6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA-HQ-OAR-2002-0009, FRL-]

RIN 2060-AK22

National Emission Standards for Hazardous Air Pollutants: Halogenated Solvent Cleaning

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The EPA is proposing revised standards to limit emissions of methylene chloride (MC), perchloroethylene (PCE), and trichloroethylene (TCE) from existing and new halogenated solvent cleaning machines. In 1994, EPA promulgated technology-based emission standards to control emissions of methylene chloride(MC), perchloroethylene (PCE), trichloroethylene (TCE), 1,1,1,-trichloroethane (TCA), carbon tetrachloride (CT), and chloroform from halogenated solvent cleaning machines. 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 proposing more stringent standards in order to protect public health with an ample margin of safety. The proposed standards are expected to 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 is necessary at this time to revise the national emission standards. The term “facility-wide” applies to facilities with emissions associated with halogenated solvent cleaning activities only.

DATES: *Comments.* Comments must be received on or before [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION OF THE PROPOSED ACTION IN THE FEDERAL REGISTER].

Public Hearing. If anyone contacts EPA requesting to speak at a public hearing by [INSERT DATE 10 DAYS AFTER DATE OF PUBLICATION OF THE PROPOSED ACTION IN THE FEDERAL REGISTER], a public hearing will be held approximately 15 days following publication of this notice in the Federal Register.

ADDRESSES: *Comments.* Submit your comments, identified by Docket ID No. EPA-HQ-OAR-2002-0009, by one of the following methods:

- *http://www.regulations.gov*. Follow the on-line

instructions for submitting comments.

- E-mail: *a-and-r-docket@epa.gov.*
- Fax: (202)566-1741.
- Mail: Air and Radiation Docket, EPA, Mailcode: 6102T, 1200 Pennsylvania Ave., NW, Washington, DC 20460. Please include a duplicate copy, if possible. We request that a separate copy of each public comment also be sent to the contact person listed below (see **FOR FURTHER INFORMATION CONTACT**).

Hand Delivery: Air and Radiation Docket, EPA, Room B-102, 1301 Constitution Ave., NW, Washington, DC 20004. Such deliveries are only accepted during the Docket's normal hours of operation and special arrangements should be made for deliveries of boxed information.

Instructions: Direct your comments to Docket ID No. EPA-HQ-OAR-2002-0009. The EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *http://www.regulations.gov*, including any personal information provided, unless the comment includes information claimed to be confidential business information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through

http://www.regulations.gov, or e-mail. The *http://www.regulations.gov* website is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through *http://www.regulations.gov*, your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses.

Docket: All documents in the docket are listed in the *http://www.regulations.gov* index. Although listed in the index, some information is not publicly available, *e.g.*, CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available either

electronically in *http://www.regulations.gov* or in hard copy at the Air and Radiation Docket, EPA/DC, EPA West, Room B-102, 1301 Constitution Ave., NW, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the Air and Radiation Docket is (202) 566-1742.

Public Hearing: If a public hearing is held, it will be held at 10 a.m. at EPA's Environmental Research Center Auditorium, Research Triangle Park, NC, or at an alternate site nearby.

FOR FURTHER INFORMATION CONTACT: Mr. H. Lynn Dail, Natural Resources and Commerce Group (E143-03), Sector Policies and Programs Division, EPA, 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, Sector Based Assessment Group (C539-02), Health and Environmental Impacts Division, EPA, Research Triangle Park, NC 27711; telephone (919)541-0502; fax number (919)541-0840, e-mail address: pagano.dennis@epa.gov.

SUPPLEMENTARY INFORMATION:

Regulated Entities. The categories and entities

potentially regulated by the proposed 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 proposed rule. This proposal directs an owner or operator of halogenated solvent cleaning facilities to determine if whether the applicability criteria in 40 CFR part 63.460 of subpart T (1994 national emission standards for Halogenated Solvent Cleaning) remains or whether these proposed standards

require the facility to operate under the emission caps set forth. If you have any questions regarding the applicability of the proposed standards to a particular entity, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

Submitting CBI. Do not submit this information to EPA through *http://www.regulations.gov* or e-mail. Clearly mark the part or all of the information that you claim to be CBI. For CBI information on a disk or CD-ROM that you mail to EPA, mark the outside of the disk or CD-ROM as CBI and then identify electronically within the disk or CD-ROM the specific information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

Public Hearing. Persons interested in presenting oral testimony or inquiring as to whether a public hearing is to be held should contact Ms. Dorothy Apple, Natural Resources and Commerce Group (E143-03), Sector Policies and Programs Division, EPA, Research Triangle Park, NC 27711, telephone number: (919) 541-4487, e-mail address:

apple.dorothy@epa.gov , at least 2 days in advance of the potential date of the public hearing. Persons interested in attending the public hearing also must call Ms. Apple to verify the time, date, and location of the hearing. A public hearing will provide interested parties the opportunity to present data, views, or arguments concerning the proposed standards.

Worldwide Web (WWW). In addition to being available in the docket, an electronic copy of the proposed rule is also available on the WWW through the Technology Transfer Network (TTN). Following signature, a copy of the proposed rule will be posted on the TTN's 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.

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

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I. National Technology Transfer and Advancement Act.

I. Background

A. What is the statutory authority for regulating hazardous air pollutants (HAP)?

Section 112 of the CAA establishes a two-stage

regulatory process to address emissions of hazardous air pollutants (HAP) from stationary sources. In the first stage, CAA section 112(d) calls for us to promulgate national technology-based emission standards for categories of sources that emit or have the potential to emit any single HAP at a rate of 10 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.

CAA section 112(d)(6) then requires EPA to review these technology-based standards and to revise them “as necessary, taking into account developments in practices, processes and control technologies,” no less frequently than every 8 years.

The second stage in standard-setting 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 for each CAA section 112(d) source category whether the MACT standards protect public health with an ample margin of safety. If the MACT standards for HAP "classified as a known, probable, or possible human carcinogen do not reduce lifetime excess cancer risks to the individual most exposed to emissions from a source in the category or subcategory to less than 1-in-a-million," EPA must promulgate residual risk standards for the source category (or subcategory) as necessary to provide an ample margin of safety. The EPA

must also adopt 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 natural resources * * *.”), but must consider cost, energy, safety, and other relevant factors in doing so.

B. What is halogenated solvent cleaning?

Halogenated solvent cleaning machines use halogenated solvents (methylene chloride, perchloroethylene, trichloroethylene, 1,1,1,-trichloroethane, carbon tetrachloride, and chloroform), 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 Code 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, a year after compliance with the MACT occurred, and should reflect the decreases in HAP emissions and demand that were expected due to implementation of MACT control technologies and work practice standards. Recent evidence on solvent usage suggests that the number of sources in the source category may have declined further in the post-MACT implementation years. An analysis of market data for halogenated solvents showed that the demand for degreasing solvents declined substantially in the 5 years following the implementation of MACT. From 1998 to 2003, the demand for PCE, TCE, MC, and TCA for degreasing decreased by 39 percent, 35 percent, 23 percent, and 15 percent, respectively. The halogenated solvents carbon tetrachloride and chloroform are no longer used in this source category. The Montreal Protocol, a treaty signed on September 16, 1987, phased-out the production and consumption of these chlorofluorocarbons by January 1, 1996. The Protocol also phased out TCA. TCA has not been manufactured for domestic use in the United States since January 1, 2002. Facilities with essential products or activities are allowed to continue their use of TCA, but for facilities with non-essential activities or products, they were allowed use remaining TCA stockpiles

until depleted.

There are two basic types of solvent cleaning machines: batch cleaners and in-line cleaners. Both cleaner types can be designed to use either solvent at room temperature (cold cleaners) or solvent vapor (vapor cleaners). The vast majority of halogenated solvent use is in vapor cleaning, both batch and in-line. The most common type of batch cleaner that uses halogenated solvent is the open-top vapor cleaner (OTVC).

Batch cleaning machines, which are the most common type, are defined as a solvent cleaning machine in which individual parts or sets of parts move through the entire cleaning cycle before new parts are introduced. Batch cleaning machines include cold and vapor machines. In batch cold cleaning machines, the material being cleaned (i.e., the workload) is immersed, flushed, or sprayed with liquid solvent at room temperature. Most batch cold cleaners are small maintenance cleaners (e.g., carburetor cleaners) or parts washers that often use non-HAP solvent mixtures for cleaning. Batch cold cleaning equipment sometimes includes agitation to improve cleaning efficiency.

In batch vapor cleaning machines, parts are lowered into an area of dense vapor solvent for cleaning. The most

common type of batch vapor cleaner is the open-top vapor cleaner. Heating elements at the bottom of the cleaner heat the liquid solvent to above its boiling point. Solvent vapor rises in the machine to the height of chilled condensing coils on the inside walls of the cleaner. The condensing coils cool the vapor causing it to condense and return to the bottom of the cleaner. Cleaning occurs in the vapor zone above the liquid solvent and below the condensing coils, as the hot vapor solvent condenses on the cooler workload surface. The workload or a parts basket is lowered into the heated vapor zone with a mechanical hoist.

Batch vapor cleaning machines vary greatly in size and design to suit applications in many industries. Batch vapor cleaner sizes are defined by the area of the solvent/air interface.

Emissions from batch cold cleaning machines result from evaporation of solvent from the solvent/air interface "carry out" of excess solvent on cleaned parts, and other evaporative losses such as those that occur during filling and draining. Evaporative emissions from the solvent/air interface are continual whether or not the machine is in use. These evaporative losses can be reduced by limiting air movement over the solvent/air interface (e.g., with a machine cover or by reducing external drafts) or by

limiting the area of solvent air interface (e.g., with a floating water layer). Emissions related to solvent carry out occur only when the cleaning machine is in use. Carry out emissions may be substantial, especially if excess solvent is not allowed to drain back into the machine. Carry out includes solvent film remaining on flat workload surfaces and liquid pooled in cavities. Factors affecting the amount of carry out loss include the speed of parts movement, workload shapes and materials, and work practices (e.g., turning over parts to drain cavities).

The closed-loop cleaning system is a type of batch cleaner with a closed system capable of reusing solvent. Parts are placed inside a vacuum chamber. Vapor or liquid solvent is pumped in the chamber to clean the parts. Once cleaned, the parts are dried under vacuum and removed; the solvent is removed and recycled. Because these systems are constructed to maintain a vacuum, they have the potential to reduce emissions up to 97 percent.

Cold and vapor in-line (i.e., conveyorized) cleaning machines, which include continuous web cleaners, employ automated parts loading and are used in applications where there is a constant stream of parts to be cleaned. In-line cleaners usually are used in large-scale industrial operations (e.g., auto manufacturing) and are custom-

designed for specific workload and production characteristics (e.g., workload size, shape, and production rate). In-line cleaners clean parts using the same general techniques used in batch cleaners: cold in-line cleaners spray or immerse parts in solvent, and vapor in-line cleaners clean parts in a zone of dense vapor solvent.

Emissions from cold and vapor in-line cleaning machines result from the same mechanisms (e.g., evaporation, diffusion, carryout) that cause emissions from cold and vapor batch cleaning machines. However, the emission points for in-line cleaners are different from those for batch cleaners because of differences in machine configurations. In-line cleaning machines are semi-enclosed above the solvent/air interface to control solvent losses. In most cases, the only openings are the parts entry and exit ports. These openings are the only emissions points for downtime and idling modes. Carryout emissions add to emissions during the working mode. Idling and working mode emissions from the in-line cleaner are significantly less than emissions from an equally-sized batch vapor cleaner. However, in-line cleaners tend to be much larger than batch vapor cleaners. Some in-line cleaners have exhaust systems that pump air from inside the cleaning machine to an outside vent. Exhaust systems for

in-line cleaners reduce indoor emissions from the cleaning machine but increase solvent consumption.

Continuous cleaners are a subset of in-line cleaners and 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 solvents?

Methylene chloride, perchloroethylene, 1,1,1,-trichloroethylene (TCA), and trichloroethylene are the primary halogenated solvents used for solvent cleaning. Carbon tetrachloride and chloroform are no longer used as degreasing solvents. Therefore, their health effects are not discussed in this section. The four solvents still in use are described below. 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.

Methylene chloride is predominantly used as a solvent. The acute effects of methylene chloride inhalation in humans consist mainly of central nervous system effects including decreased visual, auditory, and motor functions that may occur at or above 1-hour exposures of 690 mg/m^3, but these effects are reversible once exposure ceases. The effects of chronic exposure to methylene chloride suggest that the central nervous system is a potential target in humans and animals. ATSDR estimates that no adverse noncancer effects are likely in human populations chronically exposed at or below 1 mg/m^3. Human studies are inadequate regarding methylene chloride and cancer. However, animal studies have shown significant increases in liver and lung cancer and benign mammary gland tumors following the inhalation of methylene chloride. On this basis, EPA classified methylene chloride as a Group B2, probable human carcinogen, with a cancer unit risk estimate (URE) of 4.7×10^{-7} $(ug/m^3)^{-1}$, when assessed under the previous 1986 Cancer Guidelines. EPA is currently reassessing its potential toxicity and carcinogenicity.

All activities related to this chemical reassessment are expected to be complete in late 2007.

Perchloroethylene (PCE or tetrachloroethylene) is widely used for dry-cleaning fabrics and metal degreasing operations. The main effects of PCE in humans are neurological, liver, and kidney damage following acute (short-term) and chronic (long-term) inhalation exposure. The results of epidemiological studies evaluating the relative risk of cancer associated with PCE exposure have been mixed; some studies reported an increased incidence of a variety of tumors, while other studies did not report any carcinogenic effects. Animal studies have reported an increased incidence of liver cancer in mice, via inhalation and gavage (experimentally placing the chemical in the stomach), and kidney and mononuclear cell leukemia in rats.

Although PCE has not yet been reassessed under the Agency’s recently revised Guidelines for Cancer Risk assessment, it was considered in one review by the EPA's Science Advisory Board to be intermediate between a “probable” and “possible” human carcinogen (Group B/C) when assessed under the previous 1986 Guidelines. Since that time, the U.S. Department of Health and Human Services has concluded that PCE is “reasonably anticipated to be a human carcinogen,” and the International Agency for Research on

Cancer has concluded that PCE is “probably carcinogenic to humans.”

Effects other than cancer associated with long-term inhalation of PCE in worker or animal studies include neurotoxicity, liver and kidney damage, and, at higher levels, developmental effects. To characterize noncancer hazard in lieu of the completed Integrated Risk Information System (IRIS) assessment, which is being revised, we used the Agency for Toxic Substances and Disease Registry’s (ATSDR) Minimum Risk Level (MRL). This value is based on a study of neurological effects in workers in dry cleaning shops, and is derived in a manner similar to EPA’s method for derivation of reference concentrations, including scientific and public review. Based on these effects, EPA estimates that no adverse noncancer effects are likely in human populations chronically exposed at or below 0.27 mg/m^3.

The Agency's IRIS chemical assessment for PCE is currently being revised. The current schedule indicates that a final IRIS determination on PCE is not expected until 2008 at the earliest. Because EPA has not yet issued a final IRIS document for PCE, to estimate cancer risk, we used the California EPA (CalEPA) unit risk estimate (URE) of 5.9×10^{-6} $(ug/m^3)^{-1}$, as well as a URE value developed by

the EPA's Office of Prevention, Pesticides and Toxic Substances (OPPTS) of 7.1 X 10^{-7} $(ug/m^3)^{-1}$. The final IRIS reassessment may result in a URE that is different from these two values. Among the available Acute Reference Levels (ARL), the one-hour California Reference Exposure Level (a REL value of 240 mg/m^3) was considered the most appropriate to use in the assessment because it may be used to characterize acute risk for exposure an exposure duration of one hour.

Most of the trichloroethylene (TCE) used in the United States is released into the atmosphere from industrial degreasing operations. Acute and chronic inhalation exposure to trichloroethylene can affect the human central nervous system, with symptoms such as dizziness, headaches, confusion, euphoria, facial numbness, and weakness. Liver, kidney, immunological, endocrine, and developmental effects have also been reported in humans. Acute effects may occur at or above 1-hour exposures of 700 mg/m^3. CalEPA estimates that no adverse noncancer effects are likely in human populations chronically exposed at or below 0.6 mg/m^3. Animal studies have reported statistically significant increases in kidney, lung, liver, and testicular tumors. EPA classified trichloroethylene in Group B2/C, an intermediate between a probable and possible human

carcinogen, when assessed under the previous 1986 Cancer Guidelines, but this classification has been withdrawn. CalEPA has derived a cancer URE of 2.0 X 10^{-6} $(ug/m^3)^{-1}$ for TCE, which we used for our cancer risk assessment. EPA is currently reassessing the cancer classification of trichloroethylene.

In 1999, TCA was used as a solvent for degreasing up until it was phased out in 2002. CalEPA estimates that no adverse noncancer effects are likely in human populations chronically exposed to TCA at or below 1 mg/m^3. EPA classified TCA in Group D, not classifiable as to human carcinogenicity, when assessed under the previous 1986 Cancer Guidelines. EPA is currently reassessing its potential toxicity (related to chronic and less-than-lifetime exposures). All activities related to chemical reassessment are expected to be complete in 2007. Although production and use of TCA has been phased-out since 1998, a declining quantity of TCA continued to be used until 2002, when all production of TCA ceased, and eventually, facilities used TCA stock-piles until depleted. However, an exemption to the phase-out allows a few specialized facilities with essential activities or products to continue its use of TCA. TCA was profiled in the noncancer chronic risk assessment.

The OPPTS toxicity profile for perchloroethylene (PCE) is published in an EPA publication entitled, Cleaner technologies substitutes assessment: professional fabricare processes. U.S. EPA Office of Pollution Prevention and Toxics, Washington DC. EPA 744-B-98-001; June 1998. Complete toxicity profiles for the four HAPs may be obtained from the following websites: EPA's OPPTS website for perchloroethylene at http://www.epa.gov/dfe/pubs/garment/ctsa/fabricare.pdf; California EPA's website at http://www.oehha.ca.gov/air/hot_spots/index.html; and the Agency for Toxic Substances and Disease Registry's website at http://www.atsdr.cdc.gov/toxpro2.html. Status reports for IRIS chemical reassessments are available at http://cfpub.epa.gov/iristrac/index.cfm.

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

We promulgated national emission standards for halogenated solvent cleaning (59 FR 61805, December 2, 1994) and required existing sources to comply with the national emission standards by December 2, 1996. The halogenated solvent cleaner NESHAP requires batch vapor solvent cleaning machines and in-line solvent cleaning machines to meet emission standards reflecting the

application of the maximum achievable control technology for major and area sources; area source batch cold cleaning machines are required to achieve generally available control technology. The rule regulates the emissions of the following halogenated HAP solvents: MC, PCE, TCE, TCA, CT, and chloroform. In 1999, MC, PCE, TCE and TCA were the primary halogenated solvents used for solvent cleaning. Although production and use of TCA has been phased-out since 1998, a declining quantity of TCA continued to be used until 2002, with either facilities depleting existing stockpiles past 2002 or facilities with essential products or activities continuing use of TCA. CT and chloroform are no longer used as degreasing solvents.

The promulgated standard includes multiple alternatives to allow owners or operators maximum compliance flexibility. These alternatives include:

- Control equipment standards - As many as 10 combinations of emission control equipment, such as freeboard refrigeration devices and working-mode covers may be installed.
- Idling-mode emissions standards - Compliance may be demonstrated by maintaining monthly emission rates during the idling mode below specified standards.

- Overall emission standards – Solvent use and disposal records may be used to calculate average monthly emissions, which must remain below specified numerical limits.

If an owner or operator of a batch vapor or in-line cleaning machine elects to comply with the equipment standard, they must install one of the control combinations listed in the regulation, use an automated parts handling system to process all parts, and follow multiple work practices. As an alternative to selecting one of the equipment control combinations listed in the regulation, an owner or operator may demonstrate that the batch vapor or in-line cleaning machine can meet the idling mode emission limit specified in the standards. In addition to maintaining this idling mode emission limit, the owner or operator of a batch vapor or in-line solvent cleaning machine must use an automated parts handling system to process all parts and comply with the work practice standards. A third alternative for complying with these standards is to comply with the overall solvent emissions limit. An owner or operator complying with the overall solvent emissions limit is required to ensure that the emissions from each solvent cleaning machine are less than or equal to the solvent emission levels specified in the

standard. Under this alternative standard, an owner or operator is not required to use an automated parts handling system or to comply with the work practice standards.

The batch cold cleaning machine standard is an equipment standard. However, those owners or operators choosing the equipment options without the water layer must also comply with work practice requirements. There is no idling standard or overall solvent emissions standard for batch cold cleaning machines. Batch cold cleaning machines located at non major sources are exempt from Title V permit requirements.

The halogenated solvent cleaning NESHAP was estimated to reduce nationwide emissions of hazardous air pollutants (HAP) from halogenated solvent cleaning machines by 77,400 Mg/yr (85,300 tons per year) or 63 percent by 1997 compared to the emissions that would result in the absence of the standards.

II. Summary of the Proposed Requirements for New and Existing Major and Area Sources.

Under the proposed standards, the requirements for all new and existing, major and area sources are the same. In addition to the MACT standard, the proposed revisions would require each facility to comply with a facility-wide solvent emission limit. As defined by this

proposed rule, “facility-wide solvent emissions” are the combined emissions of PCE, TCE, and MC from all of a facility’s solvent cleaning machines that are subject to the 1994 MACT standards (40 CFR Part 63, subpart T). Under CAA section 112(f), EPA has the discretion to impose residual risk standards on area sources regulated under generally available control technologies (GACT). The area sources subject to GACT in the halogenated solvent cleaning source category would not be subject to today’s proposed standards. These sources are cold batch cleaners.

The proposed rule would require the owner or operator of each facility to ensure that their facility-wide solvent emissions from all halogenated solvent cleaning activities are less than or equal to the solvent emission limits specified in the proposed options and summarized in Table 1 of this preamble. This approach gives the owner or operator of the facility the flexibility to choose any means of reducing the facility-wide emissions of PCE, TCE, and MC to comply with facility-wide emission limit. The proposed options are in addition to the existing NESHAP requirements and, therefore, all requirements of the existing NESHAP remain in place.

Table 1 shows two sets of facility-wide emission limits – option 1 and option 2. We are co-proposing both of these options and are soliciting comment on which of these two options is most appropriate. As can be seen in Table 1 of this preamble, each halogenated solvent has an

associated facility-wide emission limit. These limits are for facilities that emit only a single halogenated solvent. If more than one halogenated solvent is used, the owner or operator of the facility must calculate the facility's weighted halogenated solvent cleaning emissions using equation 1 and comply with the limit in the last row of Table 1 of this preamble. Note that, depending on whether the CalEPA URE or the OPPTS URE for PCE is used to derive the PCE limit, that limit may be lower or higher. We request comment on the use of the CalEPA URE, the OPPTS URE, or some other value in deriving the PCE emission limit for the final rule.

Table 1. – Summary of the Propose Facility-wide Annual Emission Limits

Solvents Emitted	**Proposed Facility-wide Annual Emission Limits in kg - Option 1**	**Proposed Facility-wide Annual Emission Limits in kg - Option 2**
PCE only	3,200[a] (26,700)[b]	2,000[a] (16,700)[b]
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 CalEPA URE.
[b] PCE emission limit calculated using OPPTS URE.

Equation 1:
(kgs of PCE emissions x A)+(kgs of TCE emissions x B) + (kgs of MC emissions) = Weighted Emissions in kgs

We developed a method for facilities using multiple HAP solvents to determine their emission limit by calculating their MC-equivalent emissions using the toxicity-weighted equation above. In the 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 either 1.5 or 12.5, depending on whether we use the OPPTS URE or the CalEPA URE for PCE. The value for "B" is 4.25. We believe there may be other approaches to arriving at emissions alternatives for multiple HAP use and we request comment on the use of the MC-equivalency method, or other possible calculation methods that we should consider, when establishing emission limits for facilities using more than one of the listed HAP solvents. We also request comment on whether the OPPTS URE, the CalEPA URE or some other value should be used in the implementation of the emission cap chosen for the final rule.

Compliance with the emission limit is demonstrated by determining the annual PCE, TCE, and MC emissions for all cleaning machines at the facility. There is no additional equipment monitoring or work practice requirements

associated with the facility-wide annual emissions limit. Annual emissions of these HAP 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 versus the level in the final rule.

We believe owners and operators currently have information available to immediately determine if they would be in compliance with today's proposed emissions limits. Current recordkeeping requirements in 40 CFR subpart T section 63.467 require each owner and operator of solvent cleaning machines to maintain, for 5 years, estimates of solvent content and annual solvent consumption for each solvent cleaning machine and any calculations showing how monthly emissions or 3-month rolling average emissions were calculated. Moreover, current reporting requirements in 40 CFR subpart T Section 63.468 include an initial notification report, an initial statement of compliance report, annual compliance reports, and an

exceedance report (required only when an exceedance occurs). In the initial notification report, owners and operators disclose an estimate of the annual halogenated HAP solvent consumption for each solvent cleaning machine. Furthermore, owners and operator submit annual reports that contain estimates of their solvent consumption for each solvent cleaning machine used during the period.

We believe that there are multiple ways in which facilities could comply with the proposed rule. Our analysis also shows that some affected facilities can easily reduce emissions and risks through solvent switching. Solvent switching, in this case, is switching from a high risk solvent to one with lower health risks. Facilities can also reduce emissions by reducing solvent use, and by using careful work practices and traditionally available control options to further reduce emissions. Increased diligence in controlling lids, installing freeboard chillers, increased drying times, installing closed loop systems, and increasing the freeboard ratio would allow the higher emitting higher risk facilities to achieve compliance with this proposed standard. The available information indicates that solvent switching, vapor capture, maintenance, reduced solvent use and

limiting cleaning runs would be the primary components of any small decrease in costs.

In summary, we are proposing two options that cap facility-wide emissions at 40,000 and 25,000 kg/yr calculated as MC-equivalents.

III. Rationale for the Proposed Rule

A. What is our approach for developing residual risk standards?

Section 112(f)(2)(A) of the CAA states that if the MACT standards for a source emitting 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 . . . . to less than 1-in-a-million, the Administrator shall promulgate [residual risk] standards . . . . for such source category."

Halogenated solvent cleaning facilities subject to the proposed amendments emit known, probable, and possible human carcinogens. The docket for today's proposed rule contains documentation of the EPA's determination that the risk to the individual most exposed to emissions from halogenated solvent cleaning is expected to exceed 1-in-a-million. Even if we were to quantitatively consider the uncertainty and variability in the exposure and modeling assumptions used to derive our estimate of the risk to the individual most exposed, such an analysis is unlikely to

change any decisions that would be made based on that level of risk.

Following our initial determination that the individual most exposed to emissions from the source category considered exceeds a 1-in-a-million individual cancer risk, our approach to developing residual risk standards is based on a two-step determination of acceptable risk and ample margin of safety. We followed the Benzene NESHAP approach in making CAA section 112(f) residual risk determinations.[1] Our approach for this source category is the same approach outlined in the National Emission Standards for the Benzene NESHP Final Rule, (54 FR 38044, September 14, 1989.

B. How did we estimate residual risk?

The EPA's "Residual Risk Report to Congress" (EPA–453/R–99–011) provides the general framework for conducting risk assessments to support decisions made under the residual risk program. The approach used to assess the risks associated with our halogenated solvent cleaning facilities is consistent with the technical approach and policies described in the Residual Risk Report to Congress.

[1]This is confirmed by the Legislative History to CAA Section 112(f); see, e.g., "A Legislative History of the Clean Air Act Amendments of 1990," vol. 1, page 877 (Senate Debate on Conference Report) "stating that: ... the managers intend that the Administrator shall interpret this requirement [to establish standards reflecting an ample margin of safety] in a manner no less protective of the most exposed individual than the policy set forth in the "Residual Risk Report to Congress, March 1999. EPA-453/R-99-001, p. ES-11)".

Details of the risk assessment performed in support of this proposal are presented below and provided in the risk document in the rulemaking docket.

1. How did we estimate the emission and stack parameters for these sources?

Three sources of data were used to characterize the source category for the residual risk assessment: EPA's 1999 National Emissions Inventory (NEI) database; a sample of MACT compliance reports obtained from states and EPA regions; and information compiled from Clean Air Act Title V permits. Together, these sources provided data for 2,672 unique cleaning machines at 1,167 unique facilities. The 1,167 facilities represent approximately 61 percent of the 1,900 total facilities estimated to be in the source category.

The majority of the data, approximately 90 percent, were obtained from the 1999 NEI database, (i.e., the NEI provided data on 1,093 facilities). The types of data obtained from the NEI database include machine type (from SCC codes and unit descriptions), HAP emissions data, and stack characteristics. The compliance reports collected for the residual risk assessment provided information for 195 cleaning machines at 96 facilities. The types of data obtained from the compliance report include machine types,

machines sizes, solvent consumption rates, HAP emissions data, compliance options, and control equipment choices. We gathered machine-specific data for continuous web cleaning machines from Title V permits and other sources. These data, which included 74 cleaning machines at seven facilities, were added to the cleaning machine data obtained from compliance reports.

Halogenated solvent cleaning machines are co-located with many and diverse types of industries. An analysis of MACT source category codes in the 1999 NEI data found that approximately 74 percent of the 1,093 halogenated solvent cleaning sources in our database are co-located with at least one other source category. Approximately 80 percent of the halogenated solvent emissions from solvent cleaning machines occurred at facilities where other source categories appeared to be co-located. However, because of the diversity of co-located source categories, this risk assessment evaluated the emissions coming from the degreasing operations only and did not consider emissions of HAPs that were identified for co-located, non-degreasing operations.

The residual risk assessment used HAP emissions data from the assessment database described above, (i.e., the 1,167 facilities). These data were used to estimate the

baseline residual risks for the facilities in the category and to evaluate regulatory options developed to look at further HAP emission reductions. Nearly all of the data reflects actual emissions (details of how EPA estimated emissions are discussed in the Risk Assessment for Halogenated Solvent Cleaning Source Category {Risk Assessment Support Document} located in the docket for this proposed rulemaking). In the few instances where we had the data to estimate the MACT allowable emissions and to compare those estimates with the emissions reported in NEI, the allowable emissions were, on average, a factor of 2 higher.

Compliance with the 1994 MACT is accomplished using one of three compliance options. Only two of the compliance options are based on a numerical limit and would allow estimates of MACT allowable emissions to be calculated if information on machine size were available. For these compliance options, allowable emission rates may exceed actual emissions. For the control equipment compliance option which does not include a numerical emission limit, allowable emissions cannot be estimated but could be considered equivalent to actual emissions. Approximately 58 percent of the facilities in our assessment (i.e., those using the control equipment

compliance option) would fall into this category.

Data obtained from MACT compliance reports required processing to prepare emissions rates for use in the residual risk assessment. The types of data and level of detail in the compliance reports varied depending upon which of the three MACT compliance options were chosen, the specific report type available (e.g., initial notification report, annual compliance reports) available, and the report format. To use as much of the available information as possible, emission rate estimation methods were developed for various combinations of available data (see Appendix A in the Risk Assessment Support Document for details). These methods were used to estimate actual emissions rates for each cleaning machine. If more than one machine existed at a facility, the machine-level emission estimates were added together to yield facility-level totals.

NEI provides emission data for each HAP and emission point at a source and are reported in kilograms per year. For the residual risk assessment, NEI emission rates were used as obtained from NEI. No further processing of the data (e.g., to standardized units) was needed. However, total facility-level emissions were calculated for each HAP

when sources had multiple degreasing emission points (i.e., multiple degreasing machines).

To fully represent the national coverage of these sources, we scaled results from the 1,167 facilities identified in our assessment database to the 1,900 facilities currently estimated to be in the source category. When this was done, the total estimated HAP emissions from the source category were approximately 16,000 tons per year. These emissions consist of 38 percent TCA, 35 percent TCE, 15 percent PCE, and 12 percent MC. The total estimated carcinogenic HAP emissions (MC, TCE and PCE) from the source category are approximately 9,700 tons/year.

MC emissions in 1999 were just over 1,300 tons from about 218 facilities, while in 2002, about 400 tons were emitted from 194 facilities, representing about a 70 percent decrease in emissions. About 11 percent of facilities using MC in 1999 ceased using MC or ceased degreasing operations altogether.

In 1999, TCE emissions were 3,000 tons from about 320 facilities. In 2002, TCE emissions had decreased 24 percent to 2,300 tons; however, the number of facilities using TCE increased 10 percent to 357.

In 1999, PCE emissions were estimated at about 1,300 tons from about 200 facilities, however by 2002, PCE emissions had increased approximately 73 percent to about 2,200 tons. There was a 10 percent drop in the number of facilities using PCE in 2002.

In 1999, about 3,700 tons of TCA were emitted from about 565 facilities. In 2002, TCA emissions were about 2,300 tons from 473 facilities, representing a 38 percent decrease in emissions and a 16 percent decrease in facilities using TCA.

In 1991, TCA dominated use with 62 percent of the halogenated solvent degreasing demand. By 1998, the demand for TCA had decreased by 87 percent. In a critical period between 1991 and 2002, TCA was being phased out while remaining stock-piles at facilities with non-essential activities were being used until depleted. In the 2002 NEI, there were decreases in emissions of TCA, MC and TCE (by about 1,400 tons, 900 tons, and 700 tons, respectively) compared to 1999 NEI). From 1999 to 2002, emissions of PCE increased 73 percent (by about 900 tons). Overall emissions data for the total of all four HAP from 1999 to 2002 indicated a 23 percent reduction in total emissions and an 8 percent decrease in the number of facilities.

Therefore, although it appears that between 1999 and 2002, decreases in use of TCA, MC and TCE were partially offset by increases in PCE use. This was due to switching HAP solvents, switching to other non-HAP cleaning technologies, and elimination of solvent cleaning altogether.

2. How did we estimate the atmospheric dispersion of emitted pollutants?

A nationwide, multi-facility version of EPA's Human Exposure Model, HEM-Screen, was used to assess chronic exposure and risk. HEM-Screen contains an atmospheric dispersion model with meteorological data and year 2000 population data at the census block level from the U.S. Bureau of Census. HEM-Screen includes meteorological data for 348 stations across the U.S. The model selects the meteorological data for the station closest to each facility and uses this to estimate long-term (i.e., annual average or greater) ambient concentrations of pollutant air emissions for nodes on a radial grid surrounding each facility. HEM-Screen then estimates concentrations at individual census block centroid locations within this grid from the modeled concentration results for grid nodes.

For assessment of risk and hazard from chronic exposures, it was assumed that the total annual emissions

derived for each facility were evenly distributed over the course of a year (i.e., a constant emission rate).

Although the HEM-Screen model can accommodate source-specific release parameters, the same values were used for stack height, stack diameter, exit gas velocity, and exit gas temperature for all sources. The release parameters used for the risk assessment were derived from data obtained from the 1999 NEI. All emissions in the analysis were modeled as point source releases emitted from vertical stacks. The 1999 NEI includes release parameters for approximately 611 (out of the 1,093) facilities. The arithmetic mean values for each parameter were used in this analysis as representative values for stack height, stack diameter, exit gas velocity, and exit gas temperature. A maximum modeling radius of 20 km around each facility was used, and flat terrain was assumed for all facilities (e.g., no complex terrain was included in the modeling).

No adjustments were made to the estimated ambient concentrations for reactivity of the HAPs being assessed. The exposures of most interest for this chronic assessment (i.e., exposures that occur at the point of maximum impact and other exposures that result in appreciable cancer risks) occur in the immediate vicinity of the source and within a short time period of release (i.e., minutes).

Therefore, the impact of reactivity of the HAPs is relatively insignificant in the context of this exposure scenario.

3. How were cancer and noncancer risks estimated?

The residual risk analysis addresses halogenated solvent cleaning machines subject to the 1994 MACT standards (40 CFR Part 63, subpart T) and estimates potential risks due to HAP emissions from sources that emit one or more of the regulated HAPs that are still used (i.e., MC, PCE, TCE and TCA). The risk assessment did not include the HAPs carbon tetrachloride and chloroform because their use was phased out in 1996.

The assessment only considered the inhalation pathway as the primary route of exposure for humans because all of the four remaining HAPs are highly volatile compounds. In addition, multimedia fugacity modeling results indicate that the majority (over 99 percent) of each of these four source category HAP partitions preferentially to air rather than water, soil, or sediment (Risk Assessment Support Document). Some persistent and bioaccumulative (PB) substances can also pose human health risks via exposure pathways other than inhalation. EPA has developed a list of PB HAPs based on information developed under the Pollution Prevention Program, the Great Waters program, and

the Toxics Release Inventory and additional analysis conducted by OAQPS. None of the four HAPs found in halogenated solvent cleaning machine vapors are included on this list. Consequently, exposures to these four HAPs via non-inhalation pathways were assumed to be minimal for this source category, and a quantitative risk characterization for multi-pathway exposures to humans was not carried out as a part of the residual risk assessment.

We evaluated the potential for these HAPs to pose risks to the environment by conducting a screening-level ecological risk assessment for the baseline scenario. This assessment was intended to determine if HAPs emitted from these facilities pose a risk to ecological receptors including threatened and endangered species. The scope of the ecological screen was based on the fact that the HAPs emitted are all volatile and were shown to preferentially partition to air rather than soil or water, (i.e., the majority of the HAPs emitted (over 99 percent) will remain in the atmosphere rather than deposit onto soil, plants, or aqueous environments. A more detailed explanation of this screening assessment may be found in the Residual Risk support document.

The analysis estimated the potential for emissions from this source category to result in increased cancer

risk and chronic and acute (i.e., one-hour) non-cancer hazard. Table 2 of this preamble outlines the cancer and chronic non-cancer dose-response values we used on the analysis.

Table 2: Cancer and Chronic Non-cancer Dose-Response Values

HAP	Chronic Reference Concentration or (RfC) Similar Value (mg/m^3)		Cancer Unit Risk (URE) Estimate $(ug/m^3)^{-1}$	
	Value	Source	Value	Source
Methylene Chloride	1.0	ATSDR	4.7E-07	IRIS
Perchloroethylene	0.27	ATSDR	5.9E-06 7.1E-07	CAL and OPPTS
Trichloroethylene	0.6	CAL	2.0E-06	CAL
1,1,1,-Trichloroethane	1.0	CAL	-	-

Notes:
Source: EPA's air toxics website at http://www.epa.gov/ttn/atw/toxsource/summary.html, table 1 (values for assessing long-term inhalation risks) dated February 28, 2005.
Specific source abbreviations: IRIS = EPA's Integrated Risk Information System; ATSDR = Agency for Toxic Substances and Disease Registry: CAL = California Environmental Protection Agency; OPPTS = Office of Prevention, Pesticides and Toxic Substances. The dash (-) for 1,1,1,-trichloroethane indicates that there are no data available at this time to indicate that this HAP is a carcinogen: the current EPA weight-of-evidence for carcinogenicity for this HAP is "D" (not classifiable). This HAP was not considered in the risk analysis for carcinogenic effects.

Estimates of maximum individual cancer risk and chronic noncancer hazard index (HI) were calculated for each census block around each source by multiplying the long-term concentrations at each block by the appropriate cancer URE and summing or by dividing those concentrations by the appropriate reference concentration (RfC) and summing, respectively. The total number of people exposed at various risk and chronic HI levels were compiled to provide a distribution of population risks.

Acute (short-term) exposures to HAPs were estimated using EPA's SCREEN3 model. SCREEN3 is a single source Gaussian plume model which predicts the off-site maximum, short-term (one-hour) ambient concentrations of emitted HAPs at any distance from the source irrespective of population locations. To estimate maximum short-term emission rates, annual emission rates were adjusted using an assumed operating schedule of 8 hours/day, 260 days/year. The receptor location evaluated for the acute exposure analysis assumed that individuals may spend brief amounts of time at any location around a facility even though they may not reside in those locations. The maximum one-hour ambient concentrations were compared to acute non-cancer dose-response values to obtain an estimate of the potential for acute non-cancer hazard.

4. What factors are considered in the risk assessment?

The risk assessment was designed to generate a series of risk metrics that would provide information for a regulatory decision. The metrics include both the maximum individual risk (MIR) and the population distribution of risk, the latter providing perspective on the potential public health impact by addressing each of the following questions:

- How many people living around the halogenated solvent cleaning facilities have potential risks greater than 1-in-a-million and other risk levels?
- What is the estimated cancer incidence in the population due to emissions from these facilities?

Background exposures from other local or long-distance sources were not considered in the determination of incremental residual risk. To estimate the maximum individual risk (MIR), we assumed that people were continuously exposed for a lifetime of 70 years to the model-predicted ambient concentration at a census block around that facility. To better estimate the distribution of exposures and risks across the population, we developed an approach using a Monte Carlo simulation method (see Appendix F of the Risk Assessment Support Document for details) which accounts for variations in residency time.

C. What are the results of the baseline risk assessment?

The baseline residual risk assessment for the halogenated solvent cleaning source category used HAP emissions data from an assessment database that included 1,167 sources. This assessment database represents approximately 61 percent of the 1,900 facilities in the

source category. Estimates of maximum individual cancer risk and chronic non-cancer hazard as well as distributions of cancer risks and noncancer hazards across the exposed populations were calculated for each facility. Results presented in this section have been scaled-up proportionally to reflect results for the 1,900 facilities in the source category. In addition, the risk results for the population risk distributions are estimated to reflect varying exposure durations due to the variability in residency times.

Table 3 of this preamble summarizes the estimated lifetime cancer risk results for the baseline level of emissions. The table shows the number of people in the exposed population and the number of halogenated solvent cleaning facilities that are associated with various levels of lifetime cancer risk. Depending on which cancer potency value is used for PCE, the highest risk to an individual living in the vicinity of any of the halogenated solvent cleaning facilities (the MIR) is between 90-in-a-million and about 200-in-a-million. For the exposed population within 20 kilometers to the facilities, the number of people with risks greater than or equal to 1-in-a-million is as high as 5,900,000 people (using the CalEPA URE for PCE), with between zero and 90 of these exposed to risks

greater or equal to 100-in-a-million. The annual cancer incidence is estimated to be between 0.2 and 0.4 cases per year. The numbers of facilities in the source category which pose various levels of maximum individual lifetime cancer risks are presented in Table 3 of this preamble (using the CalEPA potency for PCE). These results show that source category emissions from 539 facilities (approximately 28 percent of the sources in the source category) were estimated to pose a maximum incremental increase in lifetime cancer risk at or above 1-in-a-million. Of the 539 facilities, 124 were found to pose a maximum cancer risk greater than or equal to 10-in-a-million and seven of these facilities were estimated to pose a maximum cancer risk of 100-in-a-million or more. Six-hundred ninety facilities emit only the non-carcinogen TCA and, therefore, pose no cancer risk. The estimated numbers of facilities above each risk level will decrease using the OPPTS URE for PCE.

Table 3. - Population Risk Distribution and Number of Facilities at Various Levels of Risk – Baseline (Scaled to National Level)[1] - Uses CalEPA Cancer Potency for PCE[6]

Estimated Lifetime Cancer Risk (in-a-million)	National-scale Population[2,3]	Number of Facilities in the Source Category with Maximum Estimated Risk at the Specified Level[4]
≥ 100	86	7
≥ 10 to < 100	42,000	117
≥ 1 to < 10	5,900,000	415
< 1 or no cancer risk (i.e., emit	200,000,000	1,361[5]

non-carcinogen only)		

[1] Represents the estimated numbers of people residing in census blocks with concentrations associated with risks at the designated risk level.
[2] National-scale population estimated for this source category by multiplying the populations at the specified cancer risk level by 1,900/1,167. Population counts have been rounded.
[3] These population numbers are estimated to reflect residency time (exposure duration) variations.
[4] Estimated by multiplying the number of sources at the specified cancer risk level (in Table B-1 of the Risk Assessment Support Document) by 1,900/1,167.
[5] Calculated as 671 (sources at < 1 in-a-million risk) plus 690 (sources that emit the non-carcinogen TCA only).
[6]Use of OPPTS URE for PCE will lower risk impacts.

We also evaluated the potential for adverse health effects other than cancer. Calculated chronic noncancer HIs were below 1 for all 1,167 facilities included in the risk assessment. The highest HI was estimated to be 0.2. Given these results, it is expected that chronic non-cancer HIs would be below one for all 1,900 facilities in the source category.

An ecological screening assessment to assess the inhalation risk to potential terrestrial receptors was conducted to determine if there were any potentially significant ecological effects that warranted a more refined level of analysis. Maximum long-term air concentrations of HAPs at the most exposed census block centroid were used as the exposure concentrations, and estimated exposure concentrations were compared to health protective ecological toxicity screening values. Calculated hazard quotients associated with terrestrial ecological

receptors were well below one for all HAPs at all facilities. Because of the health-protective assumptions used in this assessment, and the fact that these HAPs are not persistent, bioaccumulative, or likely to deposit on soil, plants, or water, it is believed that the ecological screening values developed would also be protective of ecological receptors that are threatened or endangered.

We acknowledge that there are uncertainties, as well as conservatism in various aspects of risk assessment due to the use of some modeling and exposure assumptions. Specific possible uncertainties in the risk assessment include: the size of the source category, use of actual versus allowable emissions, lack of source specific data on peak emissions, and modeling uncertainties (e.g., meteorology, emission point locations, release parameters, urban versus rural dispersion, population size and exposure, co-location issues, and dose response values). A detailed analysis of each of the possible sources of uncertainty in the risk analysis is contained in the Risk Assessment Support Document, available in the docket for this rulemaking.

D. What is our proposed decision on acceptable risk?

In the 1989 Benzene NESHAP (54 FR 38044, September 14, 1989), the first step of the ample margin of safety

framework is the determination of acceptability (i.e., are the estimated risks due to emissions from these facilities "acceptable"). This determination is based on health considerations only. The determination of what represents an "acceptable" risk is based on a judgment of "what risks are acceptable in the world in which we live" (54 FR 38045, September 14, 1989), quoting the Vinyl Chloride decision, recognizing that our world is not risk-free.

In the 1989 Benzene NESHAP (54 FR 38044, September 14, 1989), we determined that a maximum individual risk of approximately 100-in-a-million should ordinarily be the upper end of the range of acceptable risks associated with an individual source of emissions. We defined the maximum individual risk as the estimated risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years. We explained that this measure of risk is an estimate of the upper bound of risk based on health protective assumptions, such as continuous exposure for 24 hours per day for 70 years. We acknowledge that maximum individual risk "does not necessarily reflect the true risk, but displays a conservative risk level which is an upper bound that is unlikely to be exceeded."

Understanding that there are both benefits and limitations to using maximum individual risk as a metric for determining acceptability, the Agency acknowledged in the 1989 Benzene NESHAP (54 FR 38044, September 14, 1989), that "consideration of maximum individual risk . . . must take into account the strengths and weaknesses of this measure of risk." Consequently, the presumptive risk level of 100-in-a-million provides a benchmark for judging the acceptability of maximum individual risk, but does not constitute a rigid line for making that determination. In establishing a presumption for the acceptability of maximum individual risk, rather than a rigid line for acceptability, we explained in the Benzene NESHAP that risk levels should also be weighed with a series of other health measures and factors, discussed below.

We estimate that the maximum individual lifetime cancer risk (discussed below) associated with the 1994 national emission standards for halogenated solvent cleaning is between 90 and 200-in-a-million. In making the decision on the acceptability of the MIR risk level seen in this assessment, the Benzene NESHAP explains that additional factors may be considered along with the MIR. These factors can include the number of people exposed within each individual lifetime risk range, associated

incidence of cancer, the policy assumptions and uncertainties, the weight of the scientific evidence for human health effects and other quantified or unquantified health effects. The principal reasons that lead us to believe that the MIR is acceptable are the following: the maximum risk could be as high as 90 to 200 in-a-million, just above the presumptive acceptable level; at least 95 percent of the exposed population have risks below 1-in-a-million; at most, only about 90 people in the exposed population near only 7 of the 1,900 facilities are estimated to be exposed at risk levels above 100 in-a-million; and the annual incidence of cancer resulting from the limits in the 1994 national emission standards is between 0.2 and 0.40 cases per year. In addition, no significant noncancer health effects or adverse ecological impacts are anticipated at this level of emissions.

Therefore, we have decided that the risks associated with the limits in the 1994 national emission standards are acceptable.

E. What is our proposed decision on ample margin of safety?

In the second step of the ample margin of safety framework we considered setting standards at a level which may be equal to or lower than the acceptable risk level and

which protects public health with an ample margin of safety. In making this determination, we considered the estimate of health risk and other health information along with additional factors relating to the appropriate level of control, including costs and economic impacts of controls, technological feasibility, uncertainties, and other relevant factors.

1. What risk reduction alternatives did EPA evaluate?

Six emission levels were developed to evaluate reductions in residual risk if post-MACT emissions (i.e., baseline emissions) were controlled further. The emission levels are not based on specific emission control technologies or practices. The alternatives are a range of maximum facility-wide emissions levels (emission limits or "caps"). The emission levels would apply to the total emissions from all of a facility's solvent cleaning machines that are subject to the 1994 MACT standards (40 CRF Part 63, subpart T). We believe that solvent-switching and traditional technologies and practices, implemented for further post-MACT control of HAP emissions, could achieve these emissions levels.

Emission levels for the proposed regulatory options were derived based on the risk assessment results for the baseline level. To develop the proposed risk-based

alternatives, all emissions rates in the assessment database were first converted to MC-equivalents based on the relative cancer potency of the HAPs emitted. The cancer potency-weighted MC-equivalent emissions rate was calculated as the estimated emissions for the HAP in kg/yr or lb/yr times the unit risk estimate (URE) for the HAP divided by the URE for MC.

For the purpose of calculating MC-equivalent emissions as well as the risk impacts of the various control scenarios, we have used the upper end of the URE range (CalEPA) for PCE. We also describe how the risk impacts might change if the OPPTS URE is used. For purposes of implementing any control option in the final rule, we take comment on the use of the OPPTS URE, the CalEPA URE, or some other value in implementing the final rule.

The six levels 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).

• 40,000 level -- Sources would reduce MC-equivalent emissions to no more than 40,000 kg/yr (88,000 lbs/yr).

• 25,000 level -- Sources would reduce MC-equivalent emissions to no more than the 25,000 kg/yr (55,000 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 6,000 kg/yr (13,200 lbs/yr).

of the preamble 4 shows that the decrease in MIR ranges from 75 percent with a 100,000 kg/yr emission level (i.e., from 200-in-a-million baseline to 50-in-a-million) to 99 percent with an emission level of 6,000 kg/yr (i.e., from 200-in-a-million baseline to 3-in-a-million). The corresponding annual incidence estimates decrease over the range from 35 percent for the 100,000 kg/yr emission level to 90 percent for the 6,000 kg/yr level. Likewise, there are large shifts in the number of people with risks greater than or equal to one-in-a-million to below one-in-a-million. The reduction in population with risks greater than or equal to one-in-a-million ranges from 66 percent for the 100,000 kg/yr emission level to over 99 percent for the 6,000 kg/yr level.

of the preamble 5 presents the number of facilities at estimated cancer risk levels for the emission levels. Baseline results are provided for comparison. Numbers represent national-scale estimates (i.e., the numbers of facilities were scaled by a factor of approximately 1.6)

and the higher-end of the cancer potency range (CalEPA) for PCE was used.

Table 4 - Cancer Risk Results – Baseline vs. Emission Levels (Scaled to National Level)

Cancer Risk Results	Baseline	Emission Levels (max MC-equivalent emissions in kg/yr)					
	(no control)	100,000	60,000	**Proposed Option 1 40,000**	**Proposed Option 2 25,000**	15,000	6,000
Maximum Individual Risk (in-a-million)	200	50	30	**20**	**10**	8	3
Annual Incidence	0.40	0.26	0.21	**0.17**	**0.13**	0.09	0.04
Estimated Lifetime Cancer Risk (in-a-million)	Estimated National Population [1,2]						
≥ 1 to < 10	5,900,000	2,000,000	1,200,000	**630,000**	**200,000**	200,000	8,200
≥ 10 to < 100	42,000	5,100	1,400	**700**	**67**	0	0
≥ 100	86	0	0	**0**	**0**	0	0
Total Population at ≥ 1	5,942,086	2,005,100	1,201,400	**630,700**	**200,067**	200,000	8,200

Notes:
1. National population estimated for this source category by multiplying the populations at the specified cancer risk level by 1,900/1,167. Population counts for the individual risk bins have been rounded to two significant figures.
2. These population numbers reflect residency time (exposure duration) variations.

Table 5 - Number of Facilities at Various Levels of Risk – Baseline vs. Emission Levels (Scaled to National Level)

Estimated Lifetime Cancer Risk (in-a-million)	Number of Facilities in the Source Category at the Estimated Risk Level [1]						
	Baseline	Emission Levels (max MC-equivalent emissions in kg/yr)					
	(no control)	100,000	60,000	**Proposed Option 1 40,000**	**Proposed Option 2 25,000**	15,000	6,000
≥ 100	7	0	0	**0**	**0**	0	0
≥ 10 to < 100	117	85	57	**29**	**7**	0	0
≥ 1 to < 10	415	453	477	**501**	**492**	461	239
< 1 or no cancer risk (i.e., facilities emit non-carcinogen only)[2]	1,361	1,362	1,366	**1,369**	**1,402**	1,439	1,660

Notes:
1. Estimated by multiplying the number of facilities at the specified cancer risk level by 1,900/1,167.
2. Calculated as facilities at < 1-in-a-million risk plus 690 (facilities that emit the non-carcinogenic TCA only).

We have not at this time estimated population risks for these scenarios using the lower end of the cancer potency range (OPPTS) for PCE. However, if we had, the following would be observed:

- Baseline MIR for the source category will drop to 90, but MIR values for each of the control scenarios will remain roughly the same – this is due to the fact that, with a toxicity-equivalent emission cap, MIR becomes directly proportional to MC-equivalent emissions (see Table 4 of this preamble)
- Baseline cancer incidence will drop by about half, as will that for each of the control scenarios.
- Population numbers above 1-in-a-million will drop, but we cannot say how much.
- The numbers of facilities affected by each control scenario will drop, as some PCE emitters will already fall below the emissions cap at baseline.

For the two proposed options, we will calculate refined population and facility risk estimates using the OPPTS URE values for PCE in the final rule.

2. What are the costs of the proposed alternatives?

The second step in the residual risk decision framework is the determination of standards with corresponding risk levels that are equal to or lower than the acceptable risk level and that protect public health with an ample margin of safety. In the ample margin decision, the Agency considers all of the health risk and other health information considered in the first step. Beyond that information, EPA considers additional factors relating to the appropriate level of control, including costs and economic impacts of controls, technological feasibility, uncertainties, and any other relevant factors. As indicated above in Tables 4 and 5 of this preamble, we developed a range of emission levels and assessed their corresponding risk to determine the public health significance of possible further control. Before selecting our two proposed options, we considered the costs of each of the six alternative emission levels in providing various degrees of emission reduction. of the preamble 6 summarizes the costs, emission reductions, and the incremental costs for the control alternatives. When estimating the cost impacts for the various alternatives, the CalEPA URE for PCE was used to calculate MC-equivalents. Use of the OPPTS value will reduce capital

costs and solvent saving for each of the alternatives.

Table 6. Costs for Emission Level Options

Emission Limit Alternative MC-equivalent kg/yr	Total Capital Costs ($ million)	Total Annualized Capital and Operation and Maintenance Cost ($ million)	Total HAP Emission Reduction (tons/yr)	Total Annual Solvent (Savings) ($ million)	Total Annual Emission Control Costs or (Savings) ($ million)	Incremental Cost per Ton of HAP ($/ton)
1000,000	21.7	2.1	4,031	(7.4)	(5.2)	(1,292)
60,000	31.5	3.0	4,903	(9.1)	(5.9)	(826)
40,000	**50.9**	**$4.9**	**5,911**	**(11.1)**	**(5.9)**	**16**
25,000	**79.8**	**7.6**	**6,778**	**(12.8)**	**(4.9)**	**1,156**
15,000	120.7	11.5	7,674	($14.6)	(2.8)	2,400
6,000	192.9	18.3	8,595	(16.4)	2.4	5,549

To develop our cost estimates we identified a suite of traditional control alternatives that would both reduce emissions beyond the MACT and lower the cancer risk associated with the emissions. Two of the controls are retrofit controls that can be added to existing cleaning machines, three controls are solvent switching scenarios that reduce cancer risk through use of a less toxic solvent, and one control requires the replacement of existing equipment with a new vacuum-to-vacuum cleaning machine.

The development of the cost estimates for the solvent switching scenarios considered changes in the cost of the solvent, changes in solvent consumption rates, changes in energy requirements, costs for equipment modifications, and

changes in productivity. Capital costs were scaled to 2004 dollars and were annualized assuming a 15-year equipment lifetime and a 7 percent interest rate. The solvent switching scenarios, their costs, and impacts are fully discussed in a separate memorandum titled “Evaluation of the Feasibility, Costs, and Impacts of Switching from a Halogenated Solvent with a High Cancer Unit Risk Value to a Halogenated Solvent with a Lower Cancer Unit Risk Value” (National Cost Impacts Memorandum), which is in the docket for this rulemaking.

Costs for the vacuum-to-vacuum cleaning machines are based on vendor estimates obtained in 2005. The vacuum-to-vacuum cleaning machine capital costs were based on the replacement of a solvent cleaning machine with a solvent-air interface area of 2.5 m^2, which is the average size of the solvent cleaning machines for which we have size data. Since vacuum-to-vacuum cleaning machines do not have a solvent-air interface, it was necessary to correlate the solvent-air interface area of the old machine to the cleaning capacity of the new vacuum-to-vacuum cleaning machine. The cost determination methods are contained in the National Cost Impacts Memorandum, located in the docket. Capital costs were annualized based on a 20-year equipment lifetime and a 7 percent interest rate. The 20-

year equipment lifetime was determined based on information from equipment manufacturers. It was determined that a 97 percent reduction in emissions would result from switching from an existing solvent cleaning machine to a vacuum-to-vacuum cleaning machine.

The costs for the retrofit controls were based on vendor estimates obtained in 2005 (Table A-1 and Table A-2 in the National Cost Impacts Memorandum). The capital costs were based on equipment for a solvent cleaning machine with a solvent-air interface area of 2.5 m^2, which is the average size of the solvent cleaning machines in the database for which size data are available. The annualized capital costs were based on a 15-year equipment lifetime and a 7 percent interest rate. A 50 percent emission reduction is expected to result from the addition of a 1.0 Freeboard Ratio (FBR), Working Mode Cover (WC), and Freeboard Refrigeration Device (FRD) control combination. A 30 percent emission reduction is expected to result from the addition of a 1.5 FBR. These percent emission reductions were calculated using emissions reduction estimates and estimation procedures that were developed for the NESHAP.

For each control alternative, the affected facilities (i.e., the facilities that must reduce emissions) were

identified from the degreasing database based on whether the combined emissions of PCE, TCE, and MC exceeded the emission limit alternative being evaluated. If multiple solvents were emitted from a facility the emissions of each pollutant were weighted and totaled using equation 1.

Once the necessary percent reduction was known for each facility, the compliance methods such as solvent switching, control equipment retrofits and machine replacement were applied to each unit in order to bring each facility into compliance with the appropriate limits. We recalculated the required percent reduction after the application of each control. For facilities with multiple units, several different combinations of controls across the units often had to be tried before a level of control that met the limits was achieved. To aid in the assigning of controls to specific units, a control decision matrix was developed to provide initial guidelines on what type of control to assign. This matrix is further outlined in the National Cost Impacts Memorandum, available in the docket. The controls that are available vary depending on the cleaning machine type, the solvent, and the percent control that is required. In cases where more than one control is available, we made a rough starting assumption regarding the distribution of units. For example, for vapor cleaning

units using PCE, there are two control options available when the required reduction is between 78 percent to 99 percent - PCE to MC and a vacuum cleaning machine. In this case, we initially assumed that approximately 25 percent of the units would chose the PCE to MC option and that approximately 75 percent of the units would chose the vacuum cleaning machine option. We assumed that more would choose the vacuum cleaning machine option because it is more universally applicable. The solvent switching option will be limited relative to the other options because TCE and MC will not meet the cleaning requirements for all cleaning applications. The costs and emission reductions for all units at all facilities with emissions above the control option limits were totaled to yield the total national costs and emission reductions.

Table 6 of this preamble show that control costs increase and solvent savings increase as the emission limit is set lower. The lower the limit is established, the greater the number of units that must be controlled to achieve the limit. Emission reductions are greater when a lower limit is established, therefore, the solvent savings are greater. Total annual emission control costs range from a savings of approximately $6 million/year for the 40,000 kg and the 60,000 kg/year MC equivalent control

options to a cost of $2 million/year for the 6,000 kg/year MC-equivalent control alternative. Capital costs for the six control alternatives range from approximately $22 million for the 100,000 kg/year MC-equivalent alternative to $193 million for the 6,000 kg/year MC-equivalent alternative. Annualized capital costs range from $2 million/year for the 100,000 kg/year MC-equivalent control alternative to $18 million/year for the 6,000 kg/year MC-equivalent control alternative.

Incremental costs are negative for the 100,000 kg and the 60,000 kg/year MC-equivalent alternatives at ($1,292)/ton and ($826)/ton, respectively. Incremental costs for the remaining four alternatives are positive and range from $16/ton for the 40,000 kg/year MC-equivalent alternative to $5,549 ton for the 6,000 kg/year MC-equivalent alternative.

3. What regulatory options is EPA proposing?

We are proposing two options that achieve an ample margin of safety. The co-proposed options set facility-wide emission limits that are specific to reducing MC, TCE, and PCE emissions from halogenated solvent cleaning facilities and provide an ample margin of safety. Option 1 limits facility-wide emissions of PCE, TCE and MC to 40,000 kg/yr MC-equivalent. Option 2 limits facility-wide

emissions of PCE, TCE and MC to 25,000 kg/yr MC-equivalent. Our review of the data shows that these limits can be achieved if facilities improve emission control through solvent switching (switching from a high risk solvent to one of lower health risks), reducing solvent use, and investigating traditionally available options to further reduce emissions. Increased diligence in controlling lids, installing freeboard chillers, increasing drying times, installing closed loop systems, and increasing the freeboard ratio would allow the higher emitting higher risk facilities to achieve compliance with the proposed standard. The available information indicates that solvent switching, vapor capture, maintenance, reduced solvent use, and limiting cleaning runs would be the primary components of any credits that would offset costs due to reduced solvent use.

In selecting these two options, we first determined that adding a MC-equivalent based emission limit would provide an opportunity for additional risk reduction. We also determined that these two options were preferred over the 100,000 and 60,000 kg/yr options because they reduce the cancer incidence by over one half, they reduce the population exposed to cancer risks greater than one-in-a-

million by over 5 million people, and both result in net annual cost savings to the industry.

We also examined the impacts to small businesses associated with the alternative emissions limits. Our analysis showed that an emission limit of 15,000 kg/yr or lower could have an impact on a significant number of small businesses. To avoid adverse impacts to small businesses, we concluded that we would not propose an emission limit option of 15,000 kg/yr or lower.

Option 1 capital costs are $51 million and total annualized cost savings of about $6 million. The net annualized cost per unit of emission reduction is a cost savings of $1,000 per ton of HAP solvent emissions avoided. Option 2 capital costs are nearly $80 million and considering solvent savings result in total annualized cost savings of nearly $5 million. As shown in the cost analysis summarized in Table 6 of this preamble, the net annualized cost of per unit of emission reduction is a savings of $724 per ton of HAP solvent emissions avoided.

In the final rule, we expect to select one of these options, with appropriate modifications in response to public comments. The emissions limit would subject the highest emitting facilities to control requirements that may require switching to a HAP solvent that has a lower

URE, switching to a non-HAP solvent cleaning process, retrofit of freeboards, addition of vacuum-to-vacuum machines or use of emission control technology. A description of the two options we are proposing follows. When estimating the impacts for each of these options, the CalEPA URE for PCE was used, except where noted. Use of the OPPTS URE for PCE will change the estimated impacts.

4. Rationale for Option 1.

Under the authority of Section 112(f), we are co-proposing an emission limit of 40,000 kg/yr (88,000 lbs/yr) MC-equivalent to be applicable to facilities whose emission of MC, TCE and PCE exceed this emission cap. Under CalEPA, Option 1 would reduce total HAP emissions by as much as 5,800 tons/year. Thirty-two percent of those HAP emissions, about 1,860 tons/year would be PCE, 54 percent, about 3,130 tons/year would be TCE and the remaining 14 percent, about 810 tons/year would be MC.

Under this proposed option, we estimate that approximately 90 percent of the people living within 20 km of the halogenated solvent cleaning facility, about 5.4 million people of the original 6 million people, would no longer be exposed at risk levels higher than 1-in-a-million, and the MIR would be reduced from the baseline of between 90 and 200-in-a-million (depending on URE for PCE)

to about 20-in-a-million, representing an 80 to 90 percent reduction in the MIR. The cancer incidence would be reduced from the baseline of between 0.20 and 0.40 cases per year (depending on URE for PCE) down between 0.08 to 0.17 cases per year, a reduction of about 60 percent.

We anticipate that as many as 25 percent of the halogenated solvent cleaning facilities will be affected by a 40,000 kg/year MC-equivalent emission limit. These facilities emit approximately 87 percent of the total MC-equivalent source category carcinogenic emissions.

We estimate that nearly 380 halogenated solvent cleaning machines may become subject to this option. Facilities would reduce their emissions by selecting a suitable control option that might include one or more of the following: 1) solvent switching from PCE to MC, PCE to TCE or TCE to MC; 2) installation of vacuum to vacuum cleaning machines; 3) retrofitting a 1.5 freeboard ratio (FBR); or, 4) retrofitting of 1.5 FBR, working mode cover (WC), and freeboard refrigeration device (FRD) control combination. To achieve the emission limit of 40,000 kg/yr MC-equivalent, nearly 31 percent of the affected facilities may need to select vacuum to vacuum cleaning machines to achieve necessary emission reductions. We estimate the annualized capital costs plus the operation and maintenance

(O&M) costs at nearly $4.4 million for these machines, yet with a solvent savings of nearly $8.9 million, the total annualized control costs would ultimately save the industry nearly $4.5 million for this emission control.

Nearly thirty-eight percent of the affected facilities may select either of the two retrofitting options for their cleaning machines. We estimate the annualized capital cost plus the O&M cost at nearly $520 thousand for retrofitting, yet with solvent savings of nearly $1.16 million, the total annualized control costs would ultimately save the industry nearly $640 thousand for this emission control.

The remaining 30 percent may select a solvent switching option, however, it is expected that only 6 percent of facilities may be able to switch from using PCE to using MC, yet, 17 percent of the facilities can switch from TCE to MC. We estimate the annualized capital cost plus O&M costs for solvent switching at nearly $320 thousand for solvent switching, yet with solvent savings of nearly $1.02 million, the total annualized control costs would ultimately save the industry nearly $700 thousand for this emission control.

5. Rationale for Option 2.

Under the authority of Section 112(f), we are co-proposing an emission limit of 25,000 kg/yr (55,000 lbs/yr)

MC-equivalent to be applicable to facilities whose emission of MC, TCE and PCE exceed this emission cap. Under Option 2, total HAP emissions would be reduced by 6,700 tons/year. Thirty percent, 2,010 tons/year of the HAP emissions reduced would be PCE, 56 percent, 3,750 tons/year TCE and the remaining 14 percent 940 tons/year would be MC.

Under this proposed option, we estimate that approximately 97 percent of the people living within 20 km of the halogenated solvent cleaning facility, about 5.8 million of the original 6 million people, would no longer be exposed at risk levels higher than 1-in-a-million, and the MIR would be reduced from the baseline of between 90 and 200-in-a-million (depending on URE for PCE) to about 10-in-a-million, representing a 90 to 95 percent reduction in the MIR. The cancer incidence would be reduced from the baseline of between 0.20 and 0.40 cases per year (depending on URE for PCE) down to between 0.06 and 0.13 cases per year, a reduction of 70 percent.

We anticipate that as many as 30 percent of the halogenated solvent cleaning facilities will be affected by a 25,000 kg/year MC-equivalent emission limit. These facilities emit approximately 92 percent of the total MC-equivalent source category carcinogenic emissions.

We estimate that nearly 500 halogenated solvent cleaning machines may become subject to this option. Facilities would reduce their emissions by selecting a suitable control option that might include one or more of the following: 1) solvent switching from PCE to MC, PCE to TCE or TCE to MC; 2) installation of vacuum to vacuum cleaning machines; 3) retrofitting a 1.5 FBR; or, 4) retrofitting of 1.5 FBR, WC and FRD control combination.

To achieve the emission limit of 25,000 kg/yr MC-equivalent, nearly 39 percent of the affected facilities may need to select vacuum to vacuum cleaning machines to achieve necessary emission reductions. We estimate the annualized capital costs plus O&M costs at nearly $7.1 million for these machines, yet with a solvent savings of nearly $10.6 million, the total annualized control costs would ultimately save the industry nearly $34.5 million for using the vacuum cleaning machines.

Nearly 31 percent of the affected facilities may select either of the two retrofitting options for their cleaning machines. We estimate the annualized capital cost plus O&M costs at nearly $520 thousand for retrofitting, yet with solvent savings of nearly $960 thousand, the total annualized control costs would ultimately save the industry nearly $430 thousand for this emission control.

The remaining 31 percent may select a solvent switching options, however, it is expected that only 6 percent of facilities may be able to switch from using PCE to using MC and 7 percent may switch from using PCE to TCE, yet, 17 percent of the facilities can switch from TCE to MC. We estimate the annualized capital cost plus O&M costs at nearly $320 thousand for solvent switching, yet with solvent savings of nearly $1.3 million, the total annualized control costs would ultimately save the industry nearly $980 thousand for this emission control.

6. Comparison of Option 1 and 2.

The Agency would conclude under this proposal that Option 1 would be the most effective in reducing risk and maximizing the cost savings associated with reducing emissions from these operations. This option would achieve an ample margin of safety by reducing MIR to 20-in-a-million and reducing cancer incidence to between 0.08 and 0.17 cases per year. Proposed Option 2 would reduce MIR to 10-in-a-million and reduce incremental cancer incidence by between 0.02 and 0.04 cancer cases per year (or 1 to 2 cancer cases every 50 years) at an additional cost of roughly one million dollars per year and also requires higher capital investment of almost $29 million dollars over Option 1. Given the uncertainties associated with

these risk estimates and the relatively small incremental changes in the distribution of risk under Option 2, we are proposing under Option 1 that it is not necessary to impose the additional control required by Option 2 to provide an ample margin of safety to protect public health. The agency seeks comment on whether to base the final rule on Option 1 or Option 2.

F. What is EPA proposing pursuant to CAA section 112(d)(6)?

CAA section 112(d)(6) requires EPA to review and revise, as necessary (taking into account developments in practices, processes, and control technologies), emission standards promulgated under CAA section 112 no less often than 8 years. We reviewed available information about the industry and talked with industry representatives to investigate available emission control technologies and the potential for additional emission reductions. Based on our review, we believe that it is not necessary to revise the GACT standards for cold batch area sources in this rulemaking. 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). Vacuum-to-vacuum machines, which

were undemonstrated at the time of the development of the NESHAP, are now offered by several equipment vendors. The use of vacuum-to-vacuum cleaners has increased as the costs for them have declined. However, due to their batch design, relatively high cost, and typically small cleaning capacity, vacuum-to-vacuum cleaning machines are not appropriate for all applications. Therefore, our investigation did not identify any significant developments in practices, processes, or control technologies for halogenated solvent cleaning since promulgation of the original standards in 1994. Under both options, we are proposing that these changes to the current halogenated solvent cleaning NESHAP also satisfy the requirements under our CAA section 112(d)(6) authority.

G. What is the rationale for the Proposed Compliance Schedule.

We are also proposing compliance dates for sources subject to the proposed revised standards pursuant to section 112(i) of the CAA. When Congress amended the CAA in 1990, it established a new, comprehensive set of provisions regarding compliance deadlines for sources subject to emissions standards and work practice requirements that EPA promulgates under CAA section 112. However, as discussed later in this section of this

preamble, Congress also left in place other provisions in CAA section 112(f))4) that in certain respects are redundant or conflict with the new compliance deadline provisions. These provisions also fail to accommodate the new State-administered air operating permit program added in Title V of the amended CAA.

For new sources, CAA section 112(i)(1) requires that after the effective date of "any emission standard, limitation, or regulation under subsection (d), (f) or (h), no person may construct any new major source or reconstruct any existing major source subject to such emission standard, regulation or limitation unless the Administrator (or State with a permit program approved under Title V) determines that such source, if properly constructed, reconstructed and operated, will comply with the standard, regulation or limitation." CAA section 112(a)(4) defines a "new source" as "a stationary source the construction or reconstruction of which is commenced after the Administrator first proposes regulations under this section establishing an emission standard applicable to such sources." Under CAA sections 112(e)(10) and 112(f)(3), any CAA section 112(d)(6) emission standards and any residual risk emission standards shall become effective upon promulgation. This means generally that a new source that

is constructed or reconstructed after this proposed rule is published must comply with the final standard, when promulgated, immediately upon the rule's effective date or upon the source's start-up date, whichever is later.

There are some exceptions to this general rule. First, CAA section 112(i)(7) provides that a source for which construction or reconstruction is commenced after the date an emission standard is proposed pursuant to subsection (d) but before the date a revised emission standard is proposed under subsection (f) shall not be required to comply with the revised standard until 10 years after the date construction or reconstruction commenced. This provision ensures that new sources that are built in compliance with MACT will not be forced to undergo modifications to comply with a residual risk rule unreasonably early.

In addition, CAA sections 112(i)(2)(A) and (B) provide that a new source which commences construction or reconstruction after a standard is proposed, and before the standard is promulgated, shall not be required to comply with the promulgated standard until 3 years after the rule's effective date, if the promulgated standard is more stringent than the proposed standard and the source complies with the proposed standard during the three-year

period immediately after promulgation. This provision essentially treats such new sources as if they are existing sources in giving them a consistent amount of time to convert their operations to comply with the more stringent final rule after having already been designed and built according to the proposed rule.

For existing sources, CAA section 112(i)(3)(A) provides that after the effective date of "any emission standard, limitation or regulation promulgated under this section and applicable to a source, no person may operate such source in violation of such standard, limitation or regulation except, in the case of an existing source, the Administrator shall establish a compliance date or dates which shall provide for compliance as expeditiously as practicable, but in no event later than 3 years after the effective date of such standard." This potential three year compliance period for existing sources under CAA section 112(i)(3) matches the 3-year compliance period provided for new sources subject to CAA section 112(d), (f), or (h) standards that are promulgated to be more stringent than they were proposed, as provided in CAA sections 112(i)(1) and (2).

As for new sources, there are exceptions to the general rule for existing sources under CAA section

112(i)(3), the most relevant being CAA section 112(i)(3)(B) allowance that EPA or a State Title V permitting authority may issue a permit granting a source an additional one year to comply with standards "under subsection (d)" if such additional period is necessary for the installation of controls. As explained below, EPA now believes that this reference to only subsection 112(d), rather than to CAA section 112 in general, was accidental on Congress' part and presents a conflict with the rest of the statutory scheme Congress enacted in 1990 to govern compliance deadlines under the amended CAA section 112.

Even though, in 1990, Congress amended CAA section 112 to include the comprehensive provisions in subsection 112(i) regarding compliance deadlines, the enacted CAA also included provisions in CAA section 112(f), leftover from the previous version of the Act, that apply compliance deadlines for sources subject to residual risk rules. These deadlines differ in some ways from the provisions of CAA section 112(i). First, CAA section 112(f)(4) provides that no air pollutant to which a standard "under this subsection applies may be emitted from any stationary source in violation of such standard . . ." For new sources, this is a redundant provision, since the new provisions added by Congress in CAA sections 112(i)(1),

(2), (3), and (7) – which explicitly reach standards established under CAA section 112(f) – already impose this prohibition with respect to new sources and provide for the allowable exceptions to it. In contrast, for new sources, the prohibition in CAA section 112(f)(4) provides for no exception for a new source built shortly before a residual risk standard is proposed, makes no reference to the new Title V program as an implementation mechanism, and, where promulgated standards are more stringent than their proposed versions, makes no effort to align compliance deadlines for new sources with those that apply for existing sources. From the plain language of CAA section 112(i), it is clear that Congress intended in the 1990 amendments to comprehensively address the compliance deadlines for new sources subject to any standard under either subsections 112(d), (f), or (h), and to do so in a way that accommodates both the new Title V program added in 1990 and the fact that where circumstances justify treating a new source as if it were an existing source, a substantially longer compliance period than would otherwise apply is necessary and appropriate. It is equally clear that the language in CAA section 112(f)(4) fails on all these fronts for new sources.

In addition, for existing sources, CAA section

112(f)(4)(A) provides that a residual risk standard and the prohibition against emitting HAP in violation thereof "shall not apply until 90 days after its effective date." However, CAA section 112(f)(4)(B) states that EPA "may grant a waiver permitting such source a period up to 2 years after the effective date of a standard to comply with the standard if the Administrator finds that such period is necessary for the installation of controls and that steps will be taken during the period of the waiver to assure that the health of persons will be protected from imminent endangerment." These provisions are at odds with the rest of the statutory scheme governing compliance deadlines for CAA section 112 rules in several respects. First, the 90-day compliance deadline for existing sources in CAA section 112(f)(4)(A) directly conflicts with the up-to-3-year deadline in CAA section 112(i)(3)(A) allowed for existing sources subject to "any" rule under CAA section 112. Second, the CAA section 112(f)(4)(A) deadline results in providing a shorter deadline for ordinary existing sources to comply with residual risk standards than would apply under CAA section 112(i)(2) to new sources that are built after a residual risk standard is proposed but a more stringent version is promulgated. Third, while both CAA section 112(i)(1), for new sources subject to any CAA

section 112(d), (f), or (h) standard, and CAA section 112(i)(3), for existing sources subject to any CAA section 112(d) standard, refer to and rely upon the new Title V permit program added in 1990 and explicitly provide for State permitting authorities to make relevant decisions regarding compliance and the need for any compliance extensions, CAA section 112(f)(4)(B) still reflects the pre-1990 statutory scheme in which only the Administrator is referred to as a decision-making entity, notwithstanding the fact that even residual risk standards under CAA section 112(f) are likely to be delegated to States for their implementation, and will be reflected in sources' Title V permits and need to rely upon the Title V permit process for memorializing any compliance extensions for those standards.

While we appreciate the fact that CAA section 112(i)(3)(B) refers specifically only to standards under subsection 112(d), which some might argue means that subsection 112(i)(3), in general, applies only to existing sources subject to CAA section 112(d) standards, we believe that Congress inadvertently limited its scope and created a statutory conflict in need of our resolution. Notwithstanding the language of subparagraph (B), CAA section 112(i)(3)(A) by its terms applies to "any" standard

promulgated under CAA section 112, which includes those under CAA section 112(f), in allowing up to a three year compliance period for existing sources. Moreover, Congress clearly intended that the CAA section 112(i) provisions, applicable to new sources to govern compliance deadlines under CAA section 112(f) rules, notwithstanding the language of CAA section 112(f)(4). This is because CAA sections 112(i)(1) and (2) explicitly reaches the standards under CAA section 112(f). To read CAA section 112(i)(3)(B) literally as reaching only CAA section 112(d) standards, with CAA section 112(f)(4)(B) reaching CAA section 112(f) standards, leaves the question as to whether there can be compliance extensions for CAA section 112(h) standards completely unaddressed by the statute, even though it may in fact be necessary in complying with a CAA section 112(h) work practice standard to install equipment or controls. A narrow reading of the scope of CAA section 112(i)(3) also ignores the fact that in many cases, including that of this proposed rule, the governing statutory authority will be both CAA section 112(f)(2) and CAA section 112(d)(6) – the only reasonable way to avoid a conflict in provisions controlling compliance deadlines for existing sources in these situations is to read the more specific and comprehensive set of provisions, those of CAA section

112(i), as governing both aspects of the regulation.

Nothing in the legislative history suggests that Congress knowingly intended to enact separate schemes for compliance deadlines for residual risk standards and all other standards adopted under CAA section 112. Rather, comparing the competing Senate and House Bills shows that each bill contained its own general and/or specific versions of compliance deadline provisions, and that when the bills were reconciled in conference the two schemes were both accidentally enacted, without fully modifying the various compliance deadline provisions in accord with the modifications otherwise made to the CAA section 112 amendments in conference.

Nevertheless, we are proposing a compliance deadline of 2 years for existing sources of halogenated emissions from halogenated solvent cleaning machines. We believe this proposed compliance deadline is both reasonable and realistic for any affected facility that has to plan their control strategy, purchase and install the control device(s), and bring the control device online.

IV. Solicitation of Public Comments

A. Introduction and General Solicitation

We request comments on all aspects of the proposed amendments. All significant comments received during the

public comment period will be considered in the development and selection of the final rulemaking.

V. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order (EO) 12866 (58 FR 51735, October 4, 1993), this action is a “significant regulatory action.” An economic impact analysis was performed to estimate changes in price and output for affected halogenated solvent cleaning sources using the annual compliance costs estimated for proposed Options 1 and 2. Analysis for options 1 and 2 indicate an annual cost savings due to the reduction in solvent demand. Option 2 would result in higher cost savings of the options presented. For more information, refer to the economic impact analysis report that is in the public docket for this rule.

Pursuant to the terms of EO 12866, this proposed rule has been determined to be a “significant regulatory action” because it raises novel legal and policy issues. Accordingly, EPA has 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.

B. Paperwork Reduction Act

This action does not impose any new information collection burden. We are proposing no additional requirements in this action to direct owners and operators to generate, maintain, or disclose or provide information to or for a Federal agency. However, the Office of Management and Budget (OMB) has previously approved the information collection requirements contained in the existing regulations 40 CFR part 63, Subpart T (1994 national emission standards for Halogenated Solvent Cleaning) 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 63 are listed in 40 CFR part 9.

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 proposed 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.

For Option 1, we estimate that 66 percent of the affected parent companies are small (186 out of 281) according to the SBA size standards. Of these small companies none of these is expected to have annualized compliance costs of more than 1 percent of sales.

For Option 2, we estimate that 66 percent of the affected parent companies are small (186 out of 281) according to the SBA size standards. Of these small companies, 3 of these are expected to have annualized compliance costs of more than 1 percent of sales. Of these 3, one is expected to have annualized compliance costs of more than 3 percent of sales.

After considering the economic impact of this proposed action on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. Neither of these proposed

options impose a significant impact on a substantial number of small entities. This proposed action requests public comments on the residual risk and technology review. We continue to be interested in the potential impact of the proposed action on small entities and welcome comments on issues related to such impact.

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 effect 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, CAA section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopts 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 of why that alternative was not adopted. Before EPA establishes 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.

The proposed rule contains no Federal mandates (under the regulatory provisions of Title II of the UMRA) for State, local, or tribal governments or the private sector. We have determined that the proposed rule does not contain a Federal mandate that may result in expenditures of $100 million or more for State, local, and Tribal governments, in the aggregate, or to the private sector in any one year. The total capital costs for this proposed rule are

approximately $49 million for Option 2 and $31 million for Option 1 and the total annual costs are actually savings of approximately $3.0 and 3.6 million. Thus, the proposed rule is not subject to the requirements of sections 202 and 205 of the UMRA.

The EPA has determined that the proposed action 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 proposed action is not subject to the requirements of sections 202 and 205 of the UMRA. In addition, EPA has determined that the proposed action contains no regulatory requirements that might significantly or uniquely affect small governments.

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” are 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 proposed action does not have federalism implications. It will not have substantial direct effect 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 governments. Thus, Executive Order 13132 does not apply to the proposed action.

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

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

Executive Order 13175, entitled "Consultation and Coordination with Indian Tribal Governments" (65 FR 67249, November 9, 2000), requires EPA to develop an accountable process to ensure "meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications." The proposed action does not

have tribal implications as specified in Executive Order 13175. It will not have substantial direct effect on tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes, as specified in Executive Order 13175. Thus, Executive Order 13175 does not apply to this proposed action.

G. Executive Order 13045: Protection of Children from Environmental Health & 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, EPA must evaluate the environmental health or safety effect of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by EPA.

The proposed action is not subject to the Executive Order because it is not economically significant as defined in Executive Order 12866, and because EPA does not have

reason to believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This conclusion is based on our assessment of the information on the effects on human health and exposures associated with halogenated solvent cleaning facilities.

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

The proposed action is not a "significant energy action" as defined in Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use" (66 FR 28355, May 22, 2001) because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. Further, we have concluded that this rule is not likely to have any adverse energy effects.

I. National Technology Transfer Advancement Act

Under section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law No. 104-113, section 12(d) (15 U.S.C. 272) 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. The VCS are

technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted VCS bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency does not use available and applicable VCS.

The proposed action does not involve technical standards. Therefore, EPA is not considering the use of any voluntary consensus standards. The EPA welcomes comments on this aspect of the proposed rulemaking and, specifically, invites the public to identify potentially applicable VCS and to explain why such standards should be used in the proposed action.

List of Subjects in 40 CFR Part 63

Environmental Protection, Air pollution Control, Hazardous Substances, Reporting and Recordkeeping requirements.

_____
Dated:

_____
Stephen L. Johnson
The Administrator

For the reasons stated in the preamble, Title 40, chapter I of the Code of Federal Regulations is proposed to be 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:

* * * * *

(c) Except as provided in paragraph (g) and (i) 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) and (i) 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) Except as provided in paragraph (i), 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 commences.

(1) Each facility with solvent cleaning machines that were constructed or reconstructed before [Date proposal is published in the Federal Register], shall be in compliance with the provisions of this subpart [2 years after date final rule is published in the Federal Register] or immediately upon startup, whichever is later.

(2) Each facility with solvent cleaning machines that were constructed or reconstructed on or after [Date proposed rule is published in the Federal Register] and before [Date final rule is published in the Federal Register], shall be in compliance with the provisions of this subpart on [Date final rule is published in the Federal Register] or immediately upon startup, whichever is

later.

(3) Each facility with solvent cleaning machines that were constructed or reconstructed on or after [Date final rule is published in the Federal Register], shall be in compliance with the provisions of this subpart immediately upon startup.

* * * * *

§63.471 Facility-Wide Standards.

(a) Each owner or operator of a solvent cleaning machine, except cold batch area source cleaning machines, shall comply with the requirements specified in paragraphs (1) and (2) of this section.

(1) Maintain a log of solvent additions and deletions for each solvent cleaning machine.

(2) Ensure that the total emissions for all solvent cleaning machines at the facility are equal to or less than the facility-wide 12-month rolling total emission limit presented in Table 6 of this preamble as determined using the procedures in §63.471(b).

Table 6 – Facility-Wide Emission Limits for Facilities with Solvent Cleaning Machines

Solvents Emitted	**Proposed Facility-wide Annual Emission Limits in kg - Option 1**	**Proposed Facility-wide Annual Emission Limits in kg - Option 2**
PCE only	3,200[a] (26,700)[b]	2,000[a] (16,700)[b]

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 CalEPA URE.
[b] PCE emission limit calculated using OPPTS 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 either 1.5 or 12.5, depending on whether we use the OPPTS URE or the CalEPA URE for PCE. The value for B is 4.25.

WE = (PCE x A) + (TCE x B) + (MC) (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)

(b) Each owner or operator of solvent cleaning machines shall on the first operating day of every month, demonstrate compliance with the facility-wide emission limit on a 12-month rolling total basis using the procedures in paragraphs (1) through (5) of this

section.(1) Each owner or operator of a solvent cleaning machine shall, on the first operating day of every month, ensure that the 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 soils. 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 (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 a solvent cleaning machine 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:

$$E_{unit} = SA_i - LSR_i - SSR_i \qquad (10)$$

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 (b)(3) of this section, during the most recent month i, (kilograms of solvent per month).

(3) Each owner or operator of a solvent cleaning machine shall, on the first operating day of the month, determine SSR_i using the method specified in paragraph (b)(3)(i) or (b)(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 a solvent cleaning machine 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:

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

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 a solvent cleaning machine 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:

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

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).

(c) If the facility-wide emission limit is not met, an exceedance has occurred. All exceedances shall be reported as required in §63.468(h).

(d) Each owner or operator of a solvent cleaning machine shall maintain records specified in paragraphs (d)(1) through (3) of this section either in electronic or written form for a period of 5 years.

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

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

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

(e) Each owner or operator of a solvent cleaning machine shall submit an initial notification report to the Administrator no later than [DATE]. This report shall include the information specified in paragraphs (e)(1) through (5).

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

(2) The address (i.e., physical location) of the solvent cleaning machine(s).

(3) A brief description of each solvent cleaning machine 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.

(f) Each owner or operator of a solvent cleaning machine shall submit to the Administrator an initial statement of compliance on or before [Date]. The statement shall include the information specified in paragraphs (f)(1) through (f)(3) of this section.

(1) The name and address of the solvent cleaning machine owner or operator.

(2) The address of the solvent cleaning machine(s).

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

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

(1) The average monthly solvent consumption for the solvent cleaning machine in kilograms per month.

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