adopting no changes to the 1994 NESHAP under CAA Section 112(f) because the current level of control called for by the existing NESHAP reduces HAP emissions to levels that present an acceptable level of risk, protects public health with an ample margin of safety, and prevents any adverse environmental effects. The finding regarding an ''ample margin of safety'' is based on a consideration of the additional costs of further control as represented by compliance with emissions limits adapted for each industry sector, considering availability of technology, costs and time to comply with further controls (see Section III.B., below for a discussion of our rationale for this final rule).

*B. What is the rationale for the final rule?*

Based on comments and data received on both the proposal and the NODA, we re-evaluated the risk, the technical feasibility, the costs of the proposed options, and the compliance time needed to implement the proposed options. This re-analysis focused especially on the four industry sectors discussed above. Additionally, in response to public comments we updated the risk assessment for the entire source category using the 2002 National Emissions Inventory (NEI) database, which was not available for the proposal. The following rationale presents the results of our re-analysis of the data.

1. Revision of the Baseline Risk Estimate

Based on public comment, we used the 2002 NEI inventory to re-analyze the risk from this source category. The resulting re-analysis of risk at the baseline emission level (*i.e.*, the level of emissions allowed by the 1994 MACT) indicated that the maximum individual cancer risk (MIR) associated with this source category is 100-in-a-million with an annual cancer incidence of 0.55. This is as compared to the 200-in-a-million MIR and 0.40 annual cancer incidence level that we presented at proposal, which was based on the 1999 NEI database. We consider both MIR values to be acceptable levels of maximum individual risk considering the number of people exposed at these levels and the absence of other adverse human and environmental health effects. We note that the MIR of 100-in-a-million (calculated using the 2002 NEI data) is the same regardless of the URE for PCE chosen for the risk analysis (*i.e.*, the CalEPA value or the OPPTS value, which results were contrasted at proposal). This is because PCE is not the only driver of the MIR risk level for the highest risk facilities.

Given the uncertainties associated with the development of emission inventories, neither the 1999 nor the 2002 NEI inventory should be considered as correct in an absolute sense or as suggesting temporal trends in degreasing machine populations or emissions. Rather, we consider them to be ''snapshots'' of the true long-term inventory of emissions for this source category, each carrying its own degree of uncertainty. As such, the derived risk assessment results compared above should be regarded as ranges within which the true risk metrics are likely to fall.

The revised population risk distribution at baseline emission levels shows that about 25 people are exposed to the MIR risk level, about 22,000 people are at estimated risks of ≥ 10-in-a-million risk level, and about 4,000,000 people are at estimated risks of ≥ 1-in-a-million. This is compared to approximately 90 people exposed to risks at the MIR level (200-in-a-million), about 42,000 people at estimated risks of ≥ 10-in-a-million risk level, and about 6,000,000 people at estimated risks of ≥ 1-in-a-million that we presented at proposal. Similar to the MIR and annual cancer incidence metrics, these values may be an indication of the uncertainty presented by the databases because, as earlier explained, both inventories are ''snapshots'' of the industry rather than an absolute reflection of the ''current'' state of the industry.

We did not reassess the environmental risks using the 2002 NEI inventory but believe that no ''adverse environmental effects,'' as defined in CAA section 112(a)(7), would occur given the similarities of the human health risk results between the 1999 NEI data and 2002 NEI data and the fact that we showed in the proposal that no adverse environmental effects would likely occur using the 1999 NEI inventory.

2. Rationale for the 60,000 kg/yr MC Equivalent Emission Limit

EPA is promulgating a facility-wide emission limit of 60,000 kg/yr (MC equivalent emissions) applicable to emissions from all new and existing halogenated solvent cleaning machines that are subject to the 1994 NESHAP, with the exception of halogenated solvent cleaning machines used by the following industry sectors: Narrow tubing manufacturing, facilities that manufacture specialized products requiring continuous web cleaning, aerospace manufacturing and maintenance, military depot

maintenance operations, and cold batch cleaning machines (which are subject to GACT). Area sources operating halogenated solvent cleaning machines that are subject to GACT also are not required to comply with the facility-wide emission limits. This final rule reflects our decision that the 60,000 kg/yr MC equivalent emission limit from the August 17, 2006 proposal provides an ample margin of safety to protect public health and prevents adverse environmental effects.

In response to public comments received on our proposal and subsequent NODA, we re-examined the data and assumptions used to estimate the risk and compliance costs presented in the Preamble to our proposed rule. We determined that certain significant data and assumptions that we used to develop our cost estimates at proposal were either no longer relevant, not reflective of more recent inventory data, or not valid. As a result, we re-evaluated risks using the more recent inventory data and modified our cost estimates in response to public comment. The most important change we made is that we re-analyzed the risk metrics and costs using the halogenated solvent cleaning facilities in the finalized 2002 NEI, but removing facilities in four specific industry sectors—aerospace manufacture and maintenance facilities, narrow tube manufacturing facilities, facilities using continuous web cleaning machines, and military equipment maintenance facilities—from the database for the purpose of estimating the risks and compliance costs associated with the remaining facilities (Sections III.A.3 and III.B.3 explain our rationale for removing the facilities in these industry sectors from this analysis).

Other changes we made to our cost estimates in response to public comment are as follows:

- We used the finalized 2002 NEI database containing facility and emissions data as the source of our baseline emissions estimates. We removed aerospace manufacture and maintenance facilities, narrow tube manufacturing facilities, facilities using continuous web cleaning machines, and military equipment maintenance facilities from the database for the purpose of estimating the compliance costs for the remaining facilities. (Sections III.A.3 and III.B.3 explain our rationale for removing these facilities from this analysis.)
- We changed our assumptions about the percent reductions in emissions that can be achieved by vacuum-to-vacuum machines from 97 percent to 95 percent.
- In the proposal, we assigned no operation and maintenance cost to vacuum-to-vacuum machines. Based on public comment, our cost estimates for this final rule incorporate annual operation and maintenance costs of $18,832 for each machine.
- We updated the cost per gallon of PCE and TCE based on information provided by commenters representing manufacturers of solvents and the narrow tube manufacturing industry.
- We added a carbon adsorption device (CAD) option that assumes a 30 percent control in emissions. We did not have this option in the cost assumptions we made at proposal. We received comments that this option may be available for some industries but that it is at least ten times more expensive than the retrofit options we costed for the proposal.
- We reduced the number of units for which solvent switching could be a compliance option from 30 percent, used in the proposal, to 15 percent. We also corrected our method for calculating the emission reduction impacts and solvent savings associated with solvent switching.

After re-assessing the risk and calculating revised cost estimates, we re-examined our decision as to what level of control is necessary to provide an ample margin of safety to protect human health and to prevent adverse environmental effects, as required by the second step of the residual risk process under CAA section 112(f)(2). We considered the re-assessed risk estimates and the other health information along with additional factors consistent with the 1989 Benzene NESHAP (54 FR 38044, September 14, 1989), such as cost, technological feasibility, uncertainties and other relevant factors as discussed at proposal. We re-analyzed the risk metrics using the halogenated solvent cleaning facilities in the 2002 NEI, but removing aerospace manufacture and maintenance facilities, narrow tube manufacturing facilities, facilities using continuous web cleaning machines, and military depot maintenance facilities.

At proposal we had presented two options for emission limits that would apply to all facilities in the category subject to the 1994 MACT standards—25,000 kg/yr MC equivalent and 40,000 kg/yr MC equivalent. We estimated that the 25,000 kg/yr limit would result in an emissions reduction of 6,778 tons/year, thereby reducing the MIR to 10-in-a million and reducing cancer incidence by 0.14–0.27 cases annually (depending on which URE we use for PCE), at an annual cost savings of $4.9 million annually or a cost savings of $724/ton HAP reduced. Comments received included support for and against this level of emissions reduction. Similarly, at proposal we estimated that applying the 40,000 kg/yr limit to facilities in the entire source category would result in an emissions reduction of 5,911 tons/yr, reducing the MIR to 20-in-a million and reducing cancer incidence by 0.12–0.23 cases annually, at an annual cost savings of $5.9 million annually or a cost savings of $1,000/ton HAP reduced.[1]

In developing the final rule, we initially re-examined the 25,000 kg/yr and 40,000 kg/yr levels of control for the subset of the category that excludes the four specific industry sectors identified above, using costing assumptions revised based on public comment as described above. This re-analysis uses the 2002 NEI data rather than the 1999 NEI data used in the proposal. We observed that although the overall reductions in MIR and cancer incidence at these levels would be similar to those estimated at proposal for the entire category, the substantial cost savings estimated at proposal would change to a net cost for both emission limits. This is a result of both our use of certain cost assumptions at proposal that have been amended for analyzing the cost of the final rule and the fact that four industry sectors are now being considered separately in this final rule. Specifically, for the 25,000 kg/yr limit, our analysis of the subset of the category that excludes the four specific industry sectors shows the same reduction in MIR (to 10-in-a-million) and similar estimated reduction in cancer incidence, 0.24 cases annually, as we showed at proposal. In contrast, our cost analysis for this subset of the source category shows a total annualized cost (not savings) of about $1.2 million, or a cost of about $520 per ton HAP reduced (we estimate 2,351 tons HAP reduced at this level). Similarly, for the 40,000 kg/yr limit, our revised analysis shows the

[1] In considering these revised cost estimates, it should be noted that there may be inherent uncertainties or anomalies in the availability of information that underlie our costs for our options, regardless of whether the estimates be positive costs or net cost savings. There may also be other factors that are not reflected in these estimates, however. For example, these estimates are largely based on a 15-year equipment life for existing affected cleaners (20-year for new cleaners) and a discount rate of 7 percent. If industry determines that a shorter equipment life for the controls considered in this analysis is appropriate based on perceived uncertainty of future availability of these solvents, then the opportunity cost of capital will be higher and our estimates of net cost savings may be altered. If these controls are in operation longer than expected by industry, however, then a longer equipment life would be appropriate and our estimates of costs, which may be net costs or net savings, may also be altered.

same reduction in MIR (to 20-in-a-million), and a similar estimated reduction in cancer incidence, 0.21 cases annually, as we showed at proposal, but at an annualized cost (not savings) of $130,000, or a cost of about $74 per ton HAP reduced (we estimate 1,759 tons HAP reduced at this level). The incremental tons of HAP reduced is nearly 600 tons with the incremental cost of about $1,800 per ton HAP reduced.

Because we estimated that the cost of achieving the 25,000 kg/yr and 40,000 kg/yr emissions limits would be considerably greater than what we had projected for this rulemaking at proposal, we additionally evaluated the next less stringent emission limit that was considered and presented in the proposal, but not selected as one of our two proposed options for limiting emissions from the entire category—a 60,000 kg/yr MC equivalent facility-wide emission limit. For the subset of the category that excludes the four specific industry sectors, we estimated that the 60,000 kg/yr level reduces the MIR to between 20-in-a million and 50-in-a million and reduces cancer incidence by about 0.19 cases/yr. These risk reductions are estimated to be achieved at total annualized cost savings of just over $1.3 million, or a savings of $832/ton of HAP reduced (we estimate 1,594 tons HAP reduced at this level).

To more fully analyze the implications of the various emission limits, we calculated the overall and incremental annualized cost per cancer case avoided. In this case, we compared the proposed 40,000 kg/yr option and the next less-stringent alternative, the 60,000 kg/yr MC equivalent emission limit. Given the overall reduction in incidence from the baseline of 0.21 cancer cases/yr at the 40,000 kg/yr level and the total annualized cost of $130,000, the overall cost per cancer case avoided is about $620,000.[2] For the 60,000 kg/yr level, there is an estimated overall reduction in incidence of 0.19 cases/yr and a total annualized cost savings of just over $1.3 million, resulting in an overall savings of almost $7 million per cancer case avoided. While these cost estimates for the overall reductions from current levels of control appear to be modest (given the estimated cost savings of intermediate control levels), the incremental reduction in emissions and risk of going from the 60,000 kg/yr to the more stringent 40,000 kg/yr level are small and the corresponding cost-effectiveness estimates of these incremental reductions are unacceptably high. The incremental incidence avoided between the 40,000 kg/yr level and the 60,000 kg/yr level is 0.02 cases. The annualized incremental cost between the two levels is about $1.5 million, with resulting incremental cost per cancer case avoided of about $73 million. (Annual operation and maintenance and annualized capital costs of $1.9 million per year and an estimated costs savings for solvent recovery of $0.4 million per year.)

After considering revisions to the risk and cost estimates presented at proposal, we believe that the 60,000 kg/yr MC equivalent emission limit for those halogenated solvent cleaning machines not identified as being in use by one of the four sectors discussed in Section III.A.3., above, protects public health with an ample margin of safety and prevents adverse environmental effects. Specifically, the 60,000 kg/yr level reduces 90 percent of the HAP emissions reduced at the 40,000 kg/yr level. The 60,000 kg/year emission limit achieves reductions in MIR and cancer incidence that are similar to those expected at the 25,000 kg/yr and 40,000 kg/yr emission levels. The incremental reduction in emissions with a 40,000 kg/yr level instead of 60,000 kg/yr imposes an incremental cost of $1.5 million per year. The incremental cost per ton of this reduction is roughly $9,000/ton. Moreover, in comparing the 40,000 kg/yr and the 60,000 kg/yr emission limits, the incremental cost per cancer case avoided, $73 million/case, is substantial, supporting our conclusion that the $60,000 kg/yr emission limit provides an ample margin of safety consistent with the Benzene NESHAP.

3. Rationale for the Requirements for Halogenated Solvent Cleaning Machines at Military Depot Maintenance Facilities

For halogenated solvent cleaning machines in use at military depot maintenance facilities, the final rule sets a facility-wide emission limit of 100,000 kg/yr (MC equivalent emissions). In addition, the 1994 NESHAP requirements remain applicable.

For halogenated solvent cleaning machines at these facilities that are constructed or reconstructed after August 17, 2006, the final rule revisions add to the previous 1994 NESHAP by requiring implementation of the 100,000 kg/yr MC equivalent emission limit upon the effective date of this rule or upon startup, whichever occurs later.

We based this decision on comments received from one such facility that we considered representative of these types of military facilities that maintain and restore military weapons systems. They indicated an increase in maintenance and restoration levels due to current worldwide military activities and that they could not meet either of the proposed emission limits within the proposed two-year compliance period. In additional comments in response to the NODA, and in subsequent meetings with the Agency, they indicated that they could meet the 100,000 kg/yr emission limit within a three-year compliance timeframe. We then projected that implementation of the 100,000 kg/yr MC equivalent emission limit will reduce the MIR from halogenated solvent cleaning machines associated with a military depot maintenance facility from about six-in-a-million to about three-in-a-million with an estimated reduction in annual cancer incidence of 0.002 cancer cases per year. An analysis of the costs for only this facility which was based on information from the 2002 NEI shows that the annual cost effectiveness of complying with this limit results in a cost savings of about $625/ton with annualized cost savings of approximately $55,761. Therefore, we believe that a requirement for these facilities to meet a 100,000 kg/yr MC equivalent emission limit is technically feasible, provides an annual and long-term cost savings, provides an ample margin of safety to protect public health and prevents adverse environmental effects.

4. Rationale for Our Decisions Regarding Continuous Web Cleaners and Halogenated Solvent Cleaning Machines at Narrow Tube Manufacturing and Aerospace Facilities

The requirements set forth in this final rule are not applicable to continuous web cleaning machines, halogenated solvent cleaning machines that are associated with the narrow tubing manufacturing industry, and aerospace manufacturing and maintenance industry and facilities. The requirements of the 1994 NESHAP and its subsequent amendments (where relevant) remain applicable to all the continuous web and halogenated solvent cleaning machines associated with the above-noted facilities.

We received comments from these three sectors on the proposal, in response to the NODA, and in subsequent meetings with

[2] For comparison purposes, we estimated that compliance with the requirements of the National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities Final Rule (71 FR 42727, July 27, 2006), would result in an annualized cost of about $7 million to achieve a cancer incidence reduction of 2 cancer cases per year. This yields a cost of $3.5 million per cancer case avoided based on the CalEPA unit risk estimate for PCE.

representatives of these industries. They submitted information that stressed the unique nature of their cleaning operations, the technical infeasibility, the uncertainty of our original cost estimates, the processes involved, including review of their process changes by other federal agencies such as FDA and FAA (see Section IV.A. for additional discussion), and the difficulty they would experience in complying with the proposed emission limits within the proposed timeframe. Based on new information they provided in response to the NODA, including new cost information, we re-analyzed the costs for each of these three sectors and estimated the annual cost effectiveness of complying with emission limits they provided in comments.

For the Aerospace sector, we estimated an MIR of 30-in-a-million and an annual cancer incidence of 0.066 at their baseline emission level. We then projected that implementation of the 100,000 kg/yr MC equivalent limit (the maximum reduction we discussed in the proposal) would reduce the MIR from halogenated solvent cleaning machines associated with this sector to about 20-in-a-million with a reduction to their annual cancer incidence to about 0.03 cancer cases annually. Our revised cost estimate showed a cost effectiveness of $2,000/ton with a total annualized cost of nearly $630,000.

For the narrow tube manufacturers, we estimated an MIR of 70-in-a-million with an annual cancer incidence of 0.08 at their baseline level of emissions. Based on comments from this industry indicating that they could reasonably accomplish a 10 percent reduction in their current emission levels within a three-year compliance time, we developed risk and cost estimates for that level of reduction. We have estimated that the MIR would decrease to approximately 60-in-a-million with very little change expected in the annual cancer incidence. The annual cost effectiveness for complying with an overall 10 percent reduction in total emissions limit would be a cost of over $3,600/ton with total annualized costs of nearly $700,000.

For the continuous web cleaners, we estimated a baseline MIR risk level of about 30-in-a-million with an annual cancer incidence of 0.03 cases. Comments from this industry suggested they could achieve an 80 percent overall control efficiency compared to their current emission levels, within a three-year compliance period. The current NESHAP limit requires a 70 percent overall control efficiency. To achieve the 80 percent overall efficiency, facilities would be required to reduce emissions by 33 percent ((1–70%) − (1–80%) / (1–70%) = 33%). We developed risk and cost estimates for that level of reduction. We have estimated that under this scenario, the MIR would decrease to approximately 20-in-a-million with and the annual cancer incidence would decrease to 0.02 cases annually. The annual cost effectiveness of complying with the 80 percent overall emission control efficiency rate is over $3,400/ton with a total annualized costs of over $600,000.

In summary, we are adopting no changes to the 1994 NESHAP, under CAA Section 112(f) for the halogenated solvent cleaning machines used by the above-noted specific industry sectors (*i.e.*, aerospace, narrow tube manufacturers, and the facilities that use continuous web cleaning machines) because the current level of emissions control called for by the existing NESHAP both reduces risk to acceptable levels and provides an ample margin of safety to protect public health. Further, additional standards are not necessary to prevent adverse environmental effects. The finding regarding an ''ample margin of safety'' is based on a consideration of the relatively small reductions in health risks likely to result from the feasible emission reductions we evaluated, the additional costs required to achieve further control, the lack of technically feasible control options for these sectors, and the time required to comply with any requirements.

*C. What is the compliance schedule?*

In this final rule, in accordance with CAA section 112(i)(3), we are promulgating a compliance deadline of three years from the effective date of this final rule for all existing halogenated solvent cleaning machines and for all existing halogenated solvent cleaning machines at military depot maintenance facilities. Facilities described in Section III.A.3 above are not subject to further requirements beyond the 1994 NESHAP.

At proposal, we determined that CAA section 112(i) was the controlling provision that addresses compliance deadlines for existing sources with regard to standards promulgated under CAA sections 112(d)(6) and 112(f)(2). See 71 FR 47684–86. We hereby incorporate our discussion by reference. In the NODA, we asked for comments on the issue of whether a two year compliance deadline was sufficient time to comply with the co-proposed facility-wide emission limits. We received significant comments on this compliance deadline issue.

We are persuaded by the commenters representing the general population that use halogenated solvent cleaning machines that existing sources will need more than 2 years to comply with the final revised standards. Affected facilities would have to plan their control strategy, purchase and install the control device(s), and subsequently, bring the control device(s) online. We, therefore, believe that for the remaining halogenated solvent cleaning facilities, this final compliance deadline of three years is more reasonable and realistic than the proposed two year compliance deadline.

*D. What is the final decision on the applicable unit risk value?*

At proposal, we explained that the Agency's IRIS health assessment for PCE is currently being revised. Therefore, we requested comment on the use of the CalEPA URE,[3] the OPPTS URE,[4] or other values in deriving the PCE emission limit for the final rule (71 FR 47680). We received comments both supporting and opposing our use of the CalEPA URE for PCE.

For those situations where a particular chemical does not have a cancer potency value in IRIS, we have established a prioritization process for accessing other health assessment information (as described in our ''Residual Risk Report to Congress'' on pages 56 through 58). This hierarchy includes peer reviewed cancer potency values from EPA as well as from other agencies that conduct chemical carcinogenicity assessments such as the California Environmental Protection Agency (CalEPA). See also our responses to comments on this issue in the final Coke Oven Batteries NESHAP (70 FR 19998–20000, (April 15, 2005)). In this final rulemaking, we have chosen to use the CalEPA URE in preference to the OPPTS value for a number of reasons. CalEPA's PCE cancer unit risk value was derived using two different approaches for estimating the metabolized dose in humans, whereas the OPPTS value incorporated a single model of metabolism. Additionally, while the CalEPA approach allowed for the consideration of variability and uncertainty, the OPPTS approach did not. We have used both the CalEPA and OPPTS UREs for PCE in the risk

[3] California Department of Health Services (CDHS), *Health Effects of Tetrachloroethylene (PCE),* Berkeley, CA, April 1992. (Available in the rulemaking docket.)

[4] U.S. Environmental Protection Agency, *Cleaner Technologies Substitutes Assessment: Professional Fabricare Processes* (EPA 744–B–98–001), June 1998. (Available at *http://www.epa.gov/dfe/pubs/garment/CTSA/*.)

characterizations for the dry cleaning residual risk rulemaking (71 FR 42723) and for this rulemaking (71 FR 47670; see also the risk document in the rulemaking docket). However, for the purposes of this rulemaking, we have chosen to use the CalEPA URE to implement the facility emission limits. Explicit consideration of variability and uncertainty is more consistent with EPA's current approach for conducting risk assessments. EPA also uses the CalEPA URE in the 1999 National-Scale Air Toxics Assessment (available at: *http://www.epa.gov/ttn/atw/nata1999/*), in Superfund cleanup decisions, and in EPA's Air Toxics Risk Assessment Reference Library (available at: *http://www.epa.gov/ttn/fera/risk_atra_main.html*; dose-response values in Appendix C at: *http://www.epa.gov/ttn/fera/data/risk/vol_1/appendix_c.pdf*.

We have the authority to revisit (and revise, if necessary) any rulemaking if there is sufficient evidence that changes within the affected industry or significant improvements to the science suggest that the public might experience significantly more or less risk than estimated in the risk assessment prepared for the rulemaking (See CAA section 301). In particular, it may become necessary at some time in the future to revise the facility emission limits if the pending IRIS assessments result in significant changes to the UREs for PCE, TCE, or MC.

Additionally, while we have chosen to use the CalEPA URE for PCE for implementing this rule, this should not be interpreted as a precedent for all future rules. As was stated earlier, in the dry cleaning residual risk rulemaking (71 FR 42723) and in this rulemaking, we used both the CalEPA and OPPTS values to characterize the risk. When there is uncertainty, it is EPA's preference to provide a range of values. However, for the purposes of this rulemaking, a single value was needed to implement the facility emission limits. EPA's choice of the CalEPA value does not mean that this is the only value to be considered while the EPA IRIS assessment is pending.

### *E. What is EPA's finding on the CAA section 112(d)(6) review requirements?*

We stated in the proposal that in the technology review under CAA section 112(d)(6) we did not identify any additional control technologies beyond those that are already in widespread use within the source category (*e.g.*, freeboard refrigeration devices, extended freeboards, working mode and downtime covers). We concluded that the proposed rule changes would satisfy both CAA section 112(d)(6) and 112(f)(2). See 71 FR 47685.

Since the August 17, 2006 proposal, we have not identified any significant developments in practices, processes, or control technologies. We have discovered, however, that affected industries are researching the development of halogenated solvent cleaning machines and alternate cleaning technologies. At some time in the future these technologic developments could lead to significant technologies relevant to the CAA section 112(d)(6) analysis, but we understand that to date the engineering and implementation of such technology has not been proven to satisfy the performance needs of the industry coupled with the low-emission directives of the agency. We therefore conclude that the final facility-wide emissions limits we are promulgating today satisfy our obligations under both CAA sections 112(d)(6) and 112 (f)(2).

## IV. Responses to Significant Comments

### *A. Significant Comments on the Proposal*

During the public comment period, EPA received significant comments, new data, and information concerning program elements for which we specifically sought public comments. We received favorable and unfavorable comments on both proposed emission limits. Commenters provided substantial information on the use of the methylene chloride equivalency equation. We received significant comments on the implementation of the emission limits from commenters representing narrow tube manufacturing facilities, aerospace manufacturing and maintenance facilities, military depot maintenance facilities, facilities that use multiple solvent cleaning machines, and facilities that use continuous web cleaning machines.

All of the comments, information, and data submitted by commenters are compiled in the Response to Comments document available in the Air Docket ID No. EPA–HQ–OAR–2002–0009. Some of the more significant comments are discussed below.

1. Emission Limit Option 1 or Option 2

*Comment:* While four commenters supported the proposed Option 1 (40,000 kg/yr MC equivalent emission limit), other commenters encouraged EPA to set relative standards. Another commenter, an association of state air program administrators, believed that Option 2 (25,000 kg/yr of MC equivalent emission limit) still presented unacceptably high risks; but noted that it was preferable to Option 1. Three commenters supported our proposed Option 2. According to the commenters, Option 2 would provide significant emissions reductions and greater protection of public health, safety, and welfare. In addition to lowering the potential cancer and non-cancer chronic health risk associated with exposure to the three HAPs, the additional reductions of trichloroethylene (TCE) under Option 2 would likely augment the State's efforts to reach attainment with the 8-hour ozone standard since TCE is identified as an ozone precursor.

One commenter recognized the reductions in the number of people exposed to cancer risk and the capital costs between Option 1 and the more stringent Option 2. The commenter stated that under Option 2 the numbers of affected sources are greater than the number of affected sources under Option 1, but that EPA determined that those affected sources complying with Option 2 would still save money because the annual solvent savings were projected to exceed the annualized capital and operating costs. The commenter added that even at a financial cost, Option 2 would be warranted, and that given the financial savings, Option 2 was the only reasonable choice. One commenter stated that the proposed facility-wide emission limits would leave source owners only two compliance options: (1) Establish internal production restrictions or (2) install add-on capture and control equipment to ensure operating flexibility. Another commenter requested that EPA exempt batch cold cleaning machines operating with capture and control devices that are subject to federally-enforceable monitoring conditions in a Title V permit.

*Response:* As stated in Section II of the Preamble, we presented and discussed our evaluation of four other emission limits that would reduce residual risk. These emission limits were 100,000 kg/yr, 60,000 kg/yr, 15,000 kg/yr and 6,000 kg/yr (71 FR 47680–81). In this final rule, as stated in Section II.A. of the Preamble, we are promulgating the 60,000 kg/yr facility-wide MC equivalent emission limit. EPA's risk assessment for the proposal and an updated risk assessment for the final rule using data from EPA's 2002 NEI database show that the maximum individual risk (MIR) and population risks associated with the majority of halogenated solvent cleaning machines would be reduced by adopting the 60,000 kg/yr MC-equivalent emission limit. Based on the more recent assessment using the 2002 NEI, the MIR

would be reduced from 100-in-a-million to between 20 and 50-in-a-million and the total number of people with risks greater than 1-in-a-million would also be reduced from 4,000,000 people to between 500,000 and 1,000,000. Our cost analyses at proposal and the more recent revisions to the cost estimates based on the 2002 NEI show that these emission and risk reductions are technically feasible within the three-year time for compliance, and facilities would experience a cost savings implementing the emission limit. Therefore, we believe that the 60,000 kg/yr facility-wide emission limit (expressed as MC equivalent emissions) applied to the halogenated solvent cleaning machines, except where noted, provides an ample margin of safety to protect the public's health because it significantly reduces cancer risks, prevents adverse environmental effects, and given the level of the risk reductions, is technically feasible and can be accomplished at reasonable costs. EPA is not exempting batch cold cleaning machines that operate with capture and control devices that are subject to Title V permitting requirements.

2. Equation for MC Equivalents

*Comment:* Two commenters supported EPA's toxicity-weighted approach for calculating the facility-wide annual emission limits for affected sources, except where otherwise noted, that use more than one of the three HAPs subject to the proposed Subpart T residual risk rule. This toxicity-weighted calculation was proposed as Equations 1 and 9 in the Preamble, and proposed 40 CFR 63.471(a)(2), respectively. In our August 17, 2006 proposal, EPA requested comment on this methodology (71 FR 47675). Another commenter was concerned about the use of the methylene chloride equivalent. The commenter stated that the use of this term was somewhat misleading because rather than a toxic equivalent, this methodology reflects a weighted-emission approach using toxicity-weighted emission rates. The commenter further stated that while EPA conservatively added the cancer and noncancer toxicity-weighted emissions rates, the scaling factors we used were simply the ratio of the cancer unit-risk estimates and noncancer reference concentrations multiplied by the post-MACT emission rate or exposure level. The commenter also stated that because EPA did not specifically conduct toxicological comparisons (common mode of action and metabolites and possible synergistic interactions among the components of the mixture) for PCE, TCE and MC, we should be careful not to use the term ''methylene chloride equivalent'' as a ''toxic equivalent,'' because the latter is a specific term associated with a supporting body of literature and a documented methodology. Another commenter noted that because the current recordkeeping and annual reports requirements, under 40 CFR 63.467 and 63.468 (f-g), were inapplicable to batch cold cleaning machines, our proposed methodology may not be suitable for all batch cold cleaning machines and requested flexibility in calculating emissions so long as the alternate methodology was scientifically sound and documented.

*Response:* In this final rule, we are finalizing as proposed the use of Equation 1 (and Equation 9) to calculate the MC equivalent for implementing the 60,000 kg/yr emission limit or the 100,000 kg/yr emission limit. EPA believes this methodology will facilitate the use of an annual emissions limit for multiple HAPs and allow flexibility in reducing the facility-wide emissions to meet this emissions limit. For cold batch cleaning machines at area sources, the requirements in the final rule do not apply.

3. Use of CalEPA or OPPTS URE for Implementation of the Emission Limit

*Comment:* Some commenters that use large halogenated solvent cleaning machines recommended that EPA not promulgate either Option 1 or 2 of the proposed rule, but rather defer promulgation of a final rule until completion of the IRIS re-evaluations of the URE for PCE.

One commenter believed that EPA included two different facility-wide annual emission limits for PCE because the IRIS URE was not available and will not be available before 2008. The commenter supported the use of CalEPA URE because it was clearly more health protective and more appropriate than the OPPTS URE value.

One commenter stated several reasons why EPA should use the CalEPA URE: (1) EPA's Air Toxics Risk Assessment Reference Library recommended the use of the CalEPA URE for PCE, (2) the EPA Office of Air Quality Planning and Standards (OAQPS) recommended the use of the CalEPA URE in situations in which there are no IRIS data available (see EPA's ''Prioritization of Data Sources for Chronic Exposure'' Web site), and (3) OAQPS used the CalEPA URE for PCE when conducting the 1999 risk assessment for the National-Scale Air Toxics Assessment. They believed that EPA has an established precedent for use of the CalEPA URE and recommended that it be used for this residual risk standard as well.

Three commenters, one identifying itself as operating two continuous web cleaning lines in the world's largest integrated production of aluminum and aluminum semi-fabricated products stated that the two PCE UREs differ by a factor of ten and that EPA's selection of the applicable URE would obviously have a significant impact on control options available to their facility. They expressed concern that EPA would finalize an emissions limit by selecting an inappropriate URE and prior to completion of the IRIS reassessment for PCE. According to the commenter, the fact that the final IRIS URE ''may be different from both the CalEPA and OPPTS values'', means that inappropriate or unnecessary emission reduction strategies could be required as a result of EPA's promulgating the wrong PCE facility-wide limit in a final rule.

Another commenter suggested that EPA delay promulgation of this final rule until completion of IRIS assessments for PCE and TCE. One commenter stated that while EPA referenced both the OPPTS and the CalEPA UREs, there was little or no mention made of other URE studies conducted for PCE which would potentially indicate a different URE. The commenter stated the same is believed to be true regarding the URE for TCE.

*Response:* EPA has explained that when a particular chemical does not have a cancer potency value in IRIS, we have established a prioritization process for assessing other health assessment information (as described in our ''Residual Risk Report to Congress'' on pages 56 through 58). This hierarchy includes peer reviewed cancer potency values from EPA as well as from other agencies that conduct chemical carcinogenicity assessments such as CalEPA. See also our response to comments on this issue in the final Coke Oven Batteries NESHAP (70 FR 19998–20000, (April 15, 2005)).

Because we have not yet issued a final IRIS health assessment for PCE, we are using the CalEPA unit risk estimate (URE) of $5.9 \times 10^{-6}$ $(ug/m^3)^{-1}$ to implement the emission limit for PCE in this final rule. See section III.D. of this Preamble for further discussion of our decision to use the CalEPA cancer URE.

We also have the authority to revisit (and revise, if necessary) any rulemaking if sufficient evidence becomes available that changes within the affected industry or significant improvements to the underlying science suggest that the public is exposed to significantly more or less risk than

estimated in the risk assessment prepared for this rulemaking (See CAA section 301). See also Ethylene Oxide Emissions Standards for Sterilization Facilities Residual Risk Rules (71 FR 17712, 17715, (April 7, 2006). In particular, it may become necessary at some time in the future to revise the facility emission limits if the pending IRIS assessments result in significant changes to the UREs for PCE, TCE, or MC.

Additionally, while we have chosen to use the CalEPA URE for PCE for implementing this rule, this should not be interpreted as a precedent for all future rules. As was stated earlier, in the dry cleaning residual risk rulemaking (71 FR 42723) and in this rulemaking, we used both the CalEPA and OPPTS values to characterize the risk. When there is uncertainty, it is EPA's preference to provide a range of values. However, for the purposes of this rulemaking, a single value was needed to implement the facility emission limits. EPA's choice of the CalEPA value does not mean that this is the only value to be considered while the EPA IRIS assessment is pending.

4. Compliance Deadline

*Comment:* The majority of facilities that use halogenated solvent cleaning machines suggested that EPA should allow at least three years for existing sources to comply with the new requirements. Two commenters contended that EPA should be consistent with the HON rule [5] and provide affected facilities three years after the effective date of the promulgated standard to comply. Another commenter stated that the narrow tubing manufacturers could not comply with the proposed compliance period because compliance would require between one and two years to evaluate non-regulated solvents and an additional two to three years to obtain FDA and air permit approvals and implement the necessary equipment modifications. All commenters stated that sources subject to this new rule would need time to evaluate their compliance options; conduct feasibility testing (for solvent substitution) to ensure they can still achieve customer specifications; and design, build, and/or install any equipment or facility modifications potentially required. They stated that our proposed two year compliance deadline would be insufficient time for the regulated sources to comply. Two commenters stated that the proposed two year compliance time frame was not sufficient time for the installation of vacuum-to-vacuum machines. The commenters stated that even if the technology existed, that in order to meet the proposed two year compliance deadline, they would be required to take the following measures: (1) Conduct initial research and development effort to determine a control strategy; (2) perform a pilot study using the selected control strategy; (3) demonstrate to their customers that the resulting product meets contract specifications; (4) get acceptance by their customers that the change meets contract specifications; (5) design engineering work to develop the selected equipment and apply for air pollution control and other permits; (6) obtain permits to install the selected equipment; (7) order the equipment; (8) fabricate the equipment; (9) prepare the shop floor for installation of equipment; (10) receive and install the equipment; and (11) place the equipment in operation.

Three other commenters believed that the proposed two years compliance schedule did not provide sufficient time for the affected facilities to fully assess the impacts and develop approved alternatives. The commenters requested an extension of the compliance period. They stated that EPA has authority to allow up to three years for affected facilities to comply and that permitting authorities have authority to grant an additional one year for compliance purposes, under CAA section 112(i).

A large military depot maintenance facility commented that the proposed compliance time allowed in the proposed rule was inadequate. They also agreed with the Preamble discussions as to whether EPA could allow up to three years for existing sources to comply with the proposed limits. The commenter recommended that EPA allow a three-year compliance deadline.

Two commenters supported EPA's proposed two-year compliance deadline. One of the commenters, however, pointed out that existing solvent cleaning machines could receive a one year extension of time from permitting authorities. The commenter believed that the Congressional intent behind the compliance deadlines in CAA section 112(f) was to insure an expedited compliance schedule (90 days with a possible two-year extension) for controlling emissions from facilities that result in unacceptable risk levels. Two States provided comments supporting the proposed two year compliance deadline and one commenter advocated a 90-day compliance period.

*Response:* In this final rule, in accordance with CAA section 112(i)(3), EPA is promulgating a three-year compliance deadline from the effective date of this rule for all the existing affected sources. As explained in Section III.C. of the Preamble, we believe that CAA section 112(i) is the controlling provision addressing compliance deadlines for existing sources with regard to standards promulgated under CAA sections 112(d)(6) and (f)(2). EPA believes this will give owners or operators of solvent cleaning machines the necessary time to evaluate technologies for controlling emissions and possible alternatives to halogenated HAP solvent cleaning.

*Comment:* One commenter stated that proposed § 63.460(i) would allow sources that only have existing halogenated solvent cleaning machines two years to comply, but if they construct or reconstruct a single machine after August 17, 2006, they would lose the two-year compliance period. The commenter recommended that any facility that has existing halogenated solvent cleaning machines and that exceeds the proposed facility wide emission limits should be allowed two years from the date of the final rule to comply with the standard, even if one or more halogenated solvent cleaning machines are constructed or reconstructed after August 17, 2006.

Another commenter stated that if the Agency finalized the proposed rule, the compliance schedule should be amended to (1) Require new facilities constructed after the date of promulgation to be in compliance upon startup; (2) consider new facilities constructed prior to the date of promulgation to be existing facilities; (3) allow existing degreasing facilities that installed new equipment after the date of proposal, but prior to the date of promulgation, ten years to come into compliance with any new requirements consistent with CAA section 112(i)(7), and (4) allow the maximum amount of time possible for existing Halogenated Solvent Cleaning facilities to come into compliance. This commenter alluded to a three-year timeframe. The commenter cited one example of where the installation of new equipment at an existing facility would require additional or redesigned floor space and thus would require additional time for compliance.

*Response:* As stated in the earlier response, and in Section III.C. of this Preamble, we believe that it is reasonable to conclude that CAA section 112(i) is the controlling provision

[5] National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry, (71 FR 76603) (December 21, 2006)).

addressing compliance deadlines for existing sources with regard to standards promulgated under CAA section 112(d)(6) and 112(f)(2). Thus, in this final rule, in accordance with CAA section 112(i)(3), EPA is promulgating a three-year compliance deadline from the effective date of this rule for existing sources. Further, for purposes of today's rule, existing sources are affected facilities (as defined in § 63.461) on which construction or reconstruction began on or before August 17, 2006. New sources are affected facilities that commence construction or reconstruction after August 17, 2006. This is consistent with CAA Section 112(i)(1)-(3). Additionally, ''construction'' and ''reconstruction,'' are defined at 40 CFR 63.2. However, changes to the emission controls at a facility made to comply with existing source standards in today's rule do not trigger the reconstruction threshold.

5. Applicability of Control Requirements

*Comment:* One commenter that uses continuous web cleaning machines stated that it had installed two carbon adsorption devices (CAD) to address the TCE reductions required by the 1994 NESHAP. According to the commenter, even an upgrade of the systems would likely not enable the facilities to achieve either proposed emissions limit. The commenter suggested that for facilities that use continuous web cleaning machines, EPA should evaluate a range of emission reduction limits. The commenter stated that this method would have been consistent with the alternative standards set for the continuous web cleaning machines by the 1994 NESHAP.

*Response:* In light of this and similar comments by the aerospace and narrow tubing industries, EPA issued a NODA to gather specific data on the technical feasibility and costs of complying with the proposed emission limits, if feasible, and the period of time required to comply with the proposed emissions limit (71 FR 75184, (December 14, 2006)). EPA has re-evaluated the technical feasibility, costs and other factors that relate to facilities operating continuous web cleaning machines. Consequently, in this final rule, we are not promulgating any facility-wide emission limits for facilities that operate continuous web cleaning machines, facilities that operate halogenated solvent cleaning machines for the aerospace manufacturing and maintenance industry, and the narrow tubing manufacturing industry.

*Comment:* Numerous commenters from both the narrow tubing manufacturing industry that use MC, PCE and TCE, and airline maintenance facilities and aerospace industry that use PCE stated that switching to TCE or MC would be an unsuitable compliance option. They stated that facilities have procedural requirements for the higher vapor temperature of PCE and that TCE and MC's vapor temperature is inadequate for proper cleaning. The commenters stated that many original equipment manufacturers have not approved the use of alternative degreasing solvents. The commenters also stated that changing solvents involved a rigorous approval process by the original equipment manufacturers and the Federal Aviation Administration (FAA) in order to ensure that safety and quality criteria are met. The commenters stated that such an approval process could take more than two years.

The commenter also stated that EPA's proposed retrofit options for freeboard ratios, working mode covers and freeboard refrigeration devices are not expected to be sufficient to enable the facility to comply with the proposed facility-wide emission limits of the proposed rule. The commenter also stated that there are few manufacturers of vacuum-to-vacuum degreasing machines and they were not aware of this technology effectively cleaning parts of specific types and sizes. According to the commenter, similar facilities that installed the technology incurred costs of over $1 million with new annualized costs of approximately $80,000 per year. The commenter was concerned that compliance with the proposed standards would be achieved by using expensive technology, that has high capital costs and operating costs and that may not be proven effective or reliable for the operations of subject facilities.

*Response:* In response to this comment and certain comments discussed below, EPA issued a NODA (71 FR 75184, (December 14, 2006)) to gather more information pertinent to the halogenated solvent machines used by the aerospace industry, narrow tubing manufacturing industry, and the facilities that use continuous web cleaning machines. Responses to the NODA provided significant data and information that have led EPA to determine that it is both technologically infeasible and not cost effective for these industries to implement any further emission controls or requirements. Consequently, as stated in Section III.A.3., of the Preamble, we are not promulgating any facility-wide emission limits for halogenated solvent cleaning machines used by the aerospace manufacturing and maintenance industry, the narrow tubing manufacturing industry and for continuous web cleaning machines.

*Comment:* Two commenters associated with the aerospace industry stated that the FAA, Food and Drug Administration (FDA) and the Nuclear Regulatory Commission (NRC) guidelines for safety and quality control often dictate the types of solvents and materials that may be used in aerospace operations. According to the commenters, solvent cleaning criteria determined the quality of adhesion between aircraft assemblies and components and the various coatings, primers, sealants, and adhesives later applied to their surfaces, and improper degreasing could cause loss of coating adhesion and ultimate failure of specific aircraft component parts. The commenters also stated that they had explored solvent alternatives such as aqueous cleaners, and had encountered incompatibilities with FAA guidelines, such as inability to meet the degree of cleaning required, incompatibility of the parts being cleaned with the cleaning solution, longer required cleaning time, and problems associated with moisture left on parts being cleaned. The commenter stated that these regulatory and product specifications frequently dictated or otherwise limited aerospace cleaning options to PCE or TCE. However, some aerospace facilities maintain their PCE cleaning capacity because certain, very specific aerospace parts cannot be processed with MC or alternative solvents.

*Response:* In response to this comment, as earlier explained, EPA issued a NODA (71 FR 75184, (December 14, 2006)) to gather more information pertinent to the halogenated solvents cleaning machines used by the aerospace industry, narrow tubing manufacturing industry, and the facilities that use continuous web cleaning machines. Responses to the NODA provided significant information that has led EPA to conclude that it is both technologically infeasible and not cost effective for the above-noted facilities to implement any further emission controls or requirements. (See Section III.A.3. of the Preamble on costs of compliance). EPA is also persuaded that some halogenated solvent cleaning processes for the aerospace and narrow tubing industry are controlled by FAA, FDA, the NRC guidelines, and from protocols of original equipment manufacturers. Therefore, EPA is concluding in this final rule that solvent switching from PCE or TCE to MC may not be a viable option in some instances for the aerospace industry.

Consequently, as stated earlier in Section III.A.3., of this Preamble, EPA is not promulgating facility-wide emission limits for halogenated solvent machines used by the aerospace manufacturing and maintenance industry, the narrow tubing manufacturing industry and for continuous web cleaning machines.

*Comment:* Commenters from the narrow tube manufacturing industry stated that they use ''one of a kind'' machines in their degreasing operations. They described these machines as very large, some with dimensions approaching 110 ft. long by 10 ft. deep and 42 inches wide, with a capacity of 7,000 gallons of solvent. According to the commenters, these machines also heat the solvent, usually TCE, to its boiling point while condenser coils prevent evaporation by forming a cold air blanket over the cleaning machine in order to limit emissions. In addition, they explained that these machines are covered when not in use.

They also stated that the installation of vacuum-to-vacuum cleaning machines is not a feasible option because of their products' sizes and the lack of engineering information to establish whether machines of such size can be engineered and produced. They stated that EPA's proposed requirements would require them to design, obtain permits, develop and install these systems within two years.

*Response:* In response to this comment, as earlier explained, we issued a NODA (71 FR 75184, (December 14, 2006)) to gather more information pertinent to the halogenated solvent cleaning machines used by the aerospace industry, narrow tubing manufacturing industry, and the facilities using continuous web cleaning machines. Responses to the NODA provided significant information that has led EPA to determine that it is both technologically infeasible and not cost effective for the above-noted facilities to implement any further emission controls or requirements. EPA is also persuaded that it may be quite difficult for the above-noted industries to reduce emissions through chemical or physical means and technology applications to the levels required by our final promulgated emissions limits. Accordingly, due to the costs associated with compliance, technical feasibility, and other factors, EPA has determined that the current MACT requirements provided for the narrow tubing manufacturing industry both reduce HAP emissions to levels that both pose acceptable risk and protect public health with an ample margin of safety. As stated earlier in Section III.A.3., of the Preamble, EPA is not promulgating facility-wide emission limits for halogenated solvent cleaning machines used by the narrow tubing industries.

*Comment:* Two commenters stated that switching from PCE and/or TCE to MC (indicated as being lower risk) as a compliance alternative under the proposed revisions would likely result in an increased danger to public health and, more specifically, potentially increase the danger from employee exposure to MC emissions. The commenter stated that because employee exposure to MC is specifically regulated by the Occupational Safety and Health Administration (OSHA), switching to MC would be an error. According to the commenter, this is because applicable OSHA regulations would limit and/or restrict MC and would lead to increased employer costs, a fact the commenter believed EPA did not consider. One commenter stated that some halogenated solvent cleaning machines may have the potential for undetected fugitive emissions. The commenter added that the necessary monitoring for adequate employee protection from overexposure to MC would be far more expensive, more extensive, and more difficult to implement than monitoring for TCE.

*Response:* Before proposal, EPA was aware of the requirements of the Occupational Health and Safety Administration concerning worker safety when MC is used. 29 CFR part 1910, which are the applicable OSHA regulations, require employers to make an initial determination of each employee's exposure to MC. If the employer determines that employees are exposed below the action level, employers are required to make a record of the determination. Conversely, if the employees are exposed to MC above the action levels, employers are required to perform exposure monitoring.

In addition, EPA did not consider any costs associated with MC monitoring at proposal. EPA believes, however, that a facility would not incur costs if MC emissions do not exceed the OSHA levels. If a facility experiences worker exposure of MC emissions over the OSHA level, the facility incurs costs to develop a control plan for fugitive emissions and possibly implement an employee medical monitoring plan. To account for the possibility of increased costs, we reduced the number of units assumed to use solvent switching.

6. Costs Associated With Compliance

*Comment:* Seven commenters, from the aerospace and narrow tube manufacturing sectors, stated that EPA had underestimated its cost basis for vacuum-to-vacuum technology in the proposed rule. One commenter stated that because EPA's estimation used the costs for small halogenated solvent cleaning machines and applied the credit for cost reduction from recovered solvent to the large halogenated solvent cleaning machines with large amounts of recovered solvent, the estimate erroneously yielded a false return on investment. The commenter stated that discussions with manufacturers of available vacuum-to-vacuum units suggested costs approximately five times higher than the assumptions used by EPA for each unit, and this was assuming that the manufacturers could develop scaled-up units suitable for narrow tubing manufacturers. The commenter stated that because the larger size of their products would require construction of the new unit while maintaining operation, facilities would need to undergo building expansion. The commenter anticipated that installation costs, including building and required utilities and infrastructure, would likely be approximately three times the equipment cost. According to the commenter, assuming the technology was successful, EPA's capital cost basis was approximately fifteen times below its likely cost range. The commenter further stated that EPA's assumption of 97 percent solvent recovery was unlikely with regard to hypothetical future large units that would require storage and movement of solvent between storage tanks, solvent cleaning machines and other ancillary equipment. The commenter concluded that EPA's assumptions of the project payback were unrealistic both for large operations, whose capital cost was underestimated, and for small operations, whose solvent recovery payback would be smaller than the average figures used in the analysis.

*Response:* In response to this comment, as explained earlier, EPA issued a NODA (71 FR 75184, (December 14, 2006)) to gather more information on the costs of complying with the proposed standards by the aerospace industry, narrow tubing manufacturing industry, and the facilities that use continuous web cleaning machines. Responses to the NODA provided significant information that has led EPA to determine that it is both technologically infeasible and not cost effective for the above-noted facilities to implement any further emission controls or requirements.

As earlier stated, EPA is also persuaded that some solvent cleaning processes for the aerospace and narrow tubing industry are controlled by protocols from the FAA, FDA, NRC and

from protocols to satisfy original equipment manufacturers' specifications. As earlier stated, EPA has also concluded in this final rule that solvent switching from PCE or TCE to MC may not be a viable option in some instances for the aerospace industry. As also explained earlier in Section III.B. of the Preamble, EPA has re-analyzed the cost assumptions made at proposal for the aerospace industry separate from the halogenated solvent cleaning machines that are covered by this final rule, and has determined that due to costs, technical feasibility, and other factors requiring additional controls, would not be feasible at this time. Consequently, as stated earlier in section III.A.3 of the Preamble, we are not promulgating facility-wide emission limits for halogenated solvent cleaning machines used by the narrow tubing and aerospace manufacturing and maintenance industries.

*Comment:* Commenters that use continuous web cleaning machines stated that EPA's analysis of the technology and cost impacts of the two proposed emission limits failed to consider the impacts on continuous web machines. The commenters stated that while EPA identified numerous compliance options, solvent switching from PCE to TCE or MC would be the sole compliance option for continuous web cleaning machines. The commenters further stated that EPA was correct to conclude that neither retrofits nor machine replacement would be an available compliance option for continuous web cleaners; however, the commenters stated that ''EPA should not have concluded that solvent switching would be an available option for continuous web cleaners.'' The commenters further stated that switching from TCE to MC is not an available option because ''MC reacts with chemically active metals such as aluminum.'' The commenters also stated that MC is incompatible with some of the gaskets and seals in pumps, ports and manifold systems. The commenters added that MC is less stable as a continuous web cleaning solvent and would require additional monitoring and probably additional stabilization control systems. Additionally, the commenters stated that MC is not readily adsorbed by the carbon in carbon adsorption devices and, as such, solvent switching would require reconfiguration and possibly rebuilding of the carbon adsorption devices. According to the commenters, MC requires longer dwell time in the carbon beds, which would in turn require a greater carbon surface area and larger carbon filtration systems. The commenters also stated that quantities of TCE would react with MC and that facilities would need to conduct a complete purging of systems in order to prevent cross contamination. The commenters further stated that such purging would include the removal of significant production line components, which would lead to increased compliance costs.

The commenters also stated that EPA estimated a 29 percent increase in solvent consumption if switching from TCE to MC. The commenters, however, expected much higher increases. The commenters explained that because steel that is placed in cleaning machines is slightly heated above ambient temperature, any slight temperature elevation would cause MC to vaporize more readily than TCE. The commenters claimed that increases in solvent consumption rate would ultimately create elevated vapor concentrations in the carbon adsorption device thereby making recovery more difficult. The commenters further claimed that even though MC is cheaper per unit volume, more MC would be required to achieve the same level of cleaning.

The commenters also maintained that add-on control equipment, retrofits and machine replacement technologies identified in the proposed rule are for the typical halogenated solvent cleaning machines that were subject to the 1994 NESHAP, and not continuous web cleaning machines or systems. The commenters stated that modifications such as modifying freeboard ratios, adding working mode covers, or retrofitting freeboard refrigeration devices are inapplicable because no freeboard exists in continuous web cleaning machines, which are enclosed, with the exception of entrance and exit points during normal operations. The commenters further stated that vacuum-to-vacuum machines are only appropriate for batch cleaners. Because of these technical issues, the commenters stated that EPA did not evaluate the costs and technological feasibility of the facility-wide emission limits for the continuous web cleaning machines.

*Response:* In response to this comment, as stated earlier, EPA issued a NODA (71 FR 75184, (December 14, 2006)) to gather more information on the costs of complying with the proposed standards by the aerospace industry, narrow tubing manufacturing industry, and the facilities using continuous web cleaning machines. As also stated earlier, responses to the NODA-provided significant information has led EPA to re-evaluate costs of installing CADs and vacuum-to-vacuum machines. EPA has determined that compliance by continuous web cleaning machines with either the proposed 40,000 kg/yr limit or the 60,000 kg/yr MC equivalent limit would not be cost effective and either limit may be technically infeasible in some instances. Consequently, as stated in Section III.A.3 of this Preamble, EPA is not requiring continuous web cleaning machines to comply with the facility-wide emission limits we are promulgating for this final rule. EPA is concluding that the current level of control by the existing NESHAP both reduces HAP emissions to levels that present an acceptable risk and provides an ample margin of safety to protect public health and prevent adverse environmental effects.

*Comment:* One commenter, an industry association representing producers and users of halogenated solvents, indicated that MC is not compatible with some substrates because of its aggressive nature. In addition, the commenter stated that MC's low boiling point shortens the effective cleaning time and makes it ineffective for light-gauge metals where incomplete rinsing action may cause staining. According to the commenter, the low boiling point of MC also makes it less effective on stubborn soils, including high-melting point waxes and pitches and grossly contaminated parts. The commenter stated that PCE's higher boiling point makes it ideal for these applications. According to the commenter, PCE is also a popular choice for closed-loop equipment, where PCE's inherent stability reduces the possibility of hydrolysis.

The commenter also stated that while MC has the lowest vapor loss rate from an idling halogenated solvent cleaning machine, its low vapor density makes it the most difficult to control in a working degreaser where air movements generally increase losses. The commenter also stated that MC has the lowest vapor recovery rates in carbon adsorption systems used to collect solvents from many web and in-line machines. In addition, the commenter stated that MC users are subject to a comprehensive OSHA standard that requires a medical surveillance and removal program not required for PCE and TCE users.

*Response:* EPA recognizes that there are chemical and physical limitations when considering solvent switching as a method to reduce emissions in compliance with both the proposed and final facility-wide emission limits we are promulgating in this final rule. In the proposed rule, EPA assumed 30

percent of facilities would switch to a less potent solvent; however, significant comments have led us to re-evaluate these assumptions. Consequently, with regard to our solvent switching analysis, for this final rule, EPA has reduced the number of units for which solvent switching is an option from 30 percent to 15 percent. The cost analysis in Section III.B. of the Preamble to this final rule reflects this change.

7. General Comments

*Comment:* A number of commenters stated that the 1999 NEI data did not reflect current emission levels and were not a sufficient basis for assessing technical or economic feasibility. Some believed that the 1999 NEI database was obsolete and provided an incomplete emission database when used as a primary source of data for halogenated solvent emissions. The commenter stated that the industry had changed since 1999 due to local, regional, and State regulatory pressures. The commenter indicated that the most significant change since 1999 was the phase out of TCA manufacture for emissive use, which effectively eliminated its use for solvent cleaning. The commenters pointed out that EPA had access to the 2002 NEI database and encouraged EPA to re-evaluate the risk assessment using the updated database.

*Response:* In response to public comments we received on the August 17, 2006 rule proposal, we reassessed the risks associated with the halogenated solvent source category using the 2002 NEI inventory. The proposal was based on the 1999 inventory. These data were not available at the time the proposal was being developed.

*Comment:* One commenter stated that EPA established a MACT standard for the continuous web subcategory in December 1999 and therefore, Section 112(f) risk analysis for the subcategory is not required until December 2007. The commenter stated that the continuous web subcategory was established five years after the standard for the other halogenated solvent machines. According to the commenter EPA's proposed rule fails to recognize that under this requirement EPA has eight years from December 3, 1999 (or by December 3, 2007) to conduct the residual risk evaluation for the continuous web subcategory.

*Response:* Section 112(f)(2)(A) requires the Administrator to promulgate applicable standards ''within 8 years after promulgation of standards,'' under section 112(d). We read this provision as allowing for our promulgation of standards, under section 112(f), within 8 years of the effective date of section 112(d) requirements, rather than within 8 years of the compliance date of the section 112(d) requirements. (See for example, section 112(f)(3) (''the Administrator shall establish a compliance date or dates * * * which shall provide for compliance as expeditiously as practicable but in no event later than three years *after the effective date of such standard*.'' (Emphasis added)). The effective date of the Halogenated Solvent Cleaning NESHAP is December 2, 1994, and not December 3, 1999, as suggested by the commenter, although we subsequently made certain clarifications and amendments to these requirements. Our obligation to promulgate residual risk standards for this source category is therefore past, and we are now operating under a consent decree that required our promulgation of today's rule on or before December 15, 2006, subsequently extended to April 16, 2007. We also believe that there is nothing in the Act that precludes our completion of the residual risk review prior to 8 years after promulgation of section 112(d) standards.

*Comment:* One commenter stated that EPA had used a very simplistic model to perform the emissions evaluations which may be acceptable for an initial screening, but that the Agency had failed to provide information to either validate its approach or any indication as to whether the presented risk levels exceed the upper bound limit of 100-in-a-million using the correct facility information such as stack parameters. The commenter requested that EPA review the seven facilities with an estimated cancer risk greater than 100-in-a-million to determine whether the use of average stack parameters was appropriate and to revise the proposed rule accordingly. The commenter also requested that EPA add an option allowing facilities to conduct site-specific emission modeling to determine if a facility meets or exceeds the allowable MIR, which would depend on which option EPA finalized. Subsequently, EPA could use this modeling to set a site-specific facility limit that is higher than either proposed options.

*Response:* The choice of the proposed emission limits and the final emission limit is based on the level of risk reduced, cost and technical feasibility to achieve a particular emission limit. While we acknowledge the uncertainty inherent in the NEI data used, its effect on risk is not the only consideration for the proposed emission limits. In spite of the fact that perhaps 50 percent of the release parameters in the 1999 NEI database may be defaults, our understanding of this source category and our best engineering judgment suggested the data were reasonable to use in our risk assessment, (*e.g.*, the range of stack heights was appropriate for these sources). We also acknowledged that while our risk assessment was likely to overestimate risks, this overestimate was not likely to be large because of the many variables and assumptions used in the assessment that would yield lower estimated risk levels, (*e.g.*, the use of a probabilistic method for evaluating population risks). Therefore, a focused evaluation of the release parameters of a few facilities at the upper end of the risk spectrum, while possibly having some effect on their individual risk levels, is not likely to affect our overall conclusions about the level of risk from the entire source category.

Concerning the site specific emission modeling, EPA did not incorporate in the proposed rule an approach that would allow site specific modeling. Instead, EPA assessed risk on a source category basis. EPA also did not incorporate in the proposed rule an approach a low-risk alternative for compliance.

## V. Responses to Significant Comments on EPA's December 14, 2006, Notice of Data Availability (NODA)

### *A. Emission Limits*

*Comment:* Two commenters from the aerospace industry submitted available compliance options for the 40,000 kg/yr MC equivalent emission limit. One option involved switching from HAP chlorinated solvents to n-propyl bromide. Another option involved the facilities switching to an alkaline degreasing system with ultrasonic wash tanks.

One aerospace facility, which had a large operation with multiple halogenated solvent cleaning machines, submitted very detailed descriptions of each machine, the options available and the associated costs of implementation. For their multiple machines, they presented twelve emissions reduction options, five of which reduced their emissions to below the 40,000 kg/yr MC equivalent limit. The compliance options include a combination of machine covers, extension areas, additional drain time for parts, installing larger or additional carbon absorption systems and switching some current machines with vacuum-to-vacuum machines. The commenter indicated that completing these

compliance options would take six years or more.

*Response:* EPA recognizes that a few small aerospace facilities may operate with emissions at or below both the proposed and final promulgated emission limits. In the proposal, EPA assumed solvent switching and other technologies could be applied at a reasonable cost. EPA has discovered, however, that this industry is bound to the use of chlorinated solvents and solvent switching is not a viable option for compliance. As earlier stated, EPA also recognized that the affected facilities cannot undertake all the necessary modifications within the three-year compliance period. EPA also notes that all these considerations are true for the final promulgated 60,000 kg/yr emission limit.

*Comment:* Two commenters that use continuous web cleaning machines maintained that they could not comply with either of the proposed emission limits. Both facilities stated that they had installed carbon absorption devices, which operated at about 99 percent control efficiency, but that most of their emissions could not be captured by these devices because of the nature of continuous web cleaning machines. According to the commenters, fugitive emissions occur in different locations along production lines and along the cleaning process. The commenters provided some possible additions to their cleaning systems that would achieve additional reductions, but they did not provide information on the emission levels they could attain. The commenters stated that there are limited available technologies to capture emissions and that it would be technically difficult for them to capture a significant portion of their emissions. The commenters also maintained that attaining a degree of control rather than meeting an emission limit is a more appropriate measure of their emission reduction capability.

*Response:* EPA recognizes that continuous web machines are designed differently from general halogenated solvent cleaning machines, *i.e.*, batch and in-line cleaning machines. As explained in earlier responses, we have determined that it is both technologically infeasible and not cost effective for continuous web cleaning machines to comply with our final promulgated emissions limit. As also stated in Section III.A.3. of the preamble, in this final rule, we are not setting any emissions limits for facilities that use continuous web cleaners. As also explained earlier, we are concluding that the current level of control for continuous web cleaning machines called for by the existing NESHAP reduces HAP emissions to levels that present an acceptable risk, protects public health with an ample margin of safety, and prevents adverse environmental effects.

*Comment:* We received significant comments from five narrow tubing manufacturers. These commenters presented very significant and compelling reasons as to why they could not meet the proposed emission limits. The commenters indicated that carbon absorption systems were the only available feasible control technology but that installation would result in only a maximum of 25 percent overall emissions reduction. The commenters stated that vacuum-to-vacuum machines have not been engineered or tested to the sizes that are required for their specific industrial processes. They claimed that such large vacuum-to-vacuum machines are not available from machine manufacturers. One commenter stated that after five years of research and design they may be able to achieve the 100,000 kg/yr MC equivalent emission limit.

*Response:* EPA is persuaded that narrow tube manufacturing facilities are the most technically challenged in reducing emissions to the levels called for by either our proposed or final promulgated 60,000 kg/yr emission limit. EPA has also determined that this industry is bound to the use of chlorinated solvents and solvent switching is not a viable option for compliance. Furthermore, EPA is persuaded that vacuum-to-vacuum technology has not developed to a point where this industry can install these machines into their processes with certainty of performance. Therefore, EPA has concluded in this rule that this industry could only achieve both the proposed and final promulgated emissions limits by implementing newly engineered and untested technology. Consequently, as explained earlier in Section III.A.3. of the Preamble, EPA is adopting no changes to the 1994 NESHAP for the halogenated solvent cleaning machines used by the narrow tubing industry, and we are concluding that the current level of control by the existing NESHAP reduces HAP emissions to levels that present an acceptable risk, protects public health with an ample margin of safety, and prevents adverse environmental effects.

*B. Cost Impacts*

*Comment:* One aerospace facility maintained that the application of various technologies would result in 85 percent overall emissions reduction at capital costs of between $1.1 and $1.7 million, for this particular facility, but that it would need considerable more time beyond the proposed two years compliance period to implement the proposed emissions limits.

*Response:* As a result of the comments on compliance costs, EPA re-evaluated the ability of the aerospace industry to feasibly implement in a cost effective manner other emission limits we discussed at proposal but did not propose (ranging from 60,000 kg/yr to 250,000 kg/yr MC equivalent emission limits). We relied on commenters' submissions to assist us in revising our cost estimates for complying with these emissions limits by the aerospace industry and also relied on it in part in applying cost assumptions to the remainder of the other industries that use halogenated solvent cleaning machines.

The results indicated that implementing additional emission control levels, (ranging from 60,000 kg/yr to 250,000 kg/yr MC equivalent emission limits), within a three-year compliance period would result in total capital costs of over $9 million with a cost effectiveness of about $2,000/ton of solvent used. Furthermore, EPA calculated the total annualized costs for each cancer case avoided would be more than $17.5 million for the 100,000 kg/yr MC equivalent emission limit. Therefore, EPA is concluding in this final rule that the NESHAP requirements for aerospace manufacturing and maintenance degreasing machines, provide an ample margin of safety and that the requirements set forth in this final rule are not applicable to halogenated solvent cleaning machines that are associated with the aerospace manufacturing and maintenance industry and facilities. Under this final rule, the 1994 NESHAP requirements remain applicable to all the halogenated solvent cleaning machines associated with the aerospace manufacturing and maintenance facilities.

*Comment:* Commenters that use continuous web cleaning machines projected the capital costs of complying with the proposed emission limits (through ''additions'' to their production lines) at about $1,000,000.

*Response:* EPA recognizes the unique character of continuous web cleaning machines and is persuaded that technical emission control choices are limited to CADs to attain significant emission reductions. EPA has assumed that CADs may only achieve a 10 to 30 percent overall reductions in facility-wide emissions. Therefore, CAD alone would be insufficient for purposes of complying with the final promulgated

emissions limit. We have taken this into consideration in promulgating the final rule.

*Comment:* The narrow tube manufacturing industry calculated their costs of compliance with the proposed emission limits on the basis of installing CAD and researching and designing new and untested vacuum-to-vacuum technology. They indicated that capital costs for CAD installation ranged from $200,000 to $1,800,000. They also indicated that while this option is technically feasible it would only achieve 10 to 30 percent maximum in overall facility emissions reductions. The commenters further indicated that compliance with the proposed limits would require engineering new technology or relying on vacuum-to-vacuum machines, but that after conferring with vacuum-to-vacuum machine manufacturers, the cost estimates were more than $4,600,000 in capital costs with about $578,000 for operating costs. One facility, which produces specialized narrow tubing for medical applications, projected costs for vacuum-to-vacuum machines installation at $10.5 million and estimated that it would require between five and six years for the evaluation of the machines' cleaning performance. The commenters also stated that end-loading machines would require additional building space for loading and unloading tube bundles with lengths of 80 to 110 feet.

*Response:* EPA is persuaded that the narrow tubing industry is confronted with the biggest technological hurdle in achieving emissions reductions for purposes of achieving either the proposed or final promulgated emission limits. EPA is persuaded that emission control choices, for the narrow tubing industry, are limited to CAD, in order to attain the most significant emission reductions within the three-year compliance time frame. EPA is also persuaded that CAD may only achieve a 10 to 30 percent overall reductions in facility-wide emissions. Therefore, we have determined that installation of CAD alone would not control emissions to the level of either the proposed or final promulgated emission limits. We have also taken into consideration the costs for developing technology that will reduce emissions to both the proposed and final promulgated emissions limits. EPA has amended its cost analysis for this group of facilities and has determined that a cost effectiveness of over $3,600/ton, when joined with EPA's estimate of over $87 million in annual costs for each cancer case avoided, is unreasonable. Therefore, EPA is concluding in this final rule that the NESHAP requirements for narrow tube manufacturing provide an ample margin of safety, prevent adverse environmental effects and that the requirements set forth in this final rule will not be applicable to halogenated solvent cleaning machines associated with the narrow tubing manufacturing industry. Under this final rule, the 1994 NESHAP requirements remain applicable to all continuous web and halogenated solvent cleaning machines used by narrow tubing and aerospace manufacturing and maintenance facilities.

### *C. Compliance Schedule*

*Comment:* Aerospace industries maintained that a five-year minimum compliance period would be necessary to investigate technology and protocol changes in order to comply with the proposed 40,000 kg/yr limit. A commenter from the narrow tubing industry suggested between five and ten years as necessary for them to investigate the probability of applying technology to reduce emissions to a significant amount, to either of the proposed emission limits.

The narrow tube manufacturing commenters stated that their machines are unique, indicated the non-availability of feasible emission reductions technology for either proposed emission limits and recommended that EPA allow the industry five to ten years for research and development of specific vacuum-to-vacuum technology for the specific needs of their industry.

*Response:* As stated in responses to earlier comments, EPA has considered these comments as significant and after re-evaluating compliance costs, technical feasibility and other factors, is concluding that, for the aerospace manufacturing and maintenance industry, narrow tube manufacturing industry, and facilities using continuous web cleaning machines, the current level of control provided by the existing NESHAP both reduces HAP emissions to levels that present an acceptable risk and provides an ample margin of safety to protect public health.

## VI. Impacts

For sources required to comply with the 60,000 kg/yr MC equivalent emission limit, the national capital costs to reach compliance with the final rule are estimated to be $15,000,000 with annualized cost savings of $1.3 million. The capital costs for individual facilities would range from $15,000 to $800,000 with an average cost of about $200,000. More than 60 percent of the facilities implementing control technology would recognize a cost savings primarily from solvent savings. Capturing and controlling HAP emissions is a pollution prevention approach where emissions reduction translate into less PCE, TCE and MC consumption and reduced operating costs primarily because facilities would need to purchase less solvents. Using the 2002 NEI database, the maximum individual cancer risk is estimated to be reduced from 100-in-1 million to between 20 and 50-in-a-million (using both OPPTS and CalEPA potency values). The rule is expected to reduce cancer incidence from 0.55 cases annually to 0.36 cases annually, a reduction in cancer incidence of 0.19 cases annually.

EPA also estimates that to comply with the 100,000 kg/yr MC equivalent emission limit, military depot maintenance facilities are expected to incur $540,000 in capital costs with annualized savings of about $56,000. Using the 2002 NEI database, the maximum individual cancer risk is estimated to be reduced from six-in-a-million to three-in-a-million. The emission limit for military depot maintenance facilities is expected to reduce cancer incidence by 0.002 cases annually.

## VII. 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.'' Executive Order (EO) 12866 gives the Office of Management and Budget (OMB) the authority to review regulatory actions that are categorized as ''significant'' under section 3(f) of the EP, *i.e.*, those actions that are likely to result in a rule that may raise novel legal and policy issues arising out of mandates in CAA section 112(f)(2) and 112(d)(6). Accordingly, EPA submitted this action to OMB for review under EO 12866 and any changes made in response to OMB recommendations have been documented in the docket for this action.

In addition, EPA prepared an analysis of the potential costs and benefits associated with this action. This analysis, which is briefly summarized in Section III.B. of the Preamble, is contained in National Cost Impacts Memorandum. A copy of the analysis is available in the docket for this action.

### *B. Paperwork Reduction Act*

This action does not impose any new information collection burden. Owners

or operators will continue to keep records and submit required reports to EPA or the delegated State regulatory authority. Notifications, reports, and records are essential in determining compliance and are required, in general, of all sources subject to the 1994 Halogenated Solvent Cleaning NESHAP. Owners or operators subject to the 1994 Halogenated Solvent Cleaning NESHAP continue to maintain records and retain them for at least 5 years following the date of such measurements, reports, and records. Information collection requirements that were promulgated on December 2, 1994 in the Halogenated Solvent Cleaning NESHAP prior to the 2005 proposed amendments, as well the NESHAP General Provisions (40 CFR part 63, subpart A), which are mandatory for all owners or operators subject to national emission standards, are documented in EPA ICR No. 1652.05. The Office of Management and Budget (OMB) has previously approved these information collection requirements contained in the existing regulations 40 CFR part 63 subpart T under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* and has assigned OMB control number 2060–0273, EPA ICR number 1652.05. A copy of the OMB approved Information Collection Request (ICR) may be obtained from Susan Auby, Collection Strategies Division; U.S. Environmental Protection Agency (2822T); 1200 Pennsylvania Ave., NW., Washington, DC 20460 or by calling (202) 566–1672.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in 40 CFR part 9 and 48 CFR part 15.

We have established a public docket for this action, which includes the ICR, under Docket ID number EPA–HQ–OAR–2003–0009, which can be found in *http://www.regulations.gov.* This final decision will not change the burden estimates from those developed and approved in 1994 for the national emission standard.

*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 impact of the final action on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration's (SBA) 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.

As mentioned earlier in this Preamble, facilities across several industries use halogenated solvents to degrease their products, therefore a number of size standards are utilized in this analysis. For the industries represented in this analysis, the employment size standard varies from 500 to 1,500 employees. The annual sales standard is as low as 4 million dollars and as high as 150 million dollars.

After considering the economic impacts of this final rule on small entities, we have concluded that this action will not have a significant economic impact on a substantial number of small entities. This conclusion is based on the economic impact of the final rule to affected small entities in the entire halogenated solvent cleaning source category. The final rule is expected to affect 125 ultimate parent entities that will be regulated as major sources. Forty of the parent entities, or approximately one-third, are defined as small according to the SBA small business size standards. None of the small firms has an annualized cost of more than 0.7 percent of sales associated with meeting the requirements for major sources, and 16 of the forty affected small firms are estimated to incur no costs or have cost savings associated with compliance with the final rule. For more information, please consult the economic impact analysis for this rulemaking.

*D. Unfunded Mandates Reform Act*

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires us to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted.

Before we establish any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

We have determined that this final rule does not contain a Federal mandate that may result in expenditures of $100 million or more for State, local, and tribal governments, in the aggregate, or to the private sector in any 1 year. Thus, this final rule is not subject to the requirements of sections 202 and 205 of the UMRA.

EPA has determined that the final rule contains no regulatory requirements that might significantly or uniquely affect small governments because it contains

no requirements that apply to such governments or impose obligations upon them.

*E. Executive Order 13132: Federalism*

Executive Order 13132, entitled ''Federalism,'' (64 FR 43255, August 10, 1999) requires EPA to develop an accountable process to ensure ''meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' ''Policies that have federalism implications'' is defined in the Executive Order to include regulations that 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.''

This final 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 affected halogenated solvent cleaning facilities are owned or operated by State or local governments. Thus, Executive Order 13132 does not apply to the final rule.

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

Executive Order 13175, entitled ''Consultation and Coordination with Indian Tribe Governments'' (65 FR 67249, November 9, 2000), requires us to develop an accountable process to ensure ''meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.'' ''Policies that have tribal implications'' is defined in the Executive Order to include regulations that have ''substantial direct effects on one or more Indian tribes, on the relationship between the Federal Government and the Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes.''

This final rule does not have tribal implications. It will not have substantial direct effects 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 final decision.

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

Executive Order 13045 (62 FR 19885, April 23, 1997) applies to any rule that: (1) Is determined to be ''economically significant'' as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

This final decision is not subject to the Executive Order because it is not economically significant as defined in Executive Order 12866, the Agency believes this action represents reasonable further efforts to mitigate risks to the general public, including effects on children. This conclusion is based on our assessment of the imposed emission limits that would reduce chlorinated solvent impacts on human health associated with exposures to halogenated solvent cleaning operations.

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

The final rule is not a ''significant energy action'' as defined in Executive Order 13211 (66 FR 28355, May 22, 2001) because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

This final rule will have a negligible impact on energy consumption because about ten percent of entities using halogenated solvent cleaning will have to reduce emissions through a range of activities involving simple process changes to the installation of additional emission control equipment or special low emitting machines to comply. The cost of energy distribution should not be affected by the final rule at all since the standards do not affect energy distribution facilities. We also expect that there would be no impact on the import of foreign energy supplies, and no other adverse outcomes are expected to occur with regards to energy supplies. Further, we have concluded that this final rule is not likely to have any significant adverse energy effects.

*I. National Technology Transfer Advancement Act*

Section 12(d) of the National Technology Transfer and Advancement Act (NTTAA) of 1995 (Pub. L. 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 final revision to the 1994 NESHAP for halogenated solvent cleaning do not include requirements for technical standards beyond what the NESHAP requires. Therefore, the requirements of the NTTAA do not apply to this action.

*J. Congressional Review Act*

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. The EPA will submit a report containing the final rule amendment and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of this final rule amendment in the **Federal Register**. The final rule amendment is not a ''major rule'' as defined by 5 U.S.C. 804(2). This final rule is effective on May 3, 2007.

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

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

Dated: April 16, 2007.

**Stephen L. Johnson,**

*Administrator.*

■ For reasons stated in the Preamble, title 40, chapter I, part 63 of the Code of Federal Regulations is amended 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 T—[Amended]

■ 2. Section 63.460 is amended by revising paragraphs (c), (d), and (g) and adding paragraph (i) to read as follows:

**§ 63.460 Applicability and designation of source.**

* * * * *

(c) Except as provided in paragraph (g) of this section, each solvent cleaning machine subject to this subpart that commenced construction or reconstruction after November 29, 1993 shall achieve compliance with the provisions of this subpart, except for § 63.471, immediately upon start-up or by December 2, 1994, whichever is later.

(d) Except as provided in paragraph (g) of this section, each solvent cleaning machine subject to this subpart that commenced construction or reconstruction on or before November 29, 1993 shall achieve compliance with the provisions of this subpart, except for § 63.471, no later than December 2, 1997.

* * * * *

(g) Each continuous web cleaning machine subject to this subpart shall achieve compliance with the provisions of this subpart, except for § 63.471, no later than December 2, 1999.

* * * * *

(i) The compliance date for the requirements in § 63.471 depends on the date that construction or reconstruction of the affected facility commences. For purposes of this paragraph, affected facility means all solvent cleaning machines, except solvent cleaning machines used in the manufacture and maintenance of aerospace products, solvent cleaning machines used in the manufacture of narrow tubing, and continuous web cleaning machines, located at a major source that are subject to the facility-wide limits in Table 1 of § 63.471(b)(2), and for area sources, affected facility means all solvent cleaning machines, except cold batch cleaning machines, located at an area source that are subject to the facility-wide limits in Table 1 of § 63.471(b)(2).

(1) Each affected facility that was constructed or reconstructed on or before August 17, 2006, shall be in compliance with the provisions of this subpart no later than May 3, 2010.

(2) Each affected facility that was constructed or reconstructed on or after August 17, 2006, shall be in compliance with the provisions of this subpart on May 3, 2007 or immediately upon startup, whichever is later.

■ 3. Section § 63.471 is added to Subpart T to read as follows:

**§ 63.471 Facility-wide standards.**

(a) Each owner or operator of an affected facility shall comply with the requirements specified in this section. For purposes of this section, affected facility means all solvent cleaning machines, except solvent cleaning machines used in the manufacture and maintenance of aerospace products, solvent cleaning machines used in the manufacture of narrow tubing, and continuous web cleaning machines, located at a major source that are subject to the facility-wide limits in paragraph (b)(2) of this section, and for area sources, affected facility means all solvent cleaning machines, except cold batch cleaning machines, located at an area source that are subject to the facility-wide limits in paragraph (b)(2) of this section.

(b)(1) Each owner or operator of an affected facility must maintain a log of solvent additions and deletions for each solvent cleaning machine.

(2) Each owner or operator of an affected facility must ensure that the total emissions of perchloroethylene (PCE), trichloroethylene (TCE) and methylene chloride (MC) used at the affected facility are equal to or less than the applicable facility-wide 12-month rolling total emission limit presented in Table 1 of this section as determined using the procedures in paragraph (c) of this section.

TABLE 1.—FACILITY-WIDE EMISSION LIMITS FOR FACILITIES WITH SOLVENT CLEANING MACHINES

| Solvents emitted | Facility-wide annual emission limits in kg—for general population degreasing machines | Facility-wide annual emission limit in kg for military depot maintenance facilities |
|---|---|---|
| PCE only [a] | 4,800 | 8,000 |
| TCE only | 14,100 | 23,500 |
| MC only | 60,000 | 100,000 |
| Multiple solvents—Calculate the MC-weighted emissions using equation 1 | 60,000 | 100,000 |

[a] PCE emission limit calculated using CalEPA URE.

**Note:** In the equation, the facility emissions of PCE and TCE are weighted according to their carcinogenic potency relative to that of MC. The value of A is 12.5. The value for B is 4.25.

$$WE = (PCE \times A) + (TCE \times B) + (MC) \quad \text{(Eq. 9)}$$

Where:

WE = Weighted 12-month rolling total emissions in kg (lbs).

PCE = 12-month rolling total PCE emissions from all solvent cleaning machines at the facility in kg (lbs).

TCE = 12-month rolling total TCE emission from all solvent cleaning machines at the facility in kg (lbs).

MC = 12-month rolling total MC emissions from all solvent cleaning machines at the facility in kg (lbs).

(c) Each owner or operator of an affected facility shall on the first operating day of every month, demonstrate compliance with the applicable facility-wide emission limit on a 12-month rolling total basis using the procedures in paragraphs (c)(1) through (5) of this section. For purposes of this paragraph, ''each solvent cleaning machine'' means each solvent cleaning machine that is part of an affected facility regulated by this section.

(1) Each owner or operator of an affected facility shall, on the first operating day of every month, ensure that each solvent cleaning machine system contains only clean liquid solvent. This includes, but is not limited to, fresh unused solvent, recycled solvent, and used solvent that has been cleaned of soiled materials. A fill line must be indicated during the first month the measurements are made. The solvent level within the machine must be returned to the same fill-line each month, immediately prior to calculating monthly emissions as specified in paragraphs (c)(2) and (3) of this section. The solvent cleaning machine does not have to be emptied and filled with fresh unused solvent prior to the calculations.

(2) Each owner or operator of an affected facility shall, on the first operating day of the month, using the records of all solvent additions and deletions for the previous month, determine solvent emissions ($E_{unit}$) from each solvent cleaning machine using equation 10:

$$E_{unit} = SA_i - LSR_i - SSR_i \quad \text{(Eq. 10)}$$

Where:

$E_{unit}$ = the total halogenated HAP solvent emissions from the solvent cleaning

machine during the most recent month i, (kilograms of solvent per month).

$SA_i$ = the total amount of halogenated HAP liquid solvent added to the solvent cleaning machine during the most recent month i, (kilograms of solvent per month).

$LSR_i$ = the total amount of halogenated HAP liquid solvent removed from the solvent cleaning machine during the most recent month i, (kilograms of solvent per month).

$SSR_i$ = the total amount of halogenated HAP solvent removed from the solvent cleaning machine in solid waste, obtained as described in paragraph (c)(3) of this section, during the most recent month i, (kilograms of solvent per month).

(3) Each owner or operator of an affected facility shall, on the first operating day of the month, determine $SSR_i$ using the method specified in paragraph (c)(3)(i) or (c)(3)(ii) of this section.

(i) From tests conducted using EPA reference method 25d.

(ii) By engineering calculations included in the compliance report.

(4) Each owner or operator of an affected facility shall on the first operating day of the month, after 12 months of emissions data are available, determine the 12-month rolling total emissions, $ET_{unit}$, for the 12-month period ending with the most recent month using equation 11:

$$ET_{unit} = \left[ \sum_{j=1}^{12} E_{unit} \right] \qquad \text{(Eq. 11)}$$

Where:

$ET_{unit}$ = the total halogenated HAP solvent emissions over the preceding 12 months, (kilograms of solvent emissions per 12-month period).

$E_{unit}$ = halogenated HAP solvent emissions for each month (j) for the most recent 12 months (kilograms of solvent per month).

(5) Each owner or operator of an affected facility shall on the first operating day of the month, after 12 months of emissions data are available, determine the 12-month rolling total emissions, $ET_{facility}$, for the 12-month period ending with the most recent month using equation 12:

$$ET_{facility} = \left[ \sum_{j=1}^{i} ET_{unit} \right] \qquad \text{(Eq. 12)}$$

Where:

$ET_{facility}$ = the total halogenated HAP solvent emissions over the preceding 12 months for all cleaning machines at the facility, (kilograms of solvent emissions per 12-month period).

$ET_{unit}$ = the total halogenated HAP solvent emissions over the preceding 12 months for each unit j, where i equals the total number of units at the facility (kilograms of solvent emissions per 12-month period).

(d) If the applicable facility-wide emission limit presented in Table 1 of paragraph (b)(2) is not met, an exceedance has occurred. All exceedances shall be reported as required in § 63.468(h).

(e) Each owner or operator of an affected facility shall maintain records specified in paragraphs (e)(1) through (3) of this section either in electronic or written form for a period of 5 years. For purposes of this paragraph, ''each solvent cleaning machine'' means each solvent cleaning machine that is part of an affected facility regulated by this section.

(1) The dates and amounts of solvent that are added to each solvent cleaning machine.

(2) The solvent composition of wastes removed from each solvent cleaning machines as determined using the procedure described in paragraph (c)(3) of this section.

(3) Calculation sheets showing how monthly emissions and the 12-month rolling total emissions from each solvent cleaning machine were determined, and the results of all calculations.

(f) Each owner or operator of an affected facility shall submit an initial notification report to the Administrator no later than May 3, 2010. This report shall include the information specified in paragraphs (f)(1) through (5) of this section.

(1) The name and address of the owner or operator of the affected facility.

(2) The address (*i.e.*, physical location) of the solvent cleaning machine(s) that is part of an affected facility regulated by this section.

(3) A brief description of each solvent cleaning machine at the affected facility including machine type (batch vapor, batch cold, vapor in-line or cold in-line), solvent/air interface area, and existing controls.

(4) The date of installation for each solvent cleaning machine.

(5) An estimate of annual halogenated HAP solvent consumption for each solvent cleaning machine.

(g) Each owner or operator of an affected facility shall submit to the Administrator an initial statement of compliance on or before May 3, 2010. The statement shall include the information specified in paragraphs (g)(1) through (g)(3) of this section.

(1) The name and address of the owner or operator of the affected facility.

(2) The address (*i.e.*, physical location) of each solvent cleaning machine that is part of an affected facility regulated by this section.

(3) The results of the first 12-month rolling total emissions calculation.

(h) Each owner or operator of an affected facility shall submit a solvent emission report every year. This solvent emission report shall contain the requirements specified in paragraphs (h)(1) through (h)(3) of this section.

(1) The average monthly solvent consumption for the affected facility in kilograms per month.

(2) The 12-month rolling total solvent emission estimates calculated each month using the method as described in paragraph (c) of this section.

(3) This report can be combined with the annual report required in § 63.468(f) and (g) into a single report for each facility.

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