

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA-HQ-OAR-2010-0600; FRL-9709-9]

RIN 2060-AQ60

National Emission Standards for Hazardous Air Pollutant Emissions: Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks; and Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This action finalizes the residual risk and technology review conducted for the following source categories regulated under two national emission standards for hazardous air pollutants (NESHAP): hard and decorative chromium electroplating and chromium anodizing tanks, and steel pickling—HCl process facilities and hydrochloric acid regeneration plants. On October 21, 2010, EPA proposed amendments to these NESHAP under section 112(d)(6) and (f)(2) of the Clean Air Act. On February 8, 2012, EPA published a supplemental proposal with new analyses and results. For hard and decorative chromium electroplating and chromium anodizing tanks these final amendments addressing Clean Air Act (CAA) sections 112(d)(6) and (f)(2) include revisions to the emissions limits for total chromium; addition of housekeeping requirements to minimize fugitive emissions; and a requirement to phase-out the use of perfluorooctane

sulfonic acid (PFOS) based fume suppressants. These requirements will provide greater protection for public health and the environment by reducing emissions of hexavalent chromium (a known human carcinogen). In addition, as part of the October 2010 proposal, we proposed certain actions pursuant to CAA section 112(d)(2) and (3) for hard and decorative chromium electroplating and chromium anodizing tanks. For these sources, we are modifying and adding testing and monitoring, recordkeeping, and reporting requirements; and revisions to the regulatory provisions related to emissions during periods of malfunction. For steel pickling hydrochloric acid regeneration plants, we are finalizing our proposal to remove the alternative compliance method because we believe it is inconsistent with the requirements of CAA section 112(d)(2) and (3). This amendment will achieve reductions in chlorine emissions. Additionally, we are adding provisions to the Steel Pickling Facilities NESHAP requiring that the emission limits of the rule apply at all times, including during periods of startup, shutdown and malfunction.

DATES: This final action is effective on September 19, 2012.

ADDRESSES: The EPA has established a docket for this action under Docket ID No. EPA-HQ-OAR-2010-0600. All documents in the docket are listed on the <http://www.regulations.gov> Web site. Although listed in the index, some information is not publicly available, e.g., confidential business information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as

copyrighted material, is not placed on the Internet, and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through <http://www.regulations.gov>, or in hard copy at the EPA Docket Center, EPA West Building, Room Number 3334, 1301 Constitution Ave. NW., Washington, DC. The Public Reading Room hours of operation are 8:30 a.m. to 4:30 p.m. Eastern Standard Time (EST), Monday through Friday. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the Air and Radiation Docket and Information Center is (202) 566-1742.

FOR FURTHER INFORMATION CONTACT: For questions about this final rule, contact Mr. Phil Mulrine, Sector Policies and Programs Division (D243-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, telephone (919) 541-5289; fax number: (919) 541-3207; and email address: mulrine.phil@epa.gov. For specific information regarding the risk modeling methodology, contact Mr. Mark Morris, Health and Environmental Impacts Division (C539-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711; telephone number: (919) 541-5416; fax number: (919) 541-0840; and email address: morris.mark@epa.gov.

SUPPLEMENTARY INFORMATION: For information about the applicability of these NESHAP to a particular entity, contact the appropriate person listed in Table 1 to this preamble.

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

NESHAP for:	OECA Contact ^a	OAQPS Contact ^b
Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks; and Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants.	Sara Ayres, (202) 564-5391, ayres.sara@epa.gov .	Phil Mulrine, (919) 541-5289, mulrine.phil@epa.gov .

^aEPA's Office of Enforcement and Compliance Assurance.

^bEPA's Office of Air Quality Planning and Standards.

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I. General Information

A. Executive Summary

1. Purpose of the Regulatory Action

This action presents the results and final decisions based on EPA's review of two national regulations for hazardous air pollutants. Specifically, pursuant to the Clean Air Act (CAA), EPA has completed risk and technology reviews (RTRs) for four source categories covered by two separate regulations.

Section 112(d)(6) of the CAA requires EPA to review these regulations (i.e., national emissions standards) and revise them as necessary (taking into account

developments in practices, processes, and control technologies) no less frequently than every 8 years. Section 112(f)(2) of the CAA requires EPA to assess the remaining risks due to emissions of hazardous air pollutants (HAP) from these source categories and determine whether the emissions standards provide an ample margin of safety to protect public health within 8 years of promulgation of the original standards. The two regulations addressed in this action are the following: National Emissions Standards for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks; and National Emissions Standards for Hazardous Air Pollutants for Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants.

In addition to the reviews described above, the EPA also reviewed these rules to determine if any other corrections or clarifications were needed pursuant to other Sections the Clean Air Act. As described below, based on all these reviews, the EPA has determined it is appropriate and necessary to promulgate some amendments to these rules.

2. Summary of the Major Provisions of the Regulatory Actions

With regard to the National Emissions Standards for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks, based on the reviews under Sections 112(d)(6) and 112(f), the EPA has determined it is appropriate to promulgate emissions limits and surface tension limits that are moderately lower than the limits in the current regulation for new and existing hard chromium

electroplating, decorative chromium electroplating, and chromium anodizing sources. These amendments will reduce chromium emissions (a known human carcinogen) and the risk associated with those emissions. This action also includes housekeeping requirements to minimize fugitive emissions from affected sources. In addition, this action eliminates the use of fume suppressants that contain perfluorooctane sulfonic acid (PFOS), which has been shown to be persistent, bioaccumulative and toxic. Finally, this action amends the requirements for testing, monitoring, reporting, and recordkeeping for consistency with the other requirements of the NESHAP.

With regard to the National Emissions Standards for Hazardous Air Pollutants for Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants, the Agency has determined that no amendments are needed based on the risk and technology reviews under Sections 112(d)(6) and 112(f) of the CAA. However, EPA identified two areas where amendments were needed to ensure the rules were meeting requirements of Sections 112(d)(2) and 112(d)(3). First, this action eliminates an alternative compliance option that was inconsistent with the requirements of CAA section 112(d)(2) and (3). Secondly, we are adding provisions to require the emission limits of the rule to apply at all times, including during periods of startup, shutdown and malfunction.

3. Costs and Emissions Reductions

Table 2 summarizes the costs and emissions reductions for this action. See section V of this preamble for further discussion of the costs and impacts.

TABLE 2—SUMMARY OF THE ESTIMATED COSTS AND EMISSIONS REDUCTIONS FOR THE FINAL CHROMIUM ELECTROPLATING NESHAP AND FINAL STEEL PICKLING NESHAP AMENDMENTS

Source category	Number of affected plants	Capital costs \$	Annualized costs \$/yr	Emissions reductions lbs/yr
Chromium Electroplating NESHAP				
Large hard chromium electroplating	57	\$6,377,000	\$1,686,000	148
Small hard chromium electroplating	91	1,424,000	476,000	33
Decorative chromium electroplating	313	163,000	166,000	35
Chromium anodizing	74	235,000	51,000	8
Total	535	8,200,000	2,380,000	224
Steel Pickling NESHAP				
Hydrochloric acid regeneration facilities	1	100,000–200,000	11,419–22,837	30,000

B. Does this action apply to me?

Regulated Entities. Categories and entities potentially regulated by this action are shown in Table 3 of this preamble.

Table 3 of this preamble is not intended to be exhaustive, but rather

provides a guide for readers regarding entities likely to be affected by the final action for the source category listed. To determine whether your facility would be affected, you should examine the applicability criteria in the appropriate NESHAP.

If you have any questions regarding the applicability of any aspect of these NESHAP, please contact the appropriate person listed in Table 1 of this preamble in the preceding **FOR FURTHER INFORMATION CONTACT** section.

TABLE 3—NESHAP AND INDUSTRIAL SOURCE CATEGORIES AFFECTED BY THIS FINAL ACTION

NESHAP and Source Category		NAICS Code ¹	MACT Code ²
Chromium Electroplating NESHAP, Subpart N	Chromium Anodizing Tanks	332813	1607
	Decorative Chromium Electroplating	332813	1610
	Hard Chromium Electroplating	332813	1615
Steel Pickling—HCl Process Facilities And Hydrochloric Acid Regeneration Plants NESHAP, Subpart CCC		3311, 3312	0310

¹ North American Industry Classification System.

² Maximum Achievable Control Technology.

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

In addition to being available in the docket, an electronic copy of this final action will also be available on the World Wide Web (WWW) through the Technology Transfer Network (TTN). Following signature by the EPA Administrator, a copy of this final action will be posted on the TTN's policy and guidance page for newly proposed or promulgated rules at the following address: <http://www.epa.gov/ttn/atw/rrisk/rtrpg.html>. The TTN provides information and technology exchange in various areas of air pollution control.

Additional information is available on the residual risk and technology review (RTR) Web page at <http://www.epa.gov/ttn/atw/rrisk/rtrpg.html>. This information includes source category descriptions and detailed emissions and other data that were used as inputs to the risk assessments.

D. Judicial Review

Under CAA section 307(b)(1), judicial review of this final action is available only by filing a petition for review in the United States Court of Appeals for the District of Columbia Circuit by November 19, 2012. Under CAA section 307(b)(2), the requirements established by this final rule may not be challenged separately in any civil or criminal proceedings brought by the EPA to enforce the requirements.

Section 307(d)(7)(B) of the CAA further provides that “[o]nly an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment (including any public hearing) may be raised during judicial review.” This section also provides a mechanism for us to convene a proceeding for

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

II. Background Information

A. Overview of the Chromium Electroplating and Chromium Anodizing Source Categories

The 1995 Chromium Electroplating NESHAP regulate emissions of chromium compounds from three source categories: Hard chromium electroplating, decorative chromium electroplating, and chromium anodizing. The NESHAP apply to both major sources and area sources. The NESHAP were promulgated on January 25, 1995, (60 FR 4963) and codified at 40 CFR part 63, subpart N. We amended the NESHAP to address issues related to changes in control technology, monitoring and implementation on July 19, 2004 (69 FR 42885).

1. Hard Chromium Electroplating

The Hard Chromium Electroplating source category consists of facilities that

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

The NESHAP distinguish between large hard chromium electroplating facilities and small hard chromium electroplating facilities. Large hard chromium electroplating facilities are defined as any such facility with a cumulative annual rectifier capacity equal to or greater than 60 million ampere-hours per year (amp-hr/yr). Small hard chromium electroplating facilities are defined as any facility with a cumulative annual rectifier capacity less than 60 million amp-hr/yr. The 1995 NESHAP require all affected tanks located at large hard chromium electroplating facilities to meet an emissions limit of 0.015 milligrams of total chromium per dry standard cubic meter (mg/dscm). Alternatively, large hard chromium facilities also can comply with the NESHAP by maintaining the surface tension in affected tanks equal to or less than 45 dynes per centimeter (dynes/cm), if measured using a stalagmometer, or 35 dynes/cm, if measured using a tensiometer. Compliance with the applicable surface tension limit ensures compliance with the emission limit.

The Chromium Electroplating NESHAP require affected tanks at existing small hard chromium electroplating facilities to meet an emissions limit of 0.030 mg/dscm and affected tanks at new small hard chromium electroplating facilities to meet a limit of 0.015 mg/dscm.

Alternatively, these sources have the option of complying with surface tension limits equal to or less than 45 dynes per centimeter (dynes/cm), if measured using a stalagmometer, or 35 dynes/cm, if measured using a tensiometer. Under the current NESHAP, any small hard chromium electroplating tank for which construction or reconstruction was commenced on or before December 16, 1993 (i.e., the proposal date for the original NESHAP), is subject to the existing source standards, and any small hard chromium electroplating tank constructed or reconstructed after December 16, 1993, is subject to new source standards.

We estimate that there currently are approximately 188 large hard chromium electroplating facilities and 394 small hard chromium electroplating facilities in operation in the U.S. outside of California. Of the 394 small hard chromium electroplating facilities, we estimate that 131 of these facilities have one or more tanks that are subject to the new source standards, and the affected sources at the other 263 facilities are subject to the existing source standards. Additionally, there are about 70 hard chromium electroplating facilities operating in California.

2. Decorative Chromium Electroplating

The Decorative Chromium Electroplating source category consists of facilities that plate base materials such as brass, steel, aluminum, or plastic with layers of copper and nickel, followed by a relatively thin layer of chromium to provide a bright, tarnish- and wear-resistant surface. Decorative chromium electroplating is used for items such as automotive trim, metal furniture, bicycles, hand tools, and plumbing fixtures. We estimate that there currently are approximately 517 decorative chromium electroplating plants in operation in the U.S. The 1995 NESHAP require all existing and new decorative chromium electroplating sources to meet a total chromium emissions limit of 0.01 mg/dscm or meet the surface tension limits of 45 dynes/cm, if measured using a stalagmometer, or 35 dynes/cm, if measured using a tensiometer.

3. Chromium Anodizing

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

conditions. We estimate that there currently are about 170 chromium anodizing plants in operation in the U.S. The NESHAP require all existing and new chromium anodizing sources to meet a total chromium emissions limit of 0.01 mg/dscm, or meet the surface tension limits of 45 dynes/cm, if measured using a stalagmometer, or 35 dynes/cm, if measured using a tensiometer.

B. Summary of the Proposed Amendments to the Chromium Electroplating and Chromium Anodizing Source Categories

1. The October 2010 Proposal

In 2010, pursuant to section 112(f)(2) of the CAA, we evaluated the residual risk associated with the NESHAP. At that time, we also conducted a technology review, as required by section 112(d)(6). Based on the results of our initial residual risk and technology reviews, we proposed on October 21, 2010 (75 FR 65071), that the risks due to HAP emissions from these source categories were acceptable. The basis for this decision is explained in the October 21, 2010 **Federal Register** Notice. Furthermore, we proposed that no additional controls were necessary to provide an ample margin of safety (AMOS) to protect public health or to prevent an adverse environmental effect because we concluded that the costs of the options analyzed were not reasonable considering the emissions and risk reductions potentially achieved with the controls. Thus, we did not propose to revise the NESHAP under 112(f)(2). However, as explained in that proposal publication, we remained concerned about the potential cancer risks due to emissions from these source categories and asked for additional information and comments on this issue. See 75 FR 65071.

As a result of our technology review in 2010, we proposed the following amendments to the NESHAP for all three source categories:

- Incorporate housekeeping practices into 40 CFR 63.342(f); and,
- Phase out the use of wetting agent fume suppressants (WAFS) that use perfluorooctane sulfonic acid (PFOS);

We proposed the housekeeping practices because they will help reduce and minimize fugitive emissions of chromium compounds from chromium electroplating and anodizing facilities and we had determined at the time of the proposal that they could be implemented at relatively low costs. We proposed to revise the rule to no longer allow the addition of PFOS-based WAFS to tanks as a method to meet the

MACT requirements for these source categories. The basis for this proposal is described in the October 2010 **Federal Register** Notice (75 FR 65068). We explained that alternatives to PFOS-based WAFS had been successfully used in the hard and decorative chrome source categories and stated that while alternatives had not been used extensively in chromium anodizing, we were unaware of any technical reason that precluded such use. We specifically solicited comment on this issue.

We also proposed some additional changes in the 2010 proposal under Section 112(d)(2) and (d)(3), including:

- Revise the startup, shutdown, and malfunction (SSM) provisions in the rule;
- Revise the monitoring and testing requirements; and
- Make technical corrections to the NESHAP.

The proposed changes to the SSM provisions will ensure that the standards apply at all times, even during periods of malfunction. Regarding the monitoring and testing requirements, we proposed to revise the compliance provisions for multiple sources controlled by a common add-on air pollution control device, clarify that testing can be performed by either Method 306 or Method 306A, revise Method 306B to clarify that the method also applies to hard chromium electroplating tanks and include procedures for checking the accuracy of, and cleaning of, a stalagmometer (See 75 FR 65095 for a more detailed discussion of the proposed monitoring revisions).

We also proposed to add a provision to provide an affirmative defense against civil penalties for violations of emission standards caused by malfunctions, as well as criteria for establishing the affirmative defense, which is the same affirmative defense provision we have proposed or promulgated in several other recent MACT rules.

In our 2010 proposal, we provided further explanation of the basis for proposing these amendments to the NESHAP pursuant to CAA section 112(d)(6). See 75 FR 65093. We proposed that existing sources could not use PFOS-based WAFS 3 years after publication of the final rule in the **Federal Register** and that new sources cannot use PFOS-based WAFS as a method to meet the NESHAP requirements.

2. The February 8, 2012 Supplemental Proposal

In response to the 2010 proposal, several commenters expressed concern that the data set used in the risk assessment was not sufficient and not

representative of the current chromium electroplating industry. Additional data were submitted during the comment period and we also worked with industry and states to gather additional data. Based on the new data, we performed a new risk and technology review for all three source categories.

Our February 2012 supplemental proposal (77 FR 6628) presented the results of the new risk assessment. Based on that assessment, we proposed that risks due to HAP emissions from each of the three chromium electroplating and anodizing source categories were acceptable since the actual and allowable emissions of HAP pose cancer risks below 100-in-1 million, and because a number of the other risk metrics did not indicate high risk concerns. For hard chromium electroplating, we estimated that the maximum individual cancer risk (MIR) was 20-in-1 million based on actual emissions and that about 130,000 people were exposed to risks greater than 1-in-1 million, for decorative chromium electroplating we estimated that the MIR was 10-in-1 million based on actual emissions and that about 43,000 people were exposed to risks greater than 1-in-1 million, and for the chromic acid anodizing source category we estimated that the MIR was 5-in-1 million based on actual emissions and that about 5,000 people were exposed to risks greater than 1-in-1 million. Moreover, the potential risks due to allowable emissions were estimated to be up to 50-in-1 million for hard chromium electroplating, 70-in-1 million for decorative chromium electroplating, and 60-in-1 million for chromic acid anodizing. After proposing that the risks posed by each source category were acceptable, we evaluated potential control options under Section 112(f) for each source category to determine whether additional controls were necessary to provide an ample margin of safety or to prevent an adverse environmental effect. We identified cost-effective controls that would lower emissions and reduce risks. Therefore, in the February 8, 2012, supplemental proposal, we proposed pursuant to CAA section 112(f)(2) to tighten the emissions limits for affected sources. For existing large hard chromium electroplating tanks, we proposed tightening the emissions limit from 0.015 mg/dscm to 0.011 mg/dscm. For existing small hard chromium electroplating sources, we proposed tightening the emissions limit from 0.030 mg/dscm to 0.015 mg/dscm. For existing decorative chromium electroplating and chromium anodizing sources, we proposed tightening the

emissions limit from 0.010 mg/dscm to 0.007 mg/dscm. For all new sources, we proposed tightening the emissions limit to 0.006 mg/dscm. We explained that these emission limits were cost effective.

In our supplemental proposal, we also proposed to require under CAA section 112(d)(6) the same limits that we proposed would provide an ample margin of safety because the limits reflect developments in practices, processes or control technologies and are cost-effective. See 77 FR 6638–45.

We also proposed under both CAA section 112(f)(2) and section 112(d)(6) that sources could instead demonstrate compliance by maintaining surface tension limits of 40 dynes/cm, if measured using a stalagmometer, and 33 dynes/cm, if measured using a tensiometer. These limits are tighter than those currently in the NESHAP, which are 45 dynes/cm, if measured using a stalagmometer, and 35 dynes/cm, if measured using a tensiometer. The proposed surface tension limits would ensure that the alternative compliance option is at least as stringent as the concentration based emissions limits described above. 77 FR at 6644–45. For more information regarding the relationship between surface tension and emissions see the *Development of Revised Surface Tension Limits for Chromium Electroplating and Anodizing Tanks Controlled with Wetting Agent Fume Suppressants* document, which is available in the docket.

We estimated that these proposed emissions limits and surface tension limits would reduce the cancer risks, cancer incidence, and the number of people exposed to risks greater than 1-in-1 million due to emissions of hexavalent chromium from this industry by 25 to 50 percent. 77 FR at 6648–49.

We proposed that existing sources would need to meet the limits no later than 2 years after the effective date of the final rule. Section 112(f)(4) generally provides that a standard promulgated pursuant to CAA section 112(f)(2) applies 90 days after the effective date, but further provides for a compliance period of up to 2 years where the Administrator finds that such time is necessary for the installation of controls and that steps will be taken during that period to assure protection to health from imminent endangerment. In the supplemental proposal, we explained that a 2-year compliance period was necessary for facilities to determine if they meet the proposed emissions limits, schedule a compliance test, perform an engineering analysis to determine the control options, and

install and test new emissions control equipment. We further proposed that new sources must comply with the emission limits or surface tension limits upon start-up. See 77 FR 6649.

As stated in the proposed preamble, the EPA is taking a step to increase the ease and efficiency of data submittal and data accessibility. Specifically, the EPA is requiring owners and operators of Chrome Electroplating/Steel Pickling facilities to submit electronic copies of required performance test reports.

As mentioned in the proposed preamble, data will be collected through an electronic emissions test report structure called the Electronic Reporting Tool (ERT). The ERT will generate an electronic report which will be submitted to the EPA's Central Data Exchange (CDX) through the Compliance and Emissions Data Reporting Interface (CEDRI). A description of the ERT can be found at: <http://www.epa.gov/ttn/chief/ert/index.html> and CEDRI can be accessed through the CDX Web site: (www.epa.gov/cdx).

The requirement to submit performance test data electronically to the EPA does not create any additional performance testing and will apply only to those performance tests conducted using test methods that are supported by the ERT. A listing of the pollutants and test methods supported by the ERT is available at the previously mentioned ERT Web site. The EPA believes, through this approach, industry will save time in the performance test submittal process. Additionally this rulemaking benefits industry by cutting back on recordkeeping costs as the performance test reports that are submitted to the EPA using CEDRI are no longer required to be kept on site.

As mentioned in the proposed preamble, State, local and tribal agencies will benefit from more streamlined and accurate review of electronic data that will be available on the EPA WebFIRE database. Additionally performance test data will become available to the public through WebFIRE. Having such data publicly available enhances transparency and accountability. The major advantages of electronic reporting are more fully explained in the proposed preamble.

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

77 FR 6649–50. We proposed that the revised reporting requirements would apply upon promulgation of the final rule.

C. Overview of the Steel Pickling Source Category

Steel pickling is a treatment process in which the heavy oxide crust or mill scale that develops on the steel surface during hot forming or heat treating is removed chemically in a bath of aqueous acid solution. There are two specific processes regulated under the Steel Pickling NESHAP. Pickling is a process applied to metallic substances that removes surface impurities, stains, or crusts to prepare the metal for subsequent plating (e.g., with chromium) or other treatment, such as galvanization or painting. A pickling line is defined in the rule as using an acid solution in any tank in which hydrochloric acid is at a concentration of 6 percent by weight or greater and has a temperature of 100 °F or greater. An acid regeneration plant is defined in the rule as the equipment and processes that regenerate fresh hydrochloric acid (HCl) pickling solution from spent pickle liquor using a thermal treatment process. The HAP emission points from the steel pickling process include steel pickling baths, steel pickling sprays, and tank vents. The HAP emission point from acid regeneration plants is the spray roaster.

We estimate that there are approximately 100 facilities subject to the Steel Pickling NESHAP. Many of these facilities are located adjacent to integrated iron and steel manufacturing plants or electric arc furnace steelmaking facilities (minimills) that produce steel from scrap. Acid Regeneration facilities may or may not be located at steel pickling operations.

D. Summary of the Proposed Amendments to the Steel Pickling Source Category

In 2010, pursuant to section 112(f)(2) of the CAA, we evaluated the residual risk associated with the NESHAP. We also conducted a technology review, as required by section 112(d)(6) of the CAA. Based on our risk analysis, we determined that there were no cancer risks attributable to emissions from the steel pickling source category. We also estimated the maximum chronic non-cancer TOSHI value to be 2 based on emissions of chlorine and the maximum off-facility-site acute Hazard Quotient (HQ) value could be up to 0.4, based on actual emission levels and the reference exposure level (REL) value for chlorine. 75 FR at 65122–24. We proposed on October 21, 2010 that the risks were

acceptable based on our determination that facilities in this source category emit no HAPs that are carcinogens and because the acute risks were low. While the chronic non-cancer TOSHI level for one facility exceeded the reference level, we noted that this facility has had compliance issues with the standard and that the actual emissions we relied on for this facility included emissions in excess of what is allowed under the MACT standard. We estimate that if emissions were maintained at levels equal to or lower than the level allowed by the MACT limit (6 ppm) then the TOSHI would be no higher than 1. The next highest HI from any facility in the source category is 0.1.

We identified one development in practices, processes or control technologies for this source category, but determined that it was not technically feasible for the industry. 75 FR at 65124. Thus, we proposed that no amendments were necessary under both the second part of the section 112(f) review, determining whether the standard provides an ample margin of safety and prevents an adverse environmental effect, and for the 112(d)(6) review. 75 FR at 65124. However, under section 112(d)(2) and 112(d)(3), we proposed to eliminate the startup, shutdown and malfunction (SSM) exemption in the Steel Pickling NESHAP in light of the court's decision in *Sierra Club v. EPA* (Sierra Club v. EPA, 551 F.3d 1019 (D.C. Cir. 2008) 130 S. Ct. 1735 (2010)). We proposed several revisions to the regulations regarding SSM, including:

- Revising Table 1 to indicate that the requirements in 40 CFR 63.6(e) of the General Provisions, regarding the “duty to minimize” emissions do not apply and instead proposed to incorporate it in 40 CFR 63.1159(c).
- Removing the SSM Plan requirement requiring affected sources to calculate their emissions during startup and shutdown and to maintain records of the startup and shutdown emission calculations.
- Revising the SSM-associated monitoring, recordkeeping and reporting requirements to require reporting and recordkeeping for periods of malfunction.
- Adding provisions to provide an affirmative defense against civil penalties for violations of emission standards caused by malfunctions, as well as criteria for establishing the affirmative defense.

In the February 2012 supplemental proposal (77 FR 6628) we proposed two additional actions for the Steel Pickling source category. First, we proposed to remove a compliance alternative

established in the original MACT rule. The alternative compliance option allowed existing HCl regeneration facilities to request approval for an alternative source-specific chlorine concentration standard from their permitting authority. We stated that we believe that this alternative compliance option was not appropriate under CAA sections 112(d)(2) and (3) and that the option had been adopted inappropriately. Second, we proposed to require electronic reporting for the Steel Pickling and HCl Acid Regeneration source category similar to that described above for the chromium electroplating and chromium anodizing source categories and for the same reasons.

III. Summary of the Final Rule

A. What are the final rule amendments for the Chromium Electroplating and Chromium Anodizing source categories?

1. Risk and Technology Review

For all three chromium electroplating and chromium anodizing source categories, we are finalizing the emission and surface tension limits as proposed in the supplemental proposal under Sections 112(d)(6) and 112(f)(2) of the Clean Air Act. However, as noted in the following paragraphs, we performed additional analyses based on issues raised and information submitted during the comment period, which add further support for this final action.

Additional information on emissions and controls from chromium electroplating and chromic acid anodizing sources was submitted to EPA during the comment period, and we also obtained additional data and information from some States and industry shortly after the close of the comment period. The information supported the data and analyses we had performed to develop the emissions limits for the supplemental proposal. For example, we obtained data from two additional chromic acid anodizing plants that showed they had emissions well below the limits we are promulgating and that indicates the anodizing plants can easily meet the limits with readily available common control technologies. We also obtained additional data from hard chromium electroplating plants that shows even more plants than we estimated in the proposal are already meeting the lower emissions limits.

We also performed new analyses of the costs of the proposed requirements and the emissions reductions that would be achieved based on the information that became available after we issued the supplemental proposal.

The revised costs and emissions reductions are similar to those presented at proposal (77 FR 6628). For example, the overall total estimated annualized cost in the supplemental proposal was \$3,000,000 and cost-effectiveness was estimated to be \$14,900 per pound of hexavalent chromium emissions reductions and we estimated the proposed changes would reduce emissions by 208 pounds per year. We now estimate the overall total annualized cost of the final rule is \$2,400,000, that the cost-effectiveness is approximately \$11,000 per pound of hexavalent chromium emissions reductions, and that the final rule will achieve 224 pounds per year of hexavalent chromium reductions. Our full analysis can be found in *Revised Procedures for Determining Control Costs and Cost Effectiveness for Chromium Electroplating and Anodizing*, which is available in the docket.

With regard to our review under Section 112(f), we continue to conclude that risks are acceptable for all 3 source categories since the cancer MIRs for each of the source categories are below 100-in-1 million, and because a number of the other risk metrics do not indicate high risk concerns. However, as explained below, we are promulgating standards under Section 112(f) to provide an ample margin of safety.

Regarding the standards proposed under Section 112(f)(2), several commenters claimed that, as part of the ample margin of safety analysis included in the proposed rule, we did not evaluate the health impacts (e.g., reduced risk of cancer) of the various options we considered. The comments are summarized in Section IV of this

notice and in the Responses to Comments (RTC) document, which is available in the docket.

As set forth in the Benzene NESHAP, in the ample margin of safety decision process, the agency again considers all of the health risks and other health information considered in the first step (acceptability determination). Beyond that information, additional factors relating to the appropriate level of control are considered, including costs and economic impacts of controls, technological feasibility, uncertainties and any other relevant factors.

In the supplemental proposal addressing our risk review for the chromium electroplating and anodizing source categories, under the ample margin of safety analysis, we evaluated and presented various emission control options, and the costs and economic impacts associated with those options. While we summarized the risk reductions that would be achieved with the proposed limits, we did not provide information regarding the risk reductions that could be achieved by control options that we did not propose to adopt. In response to the comments we received, we also evaluated the risk reductions that would be achieved by each technically feasible option for each of the chromium electroplating and anodizing source categories and subcategories (i.e., large hard chromium electroplating, small hard chromium electroplating, decorative electroplating and chromic acid anodizing). The results are summarized below.

Baseline Risks for Hard Chromium Electroplating. For the Hard Chromium Electroplating source category (including large and small hard chromium electroplating sources), the

MIR due to actual emissions is estimated to be 20-in-1 million, and the cancer incidence is estimated to be 0.05 cases per year. The MIR due to allowable emissions is estimated to be 50-in-1 million, and the cancer incidence based on allowable emissions is estimated to be 0.2 cases per year. Based on actual emissions, approximately 1,100 people are estimated to have cancer risks at or above 10-in-1 million, and approximately 130,000 people are estimated to have cancer risks at or above 1-in-1 million. We estimate that about two-thirds of the population risks are due to large hard chromium sources and the remainder of the population risks are due to small hard chromium sources. We also estimate that the potential is low for chronic and acute non-cancer health effects, and for multipathway risks. As discussed in the preamble to the supplemental proposed rule, we conclude that the risks from this source category are acceptable.

Large Hard Chromium Electroplating Emission Limits

For the large hard chromium sources, we evaluated three control options in the supplemental proposal. The first option, which is the option we proposed and are finalizing today, would be to lower the chromium emissions limit for existing sources from 0.015 mg/dscm to 0.011 mg/dscm. The second option was to lower the limit to 0.0075 mg/dscm, and the third option was to lower the limit to 0.006 mg/dscm. The results of our cost and risk analyses for large hard chromium sources are summarized in Table 4.

TABLE 4—SUMMARY OF COSTS AND RISK REDUCTIONS FOR THE VARIOUS OPTIONS CONSIDERED FOR LARGE HARD CHROMIUM ELECTROPLATING

Option	Emission reductions in lbs/yr	Total emissions in lbs/yr	MIR ¹ (in-a-million)		Incidence (cases/yr)	Number of people with risk > 1-in-1 million	Number of people w/ risk > 10-in-1 million	Annualized costs	Cost-effectiveness (per lb)
			Actual	Allowable					
Baseline: current situation	0	454	20	50	0.03	88,000	740	0	NA
Option 1—Final: limit of 0.011 mg/dscm	148	306	² 20	40	0.02	59,000	500	\$1.7 M	\$11,000
Option 2: limit of 0.0075 mg/dscm	169	285	10	30	² 0.02	55,000	470	\$4.1 M	\$24,700
Option 3: limit of 0.006 mg/dscm	180	274	8	20	² 0.02	53,000	450	\$5.3 M	\$29,900

¹ MIR estimates are derived from estimates of actual and allowable emissions. Population risk estimates are derived from estimates of actual emissions.

² There are further risk reductions associated with this option compared to the previous option, but they are not large enough to change the risk values as presented to one significant figure.

We also estimated impacts of Option 1 to small businesses, and found that most facilities would have a costs-to-sales ratio of less than 1 percent. However, we estimated that 6 plants could have costs-to-sales ratios up to 9 percent. (See Economic Impact Analysis for Risk and Technology Review:

Chromium Electroplating and Chromic Acid Anodizing Source Categories, which can be found in the docket for this action.) For the other two options (Options 2 and 3), we did not quantify the impacts to small businesses, however, they would both pose impacts to a larger number of small businesses

since they would impose costs on more facilities and almost all facilities within this category are small businesses. As shown in Table 4, Option 1 also achieves meaningful reductions in risks associated with exposure to a known human carcinogen, including an estimated 30 percent reduction in the

MIR, cancer incidence, and the numbers of people with risks at or above 1-in-1 million and 10-in-1 million. For the other two options (Options 2 and 3), the estimated annualized costs and cost-effectiveness values were more than double those of Option 1 and a significantly greater number of small businesses would be impacted, with only small additional risk reductions achieved beyond Option 1. Although Options 2 and 3 reduce the baseline MIR by 50 percent or more, the baseline MIR is already considerably below 100-in-1 million, and the options reduce incidence and population risks only slightly. Considering the cost, economic, and risk impacts discussed above, we conclude that Option 1 provides an ample margin of safety.

Furthermore, in the 2010 proposal (75 FR 65068), we considered the option of requiring controls similar to standards adopted in California, which would essentially require facilities to install high efficiency particulate air (HEPA) filters on all hard chromium plants. As described in the 2010 proposal, the overall costs for that option were significantly higher than the other options described above, and would have resulted in much greater economic impacts to small businesses. Furthermore, based on more recent

analyses, we estimate that the cost effectiveness of requiring HEPA filters on all large hard chromium plants would be at least \$27,000 per pound. (see *Revised Procedures for Determining Control Costs and Cost Effectiveness for Chromium Electroplating and Anodizing*, which is available in the docket). With regard to health factors, requirements similar to the California standards would likely reduce risks to below 1-in-1 million for all hard chromium plants. However, given the high overall costs and economic impacts, we have determined that it is not appropriate to require those controls in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect. Therefore, based on all our analyses and after weighing all the factors, we are promulgating the chromium emissions limit of 0.011 mg/dscm, as proposed in February 2012 (77 FR 6628) for existing large hard chromium electroplating sources because we believe that limit will provide an ample margin of safety to protect public health and prevent an adverse environmental effect.

With regard to new sources, we proposed a limit of 0.006 mg/dscm. The rationale for choosing 0.006 mg/dscm is described in detail in the supplemental

proposal. After considering public comments and additional analyses, we are finalizing this limit of 0.006 mg/dscm for new large hard chromium plants because this is the lowest level that can be reliably achieved cost-effectively, such as allowing plants the flexibility to use add-on controls or WAFS to comply. This limit will ensure that the risks posed by any new sources will be acceptable and the standard will provide an ample margin of safety to protect public health and prevent an adverse environmental effect.

Small Hard Chromium Electroplating Emission Limits

For small hard chromium electroplating sources, we also evaluated the costs and risk reductions that would be achieved for three main control options. The first option, which is the option we proposed and are finalizing today, would be to lower the chromium emissions limit for pre-1995 sources from 0.03 mg/dscm to 0.015 mg/dscm. The second option was to lower the limit to 0.01 mg/dscm, and the third option was to lower the limit to 0.006 mg/dscm. The basis for evaluating these options is explained further in the supplemental proposal. (77 FR 6628) The results are summarized in Table 5.

TABLE 5—SUMMARY OF COSTS AND RISK REDUCTIONS FOR THE VARIOUS OPTIONS CONSIDERED FOR SMALL HARD CHROMIUM ELECTROPLATING

Option	Emission reductions in lbs/yr	Total emissions in lbs/yr	MIR ¹ (in-a-million)		Incidence (cases/yr)	Number of people with risk > 1-in-1 million	Number of people with risk > 10-in-1 million	Annualized costs	Cost-effectiveness (per lb)
			Actual	Allowable					
Baseline: current situation	0	223	20	50	0.02	43,300	360	0	NA
Option 1—Final (0.015 mg/dscm)	33	190	10	30	0.01	36,800	306	\$0.5 M	\$15,000
Option 2: 0.01 mg/dscm	71	152	7	20	² 0.01	29,000	245	\$1.5 M	\$21,000
Option 3: 0.006 mg/dscm	116	107	4	10	0.008	22,500	190	\$2.2 M	\$19,300

¹ MIR estimates are derived from estimates of actual and allowable emissions. Population risk estimates are derived from estimates of actual emissions.
² The incidence estimate under Option 2 is less than the incidence estimate under option 1, but the estimates are reported as the same when rounded to one significant figure.

We also estimated the impacts of Option 1 to small businesses, and found that most facilities would have a costs-to-sales ratio of less than 1 percent. However, we estimated that 3 plants could have costs-to-sales ratios of about three percent. For the other two options (Options 2 and 3), we did not quantify the impacts to small businesses; however, we know Options 2 and 3 would pose impacts to a larger number of small businesses.

Option 1, as shown in Table 5, achieves approximately a 50 percent reduction in the MIR and cancer incidence associated with exposure to a known human carcinogen, and a 20 percent reduction in the numbers of people with risks at or above 1-in-1

million and 10-in-1 million, for \$500,000 in annualized costs. Options 2 and 3 achieve similar reductions in incidence and population risks, but the annualized costs were three and four times higher, respectively, than those of Option 1, and substantially more small businesses would be impacted. Although Options 2 and 3 reduce the baseline MIR by more than half, the baseline MIR is already considerably below 100-in-1 million. Considering the cost, economic, and risk impacts discussed above, we conclude that Option 1 provides an ample margin of safety to protect public health.

Furthermore, as explained in the 2010 proposal, we considered the option of requiring controls similar to the

California standards, which would have essentially required all hard chromium electroplating facilities to install HEPA filters. As described in the 2010 proposal, the estimated total capital and annualized costs for that option were much higher than the other options described above and would have imposed much more significant economic impacts to small businesses. Furthermore, based on more recent analyses, we estimate that the cost effectiveness of requiring HEPA filters on all small hard chromium plants would be at least \$42,700 per pound. (see *Revised Procedures for Determining Control Costs and Cost Effectiveness for Chromium Electroplating and Anodizing*, which is available in the

docket). With regard to health factors, requiring controls similar to the California standards would likely reduce risks to below 1-in-1 million for all hard chromium plants. However, given the high overall costs, we have determined that it is not appropriate to require controls similar to those in California in the national rule.

In summary, based on all our analyses and after weighing all the factors, we are promulgating the chromium emissions limit of 0.015 mg/dscm, as proposed in the supplemental notice (77 FR 6628) for existing small hard chromium electroplating sources.

With regard to new sources, as described in detail in the supplemental proposal, we proposed a chromium emissions limit of 0.006 mg/dscm. The rationale for choosing 0.006 mg/dscm is described in detail in the supplemental proposal. After considering public comments and additional analyses, we are finalizing this limit of 0.006 mg/dscm for new small hard chromium plants because this is the lowest level that can be reliably achieved cost-effectively, such as allowing plants the flexibility to use add-on controls or WAFS to comply. This limit will ensure that the risks posed by any new sources will be acceptable and the standard will provide an ample margin of safety to protect public health and prevent an adverse environmental effect.

Decorative Chromium Electroplating Emission Limits

For the Decorative Chromium Electroplating source category, the MIR due to actual emissions is estimated to be 10-in-1 million, and the cancer incidence is estimated to be 0.02 cases

per year. The MIR due to allowable emissions is estimated to be 70-in-1 million, and the cancer incidence is estimated to be 0.08 cases per year. Based on actual emissions, approximately 100 people are estimated to have cancer risks at or above 10-in-1 million, and approximately 43,000 people are estimated to have cancer risks at or above 1-in-1 million. We also estimate that the potential is low for chronic and acute non-cancer health effects, and for multipathway risks. As discussed in the preamble to the supplemental proposed rule, we conclude that the risks from this source category are acceptable.

With regard to control options, as explained in the preamble of the supplemental proposal, we evaluated possible limits within the range of 0.006 to 0.01 mg/dscm under the technology review and risk reviews. The current standard is 0.01 mg/dscm, and we considered this as the upper limit to be considered. As described in the supplemental proposal, we decided that 0.006 mg/dscm should be the lower end of the range of limits considered because most plants rely on fume suppressants to limit emissions and 0.006 mg/dscm was the lowest concentration that we estimated could reliably be achieved by limiting surface tensions to 33 dynes/cm (as measured with tensiometer) and 40 dynes/cm (as measured with a stalagmometer). However, a portion of the decorative plating sources rely on add-on controls to comply with the NESHAP. Therefore, we also evaluated the emissions levels being achieved by decorative electroplating plants that rely on add-on

controls. Based on data we have for 20 tanks at 17 facilities, the emissions concentrations from these 20 tanks are all less than 0.007 mg/dscm. The highest value is 0.0066 mg/dscm. Two of these tanks (about 11 percent) have emissions between 0.006 to 0.0066 mg/dscm. The other 15 tanks have emissions below 0.005 mg/dscm. After evaluating this range, as described in the proposal, we decided to propose an emissions limit of 0.007 mg/dscm, a limit slightly higher than the emissions being achieved by the highest emitting facilities in our data set to minimize the need for additional add-on controls in this source category. Based on the data we have, a limit of 0.006 mg/dscm could result in some plants needing to retrofit their add-on controls which would result in significantly higher costs for those facilities. With regard to reductions, we estimate this option would achieve reductions in overall emissions of far less than 15 percent compared to the 0.007 mg/dscm limit. Therefore, we did not further evaluate the 0.006 mg/dscm limit for existing sources.

As described above, for decorative chromium electroplating sources, we evaluated the costs and risk reductions that would be achieved under one control option for existing sources. That option, which we are finalizing today as proposed, is to lower the emissions limit for existing sources from 0.01 mg/dscm to 0.007 mg/dscm. The basis for evaluating this option is explained further in the supplemental proposal. The results of our cost and risk analyses for decorative chromium electroplating sources are summarized in Table 6.

TABLE 6—SUMMARY OF COSTS AND RISK REDUCTIONS FOR THE VARIOUS OPTIONS CONSIDERED FOR DECORATIVE CHROMIUM ELECTROPLATING

Option	Emission reductions in lbs/yr	Total emissions in lbs/yr	MIR ¹ (in-a-million)		Incidence (cases/yr)	Number of people with risk > 1-in-1 million	Number of people with risk > 10-in-1 million	Annualized costs	Cost-effectiveness (per lb)
			Actual	Allowable					
Baseline: Current situation	0	222	10	70	0.02	43,000	100	0	NA
Option 1 (0.007 mg/dscm)	35	187	7	50	² 0.02	36,000	80	\$170K	\$5,000

¹ MIR estimates are derived from estimates of actual and allowable emissions. Population risk estimates are derived from estimates of actual emissions.

² The incidence estimate under Option 1 is less than the baseline estimate, but the estimates are reported as the same when rounded to one significant figure.

With regard to the risk reductions achieved by the proposed lower limit of 0.007 mg/dscm, we estimate that the MIR based on actual emissions of hexavalent chromium, a known human carcinogen, would be reduced by about 30%, and the total estimated cancer incidence, the number of people estimated to have cancer risks at or above 10-in-1 million and the number of people estimated to have risks at or

above 1-in-1 million would be reduced by about 15 percent. The MIR based on allowable emissions will be reduced from 70-in-1 million to 50-in-1 million. We also considered a limit of 0.006 mg/dscm; however, reducing the limit from 0.007 to 0.006 mg/dscm would provide minimal additional risk reduction and would likely result in more sources needing to upgrade add-on controls which would result in significantly

higher costs. Therefore, after considering all the costs, economic and health factors, and comments, we are promulgating an emissions limit of 0.007 mg/dscm for decorative chromium sources, as proposed in the supplemental proposal (77 FR 6628).

With regard to new sources, as described in detail in the supplemental proposal, we proposed a limit of 0.006 mg/dscm. The rationale for choosing

0.006 mg/dscm is described in detail in the supplemental proposal. After considering public comments and additional analyses, we are finalizing this limit of 0.006 mg/dscm for new decorative chromium electroplating plants because this is the lowest level that can be reliably achieved cost-effectively and while still allowing plants the flexibility to use add-on controls or WAFS to comply. This limit will ensure that the risks posed by any new sources will be acceptable and the standard will provide an ample margin of safety to protect public health and prevent an adverse environmental effect.

Chromic Acid Anodizing Emission Limits

For the Chromic Acid Anodizing source category, the MIR due to actual emissions is estimated to be 5-in-1 million, and the cancer incidence is estimated to be 0.003 cases per year. The MIR due to allowable emissions is estimated to be 60-in-1 million, and the cancer incidence is estimated to be 0.08 cases per year. Based on actual emissions, no people are estimated to have cancer risks at or above 10-in-1 million, and approximately 5,000 people are estimated to have cancer risks at or above 1-in-1 million. We also estimate that the potential is low for chronic and acute non-cancer health

effects, and for multipathway risks. As discussed in the preamble to the supplemental proposed rule, we conclude that the risks from this source category are acceptable.

For chromic acid anodizing sources, we evaluated the costs and risk reductions that would be achieved for one control option for existing sources. That option, which we are finalizing today as proposed, is to lower the emissions limit for existing sources from 0.01 mg/dscm to 0.007 mg/dscm. The basis for evaluating this option is explained further in the supplemental proposal. The results of our cost and risk analyses for chromic acid anodizing sources are summarized in Table 7.

TABLE 7—SUMMARY OF COSTS AND RISK REDUCTIONS FOR THE VARIOUS OPTIONS CONSIDERED FOR CHROMIUM ANODIZING

Option	Emission reductions in lbs/yr	Total emissions in lbs/yr	MIR ¹ (in-a-million)		Incidence (cases/yr)	Number people with risk > 1-in-1 million	Number people with risk > 10-in-1 million	Annualized costs	Cost-effectiveness (per lb)
			Actual	Allowable					
Baseline: Current situation	0	57	5	60	0.003	5,000	0	NA	NA
Option 1 (0.007 mg/dscm)	8	49	3	40	² 0.003	4,000	0	\$50K	\$6,580

¹ MIR estimates are derived from estimates of actual and allowable emissions. Population risk estimates are derived from estimates of actual emissions.

² The incidence estimate under Option 1 is less than the baseline incidence estimate, but the estimates are reported as the same when rounded to one significant figure.

As explained in the supplemental proposal (77 FR 6628), we had less source data for anodizing plants; however, we determined that based on the similarities with decorative chromium sources, it was appropriate to evaluate the same options and also to propose the same limits for anodizing plants as proposed for decorative sources. With regard to the risk reductions achieved by the proposed limit of 0.007 mg/dscm, we estimate that the MIR based on actual emissions of hexavalent chromium, a known human carcinogen, would be reduced to about 3-in-1 million, the total estimated cancer incidence would be reduced by about 15%, and the number of people estimated to have risks at or above 1-in-1 million would be reduced from 5,000 to 4,000. As we did for the decorative chromium electroplating category, we also considered a limit of 0.006 mg/dscm for the anodizing category, however the additional reduction in risk that would be achieved by going from 0.007 to 0.006 would be minimal, and this change would likely result in increased costs. After considering all the costs, economic and health factors, we are promulgating an emissions limit of 0.007 mg/dscm for chromic acid anodizing sources (77 FR 6628).

With regard to new sources, as described in detail in the supplemental proposal, we proposed a limit of 0.006

mg/dscm. The rationale for choosing 0.006 mg/dscm is described in detail in the supplemental proposal. After considering public comments and additional analyses, we are finalizing this limit of 0.006 mg/dscm for new chromic acid anodizing plants because this is the lowest level that can be reliably achieved cost-effectively, such as allowing plants the flexibility to use add-on controls or WAFS to meet this level of emissions and this limit will ensure that the risks posed by any new sources will be acceptable and provide an ample margin of safety to protect public health and prevent an adverse environmental effects.

Conclusion—Emissions Limits

The Agency has determined that the risks due to HAP emissions from these source categories are acceptable. Furthermore, after considering all the health and cost factors described above, the agency has determined that the NESHAP for the hard and decorative chromium electroplating and chromic acid anodizing source categories, with the promulgated changes in today's action (as explained above) will provide an ample margin of safety to protect the public health and will prevent an adverse environmental effect.

We are also revising the standards pursuant to CAA section 112(d)(6). Because it is cost effective to meet the

limits we are promulgating under CAA section 112(f), described above, we have also determined it is necessary to revise the NESHAP pursuant to CAA section 112(d)(6) to require such limits.

Housekeeping Requirements

We are also revising the standards pursuant to CAA section 112(d)(6) to include several housekeeping requirements. However, in response to comments we received, we are making several minor revisions to the proposed housekeeping requirements to clarify and simplify those requirements. The revisions are summarized below and described in detail in the RTC document, which is available in the docket.

The housekeeping procedures include storage requirements for any substance that contains hexavalent chromium as a primary ingredient; controls for the dripping of bath solution resulting from dragout; splash guards to minimize overspray and return bath solution to the electroplating or anodizing tank; a requirement to promptly clean up or contain all spills of any substance containing hexavalent chromium; requirements for the routine cleaning or stabilizing of storage and work surfaces, walkways, and other surfaces potentially contaminated with hexavalent chromium; a requirement to install a barrier between all buffing,

grinding, or polishing operations and electroplating or anodizing operations; and requirements for the storage, disposal, recovery, or recycling of chromium-containing wastes. The main changes that were made to the housekeeping requirements since the 2010 proposal based on public comments include removing routine housekeeping measures from recordkeeping, adding that cleanup must be initiated within one hour of the spill, and allowing facilities to collect dragout using other methods when drip trays are not practical. The compliance date for implementing the housekeeping procedures will be 6 months after promulgation of the final amendments. More details on the housekeeping requirements are explained in the 2010 proposal and in the RTC document.

Phase-Out of PFOS WAFS

Also pursuant to CAA section 112(d)(6), we are specifying that PFOS WAFS cannot be added to any affected hard chromium electroplating tank, decorative chromium electroplating tank, or chromium anodizing tank as a method to meet the NESHAP requirements for these source categories. In response to public comments about the effectiveness and feasibility of non-PFOS WAFS, we collected information from several chromium electroplating plants in Minnesota that have been using non-PFOS WAFS for several years, and that information confirmed that the non-PFOS substitutes are effective and feasible alternatives to PFOS-based chemicals. See *Information on non-PFOS Fume Suppressants in Minnesota Chromium Electroplating Facilities*. Further details are also provided in the responses to comments provided in Section IV of this FR notice and in the RTC document.

Other Amendments

We are finalizing the changes to the SSM requirements, electronic reporting requirements, test procedures, and monitoring requirements as proposed. We are also finalizing the addition of a provision to provide an affirmative defense against civil penalties for violations of emission standards caused by malfunctions, as well as criteria for establishing the affirmative defense.

B. What are the effective and compliance dates for the Chromium Electroplating and Chromium Anodizing source category amendments?

The effective date for the final rule amendments is September 19, 2012. The compliance date for implementing the housekeeping requirements is March 19,

2013. The compliance date for the revised emission limits and surface tension limits is September 19, 2014. The compliance date for eliminating the use of PFOS-based fume suppressants is September 21, 2015.

C. What are the final rule amendments for the Steel Pickling source category?

1. Revisions Pursuant to CAA Section 112(d)(2) & (3)

At the time we promulgated the original MACT standard, we also established an alternative compliance option for the steel pickling source category that allowed HCl regeneration facilities to apply for a site specific alternative chlorine concentration standard for existing acid regeneration plants. In this final rule, we are removing the alternative compliance option. After reviewing public comments and evaluating additional information received since proposal, we continue to believe that the alternative compliance option provided in the original rule was not appropriate and therefore should be removed from the rule because it allowed a source to establish a source specific limit which could be less stringent than the MACT Floor level of control. Based on our review and analysis of available information, EPA concludes that the emission limit for chlorine can be met using available control technologies such as alkaline scrubbers, and that this level of control is consistent with the MACT floor level of control established in the original NESHAP. We estimate that the amendment to remove the alternative compliance provision will reduce emissions of chlorine by 15 tons per year (tpy).

2. Risk and Technology Review

As provided in the proposed rule, we are not revising the Steel Pickling NESHAP pursuant to CAA sections 112(f)(2) and 112(d)(6). While the chronic non-cancer TOSHI level for one facility exceeded the reference level, we noted that this facility has had compliance issues with the standard and that the actual emissions we relied on for this facility included emissions in excess of what is allowed under the NESHAP.

Given the amendment to remove the alternative compliance option under Section 112(d)(2) and (d)(3) as described above, and assuming that the one facility will apply the necessary controls to achieve compliance with the NESHAP, we estimate that the maximum chronic non-cancer TOSHI for any facility in the category will be less than 1. Therefore, the maximum

TOSHI allowed by the NESHAP will be no higher than 1.

Based on consideration of all the risk assessment results, including the fact that the maximum TOSHI allowed by the rule will be no higher than 1, we conclude that risks are acceptable and that the NESHAP will provide an ample margin of safety given the amendments we are promulgating in this action.

Therefore, we are not amending the NESHAP under Section 112(f) because risks are acceptable and the NESHAP, as revised pursuant to 112(d)(2) and (d)(3), provides an ample margin of safety. We are also not amending the NESHAP under section 112(d)(6) because we have not identified new developments in practices, processes or control technologies. We have determined that the Steel Pickling NESHAP, given the amendments we are promulgating in this action, provide an ample margin of safety to protect public health and prevent an adverse environmental effect, and that there have been no advances in practices, processes, and control technologies feasible for this source category.

3. Electronic Reporting

The final rule amendments require owners and operators of affected facilities to submit electronic copies of required performance test reports to EPA's WebFIRE database through an electronic emissions test report structure called the Electronic Reporting Tool (ERT). The ERT generates an electronic report which would be submitted using the Compliance and Emissions Data Reporting Interface (CEDRI). The submitted report will be transmitted through EPA's Central Data Exchange (CDX) network for storage in the WebFIRE database making submittal of data very straightforward and easy. The requirement to submit performance test data electronically to EPA applies only to those performance tests conducted using test methods that are supported by the ERT.

D. What are the effective and compliance dates for the Steel Pickling source category amendments?

The effective and compliance date for the final rule amendments is September 19, 2012.

IV. Summary of Significant Comments and Responses

A. Comments and Responses Associated With the Chromium Electroplating and Chromium Anodizing Source Categories

Many of the significant comments and our responses are summarized in this preamble. A summary of the public

comments on the proposal not presented in the preamble, and the EPA's responses to those comments, is available in the *Responses to Comments* (RTC) document which is available in the Docket for this rulemaking, Docket ID No. EPA-HQ-OAR-2010-0600.

1. Technology Review

Comment: One commenter stated that EPA made the decision to consider more stringent emissions limits primarily because the revised data set indicated that most facilities were operating well below the current emissions limit. The commenter explained that the fact that some facilities operate below the existing standard does not warrant the establishment of revised standards under section 112(d)(6). The commenter added that EPA should expect that some facilities will decide to reduce emissions below the existing standard in order to ensure a compliance buffer. The commenter emphasized that EPA should not set the precedent that an industry that operates with a compliance buffer will be subject to ratcheting down of the standards, since that would create a disincentive for industry sectors to reduce their emissions below the existing MACT standards. The commenter also noted that section 112(d)(6) does not allow EPA to change standards simply because portions of the industry are operating below existing standards or because compliance with new limits may not be cost prohibitive.

The same commenter also stated that EPA has not identified any additional "practices, processes, [or] control technologies" that were not identified and considered during the development of the original MACT or the 2010 proposed rulemaking that warrant stricter standards. The commenter explained that EPA's technology analysis stopped when the Agency concluded that facilities are achieving better emissions results than the current standard and once EPA reached that conclusion, the Agency turned to creating options for combining existing technologies to achieve those reduced emission results. The commenter stated that EPA used the emission results to drive the identification of possible combinations of existing technologies and that EPA's basis for revising emissions standards under section 112(d)(6) is not appropriate since section 112(d)(6) requires that any changes in the standards be driven by changes in "practices, processes, [or] control technologies." The commenter added that EPA has not based the proposed emission limit reduction on evidence that new technology has been

introduced that can be linked to achieving these new limits (i.e., under section 112(d)(6)), nor is there ongoing residual risk associated with chromium emissions from these source categories that justifies the stricter standards (i.e., under section 112(f)(2)). Therefore, there is neither a legal nor factual basis for the proposed changes.

Response: We believe the language in section 112(d)(6) provides broad authority for EPA to consider the practices, processes and technologies available at the time we are performing our review. We agree that the fact that some facilities are meeting a limit below the level of the current standard is not alone sufficient to justify revising the existing standard. Rather, we evaluate what practices, processes and technologies are available and consider whether they are cost effective and technologically feasible. If a more stringent standard can be met through cost effective and technologically feasible practices, processes or control technologies, we believe it is necessary within the meaning of section 112(d)(6) to revise the existing 112 standard. We also note that, when developing standards, we take into account the uncertainty associated with measuring emissions and we assume that plants operate with a compliance buffer to minimize the likelihood of exceeding the standard.

Regarding the issue that EPA has not identified any additional "practices, processes, [or] control technologies" that were not identified and considered during the development of the NESHAP, the commenter's interpretation of section 112(d)(6) is too narrow. In the 112(d)(6) review, we are not limited to reviewing practices, processes or control technologies that the Agency has never considered. Rather, section 112(d)(6) requires us to take into account developments in practices, processes and control technologies, which include not only new practices, processes and control technologies, but also improvements in efficiency, reduced costs or other changes that indicate that a previously considered option for reducing emissions may now be cost effective or technologically feasible. We also reiterate that improvements in control technology performance over time can provide the basis for revising standards under section 112(d)(6). As explained in the supplemental proposal, many existing facilities have emissions levels more than 10 times below the current emissions limits.

Comment: One commenter stated that EPA is legally required by section 112(d) to set standards based on the best performing sources in California. The

commenter stated that current practices and technologies used by the industry in California to comply with rules set by the California Air Resources Board (CARB), 17 Cal. Code Regs. §§ 93101–93102.16, and the South Coast Air Quality Management District (SCAQMD), Rule 1469, represent the type of significant developments that make an update necessary. The commenter pointed out that California standards have achieved greater emission reductions than EPA's existing standard and that EPA may not completely ignore the best-performing similar sources when deciding what limit to set under section 112(d). The commenter listed some of California's standards and stated they are more stringent because they require greater protection for facilities located nearest to sensitive receptors, such as people who attend, work at, or visit schools and daycare centers. In addition, certain facilities are required to use add-on controls, and they require HEPA filters for new sources. The commenter noted that CARB rules limit hexavalent chromium directly, instead of setting limits on total chromium, as under EPA's proposed rule. The commenter stated that EPA should require additional protective measures including siting, monitoring (including continuous emission monitoring), inspection and compliance, public reporting of emissions, community outreach near these facilities to protect public health, systems for community reporting of suspected emission exceedances, enforcement, an 8-year deadline to review and revisit its residual risk analysis for this source category, and similar requirements. For the provisions that require funding, EPA should either allocate or seek this funding, or require registration of each of the chromium electroplating facilities and set a fee for this registration that will pay for these activities. The commenter stated that EPA has not analyzed the ways in which these rules are stronger or provided any discussion of this in the record, as it must do to consider all developments under section 112(d)(6). The commenter stated that EPA has failed to provide any explanation for not considering the California reductions as a regulatory option or explain why EPA's proposed level of the standards for each subcategory is appropriate. The commenter added that California's standards undermine EPA's determination that the existing standards provide an ample margin of safety. Once California demonstrated that it is feasible to require much more

stringent standards than are currently required by the NESHAP, EPA must provide a rational explanation as to why it should not require at least the same level of protection. The fact that California has required HEPA filters for the vast majority of these facilities, while also requiring specific fume suppressants for the smallest facilities, belies EPA's conclusion that its existing MACT meets the test for an ample margin of safety.

Response: We proposed that the existing standards reduce risk to an acceptable level based on our review of health factors such as the maximum individual risk and the number of persons exposed to a cancer risk greater than 1-in-1 million. As part of our technology review and our ample margin of safety analyses, we considered the requirements of California's Airborne Toxic Control Measure (ATCM) for Chromium Plating and Chromic Acid Anodizing Facilities (title 17, California Code of Regulations sections 93102.1 to 93102.16) and of the South Coast Air Quality Management District (SC AQMD) (Rule 1469, Hexavalent Chromium Emissions from Chromium Electroplating and Chromic Acid Anodizing Operations). Specifically, as part of our October 2010 proposal, we evaluated requiring all facilities to install HEPA filters and requiring all facilities that use less efficient controls, such as packed bed scrubbers, to install CMP systems (75 FR at 65092–94); See *Emissions Reductions and Cost Effectiveness of HEPA Filter Retrofits for Chromium Electroplating, and Emissions Reductions and Cost Effectiveness of Composite Mesh Pads for Chromium Electroplating*, which are available in the docket for this rulemaking. These devices, alone or in combination with fume suppressants or other add-on devices, are the controls used to comply with the standards in California. As explained in the 2010 proposal (75 FR 65068) we evaluated the capital costs, annualized costs, cost-effectiveness, and number of plants impacted. Based on those analyses, we concluded that requiring these controls throughout the industry was not appropriate under either section 112(d)(6) or 112(f)(2).

Furthermore, we disagree with the comment that EPA should follow the California example for people who attend or visit schools and daycare centers, or other sensitive receptors that are located close to these sources. Based on our analyses, we conclude that this NESHAP, with the changes being promulgated today, will provide an ample margin of safety for all populations and subpopulations

regardless of the location of sensitive receptors and therefore we disagree that a special provision is needed with regard to location of these receptors.

With regard to siting requirements, community reporting, community outreach and registration fees, we believe these items are not appropriate or necessary for this National rulemaking.

With regard to the comment that CARB rules limit hexavalent chromium directly (instead of setting limits on total chromium), we believe it is appropriate to regulate chromium compounds (rather than hexavalent chromium) under the national standards developed pursuant to the CAA because section 112(b) of the CAA lists chromium compounds as the HAP which the EPA is to regulate. Nevertheless, because the emissions of total chromium are estimated to be 98 percent hexavalent chromium, a total chromium emissions limit is effectively a hexavalent chromium limit for these source categories. The NESHAP established emission limits in terms of total chromium, as measured by Methods 306 or 306A. Both of these methods measure the total amount of chromium present in the exhaust stream, regardless of the form of the emissions (hexavalent or trivalent chromium).

Comment: A commenter claimed that EPA may not lawfully set surface tension limits as an alternative to an emission standard because doing so violates section 112(h), 42 U.S.C. § 7412(h). The commenter pointed out that section 112(h) of the Act, id. § 7412(h), requires EPA to set a numerical standard for control of HAPs whenever it is feasible to promulgate and enforce a standard in such terms. The commenter acknowledged that EPA may promulgate work practice standards instead of numerical standards only if measuring emission levels is technologically or economically impracticable and that EPA may substitute work practice standards for emission limits only if doing so is consistent with the provisions of subsection (d) or (f). The commenter stated that EPA has not satisfied section 112(h)(1), which is required to set an alternative work practice standard in lieu of an emission standard and added that EPA may not set a section 112(d) emission standard based solely on one type of technology (fume suppressants), when other methods are available to achieve greater reductions. The commenter also said that EPA must set surface tension limits not as an alternative, but in addition to the concentration-based limits. The

emission concentration-based limits must apply at all times. The commenter suggested that EPA update and strengthen the proposed surface tension limits so that they are at least as stringent as the emission concentration-based standards, and to require these limits to apply in addition to, but not in lieu of, emission limits.

Response: We disagree with the commenter that it is unlawful to set an alternative to a numerical emissions limit. The CAA allows us to establish alternatives to numerical emissions limits if we can demonstrate that the alternative limit (in this case, the surface tension limit) is at least as stringent as the numerical emissions limit. For the reasons described below, we also reject the commenter's assertion that the proposed surface tension limits are not as stringent as the proposed emission limits. Our analysis shows that maintaining the surface tension at the proposed levels is at least as stringent as the proposed emission limits, both for existing and for new sources. The data demonstrate that, when surface tension is no greater than 40 dynes/cm (when measured using a stalagmometer) or 33 dynes/cm (when measured using a tensiometer), emissions will be no greater than 0.006 mg/dscm. The proposed chromium emission limits for existing sources (0.011 mg/dscm for large hard chromium electroplating, 0.015 mg/dscm for small hard chromium electroplating, and 0.007 mg/dscm for decorative chromium electroplating and chromium anodizing), all exceed the 0.006 mg/dscm concentration associated with the proposed surface tension limits and the emissions limit for all new sources (0.006 mg/dscm) is equivalent to the level achieved with these surface tension limits. We also disagree that the proposed surface tension limits constitute establishing an emission standard based solely on one type of technology (i.e., fume suppressants). The NESHAP sets numerical emission standards for all of the affected chromium electroplating and anodizing sources. However, plants can elect to comply with the standard by meeting the surface tension limits through the use of fume suppressants. Section 112(h)(1) addresses setting an alternative work practice standard when a numerical emission standard is not feasible, but that is not the case for the chromium electroplating NESHAP because the existing NESHAP includes both a numerical emission limit and an alternative surface tension limit that will ensure that the emission limit is met at all times by sources that choose

to use the surface tension limit compliance alternative.

Comment: One commenter stated that EPA reviewed data from only 17 decorative chromium facilities and one anodizing facility, and concluded that all decorative and anodizing facilities already comply with the new proposed emissions limits (77 FR at 6642–6644.) The commenter goes on to say that EPA acknowledged that 8 decorative facilities may need to make adjustments and achieve reductions to meet the new emissions limits, but dismissed these data by claiming that these facilities would choose to comply with the new NESHAP with the surface tension levels rather than the new emissions limits. The commenter noted that EPA admitted that it did not perform any detailed analysis for anodizing facilities. Rather, EPA concluded that anodizing processes are similar enough to decorative processes so the proposed limits would also be appropriate. The commenter stated that EPA had limited data and had weak scientific and technical basis to support or justify the proposed limits for decorative and anodizing facilities.

Response: In evaluating the impacts of the proposed requirements on the existing decorative chromium electroplating and chromium anodizing facilities that comply with emissions limits (as opposed to those plants that comply with the surface tension limits), we reviewed the available data. For the 17 decorative tanks in our data set, all of these tanks have emissions below 0.007 mg/dscm and many have emissions more than 10 times below this level. Although all of the emissions data indicated that existing facilities would meet the more stringent emissions limit of 0.007 mg/dscm, we conservatively assumed that at least some facilities would not meet this limit and would require further controls. The commenter is not correct that we assumed the 8 facilities would choose to comply with the surface tension levels rather than the new emissions limits. However, we did assume those facilities would choose to use fume suppressants to achieve some emissions reductions to comply with the more stringent emissions limits, but we disagree that this assumption means that we dismissed those plants. Using fume suppressant in combination with add-on controls is a relatively common practice for meeting emissions limits in the chromium electroplating industry.

Regarding the data on chromium anodizing, we have obtained emission test data for two additional chromium anodizing plants, one of which is located in Connecticut that reported

emissions as 0.0007 mg/dscm, and the other located in Massachusetts that reported a concentration of 0.001 mg/dscm. In addition, we reviewed emission test data we had previously received for three chromium anodizing plants located in California. The data show emissions for tanks controlled with HEPA filters to range from 0.000097 to 0.00056 mg/dscm. Based on the control efficiencies reported by California, we estimate that, if these tanks were controlled with CMPs instead of HEPA filters, emissions would range from 0.000097 to 0.0056 mg/dscm. As shown in the cost analysis technical memo, we already had data for a plant in Oklahoma with reported emissions of 0.0016 mg/dscm.

With regard to add-on controls, based on available information we conclude that the CMP is a readily available control technology that can be applied to anodizing plants and can easily meet a limit of 0.007 mg/dscm for these type of plants. Other technologies can also likely meet this limit. For example, the Connecticut and Massachusetts plants have chromium mist eliminators (and have emissions of 0.0007 mg/dscm, and 0.001 mg/dscm, respectively) and the plant from Oklahoma, which has emissions of 0.0016 mg/dscm, is controlled with a wet scrubber. The data from the Connecticut plant, Massachusetts plant, Oklahoma plant, and the plants in California all support our assumption that most existing chromium anodizing plants that are currently complying with the existing emission limit could easily meet the revised emissions limit of 0.007 mg/dscm without additional controls. We received no data for any decorative or anodizing plants that would not be able to meet these lower limits.

2. Risk Assessment

Comment: One commenter contended that EPA did not assess multipathway health risk for chrome plating because hexavalent chromium is not on the outdated list of 14 PB–HAPs that EPA has used for this risk assessment. The commenter noted EPA’s statement that, “PB–HAP emissions were not identified from the chromium anodizing, decorative chromium electroplating, and hard chromium electroplating source categories, indicating that exposures due to non-inhalation routes of exposure are not significant.” The commenter argued that this is unlawful, arbitrary and capricious because the science demonstrates this pollutant can indeed cause health effects when a person is exposed through a pathway other than inhalation. Evolving research continues to show risk to animals and

thus, potentially, both to the environment and to human health, from oral and systemic exposure through water-based ingestion, rather than just inhalation. EPA therefore must assess the multipathway health risk.

The commenter supported this argument by referring to California EPA’s Office of Health Hazard Assessment (OEHHA)’s recent revisions to Risk Assessment Guidelines, which, according to the commenter, provide evidence that under some environmental conditions hexavalent chromium contamination can persist in soil presenting an exposure risk via ingestion and dermal exposure to contaminated soils, creating a cancer risk.¹ The commenter noted that EPA’s failure to consider cancer risk from ingestion in its analysis is unlawful, arbitrary and capricious.

The commenter recommended that the EPA perform a multipathway analysis for this source category that fully accounts for exposure that can occur to a child in an urban or residential setting. The commenter suggested that the EPA assess multipathway risk based on the allowable emissions, as it has done for inhalation risk. Further, the commenter reported that the OEHHA’s scientists found that there is the potential for hexavalent chromium uptake in plants and fish and concluded that to protect public health, exposure via ingestion of contaminated crops and fish must also be considered.

Response: The current persistent and bioaccumulative HAP (PB–HAP) list in the Air Toxics Assessment Library (see http://www.epa.gov/ttn/fera/risk_atra_main.html), was developed considering all of the available information on persistence and bioaccumulation. This list was peer-reviewed by the SAB, and it is reasonable to use it in the RTR program. In addition, the Agency does not have information, nor did the commenter provide information, that would enable the EPA to determine whether the deposition of airborne hexavalent chromium from chromium electroplaters and the subsequent movement of the hexavalent chromium in the environment would result in human exposures that could be of concern. With regard to the environment, the limited available

¹ Cal. EPA, OEHHA, Air Toxics Hot Spots Program Risk Assessment Guidelines, Technical Support, Document for Exposure Assessment and Stochastic Analysis, Scientific Review Panel Draft at F–27, E–5 (Feb. 2012), http://oehha.ca.gov/air/hot_spots/SRP/index.html, http://oehha.ca.gov/air/hot_spots/SRP/index.html; see also id. at E–12 tbl. E3 (describing exposure pathways for analysis).

information on the persistence and bioaccumulation of hexavalent chromium suggests that there is no indication of the biomagnifications of hexavalent chromium along the aquatic food chain, and that chromium has low mobility for translocation from roots to aboveground parts of plants. (ATSDRs Tox profile 2008 <http://www.atsdr.cdc.gov/toxprofiles/tp7.pdf>).

Comment: One commenter stated that the residual risk assessment underestimates risk to the developing child and fetus. The commenter observed that biological differences in the developing child and fetus can result in increased cancer and non-cancer risk due to both increased exposure and increased vulnerability, and emphasizes that the EPA must account for the increased susceptibility of children to HAP emissions from this source category in the risk assessment. The commenter noted that according to OEHHA, there is an increased risk indicated from early life exposures and asserted that EPA's failure to include an adequate evaluation of increased early life susceptibility to HAP emissions systematically underestimates risk from hexavalent chromium emissions of this source category. The commenter stated that the EPA must follow the lead of OEHHA and include additional factors to address early life exposure in its risk assessment. The commenter also cited a recent EPA toxicological review and cancer toxicity reviews from California EPA (CalEPA) that provide evidence for the mutagenic activity of hexavalent chromium compounds, and developmental, female reproductive and male reproductive toxicity.^{2,3,4} The commenter suggested that under the 2005 Guidance, risk assessments of exposure to hexavalent chromium should include adjustment for early life exposures and the estimates included in the residual risk assessment fail to include the full health risk.

The commenter noted that the EPA restricted its application of age-dependent adjustment factors to those HAPs included in EPA's 2006 list of carcinogenic HAPs that act by a mutagenic mode of action, and did not apply age-dependent adjustment factors to assess cancer risk from chromium.

² EPA, IRIS, Draft, Technological Review of Hexavalent Chromium (CAS No. 18540-29-9), In Support of Summary Information on the Integrated Risk Information System at 238 (Sept. 2010).

³ Cal. EPA OEHHA, Public Health Goal for Hexavalent Chromium in Drinking Water (July 2011).

⁴ Cal. EPA, OEHHA, Evidence of the Developmental and Reproductive Toxicity of Chromium (Hexavalent Compounds) 3 (Aug. 2009), http://www.oehha.ca.gov/prop65/hazard_ident/pdf_zip/chrome0908.pdf.

The commenter recommended that the EPA update both its 2005 *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens* (attached to comment letter), and EPA's 2006 list of carcinogenic HAPs that act by a mutagenic mode of action to use age-dependent adjustment factors for hexavalent chromium in the *Supplemental Guidance* and incorporate more recent evaluations of carcinogenic modes of action in the list of carcinogenic HAPs. The commenter also suggested that the EPA should consult with multiple scientific bodies on the scientific basis of the proposed rulemaking: National Academy of Sciences, the Office of Children's Health Protection, the Children's Health Protection Advisory Committee, and scientists in the Office of Research and Development who focus on children's and community health (such as experts in the National Center for Environmental Research). The commenter asked the EPA to consider and follow its 2008 handbook on child-specific exposure factors in this rulemaking, and follow the Science Advisory Board's recommendations regarding the greater exposure and vulnerability of children.⁵

The commenter also pointed out that Congress recognized this science in the Food Quality Protection Act (FQPA) for pesticide chemical residue, where Congress used a ten-fold margin of safety for infants and children. The commenter also provided a table of comparisons between OEHHA child-health reference values and those of EPA.

Response: The EPA disagrees with the commenter's statement that the risk assessment underestimates risk to children and lacks consideration of early-life susceptibility. The EPA agrees that biological differences across lifestages may lead to differences in the susceptibility to HAP, as can differences among population groups due to pre-existing disease states or other factors. Accordingly, the methods we use in risk assessments have taken this into account. For the dose-response component of HAP assessments for RTR, the EPA uses exposure reference concentrations and unit risk estimates (UREs) that are expressly derived with the objective of protecting sensitive populations and lifestages, including children (see U.S. EPA, 2002). A Review of the Reference Dose and Reference Concentration Processes. EPA/630/P-

⁵ U.S. EPA, Child-Specific Exposure Factors Handbook (Sept. 2008), EPA/600/R-06/096F, <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=199243>.

02/002F. Risk Assessment Forum, Washington DC. Available online at <http://www.epa.gov/raf/publications/pdfs/rfd-final.pdf>. For example, a review of the chronic reference value process concluded that the Agency's reference concentration (RfC) derivation process adequately considers potential susceptibility of different subgroups with specific consideration of children, such that the resultant RfC values pertain to the full human population including "sensitive subgroups," inclusive of childhood. With respect to cancer risk assessments, assessments are performed in accordance with EPA's *Supplemental Guidance for Assessing Susceptibility from Early-life Exposure to Carcinogens* (US EPA, 2005). This Guidance recommends the application of age-dependent adjustment factors for assessing cancer risk from carcinogenic pollutants concluded to act via a mutagenic mode of action and for which information on early-life susceptibility is lacking. The basis for this methodology is provided in the 2005 *Supplemental Guidance*. With regard to other carcinogenic pollutants for which early-life susceptibility data are lacking, it is the Agency's long-standing science policy position that use of the linear low-dose extrapolation approach (without further adjustment) provides adequate public health conservatism in the absence of chemical-specific data indicating differential early-life susceptibility or when the mode of action is not mutagenicity (U.S. EPA, 2005).⁶

EPA disagrees with the commenter that EPA should use California EPA's child-specific reference doses for school site risk assessments⁷ in order to address the potential for early-life susceptibility. EPA methods for assessing hazard and dose-response relationships for HAPs and developing RfCs and cancer risk estimates, as noted above, specifically address the potential for early-life susceptibility. Whenever data indicate increased susceptibility of a developmental lifestage or of a population group, those data are

⁶ The EPA has not yet determined whether hexavalent chromium poses disproportionate risks to children, but is currently developing an assessment of hexavalent chromium which likely will address that issue.

⁷ We note that California EPA's use of these numerical values, which do not exist for inhalation exposures, is limited to the context of risk assessment at proposed or existing California school sites and does not extend to their Air Hot Spots Risk Assessment program. Further the guidance for the California EPA school site assessment program specifies the use of California OEHHA or U.S. EPA IRIS values in the absence of the school site risk assessment child-specific values (Cal OEHHA, 2004—http://www.oehha.ca.gov/public_info/public/kids/pdf/SchoolscreenFinal.pdf).

factored into the analysis. When data are inadequate to understand the effects of a specific pollutant on sensitive subpopulations, which, for some pollutants, may include children, the Agency's risk assessment methods take that into account to ensure that resulting assessments address the possibility that such subpopulations might be more or less sensitive.

3. Environmental Justice

Comment: One commenter questioned why EPA's risk assessment did not consider all of the factors recommended in EPA's own Environmental Justice Strategic Enforcement Assessment Tool (EJSEAT) and why EPA did not propose stricter controls in light of the demographic risk results for hard chromium electroplaters. The commenter also stated that, as specified in the EPA's Interim Guidance on Considering Environmental Justice during the Development of an Action, EPA should consider addressing existing disproportionate impacts on minority, low-income or indigenous populations during this rulemaking. The commenter requested that a full evaluation of disproportionate impacts be conducted following guidance in EJSEAT and an evaluation of how this assessment could reduce impacts to those communities. The commenter noted that the Online Tracking Information System (OTIS) database appears to do this already at the facility-specific level and can be incorporated into the assessment to more accurately define the number of the individuals impacted by the emissions and the demographics of the impacted community. The commenter recommended that EPA work with the Office of Environmental Justice to adequately evaluate the proposed rulemaking with regard to communities experiencing disproportionate impacts.

Another commenter stated that CARB has created a draft methodology to screen for cumulative impacts in communities. EPA should use this or a similar tool to find and provide greater protection for the local communities most affected by this source category. EPA has even developed a draft version of this type of tool for enforcement and compliance purposes, specifically the EJSEAT that, without explanation, it has not used in this rulemaking.

Response: The EPA's "Interim Guidance on Considering Environmental Justice During the Development of an Action," encourages rule writers and policy makers to look at the whole range of relevant factors that impact communities and population groups when crafting rules.

The EPA is continuing to discuss and pilot approaches for conducting its analyses that are consistent with the agency's responsibilities regarding EJ as outlined in Executive Order (EO) 12898.

We believe these NESHAP, with the amendments being promulgated in today's action, will provide an ample margin of safety to protect the health of all population groups. As stated in the Benzene NESHAP, in determining the need for residual risk standards, we strive to limit to no higher than approximately 1-in-10 thousand (100-in-1 million) the estimated cancer risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years and, in the ample of safety decision, to protect the greatest number of persons possible to an individual lifetime risk level of no higher than approximately 1-in-1 million. These considerations are made for all people regardless of racial or socioeconomic status. However, in determining whether to require additional standards under Section 112(f), these levels are not considered rigid lines, and we weigh the cancer risk values with a series of other health measures and factors in both the decision regarding risk acceptability and in the ample margin of safety determination. We also consider cost of controls in the ample margin of safety determination.

The results of our demographic analyses for hard and decorative chromium electroplating indicate that certain minority groups and low-income populations may be disproportionately exposed to emissions from these categories and to any risks that may result due to these emissions because the communities most proximate to facilities within these categories have a higher proportion of these groups than the national demographic profile. We did not identify any vulnerability or susceptibility to risks particular to minority and low income populations from pollutants emitted from this source category. The Agency has determined that the existing NESHAP for these source categories reduce risk to an acceptable level for all proximate populations, including minority and low-income populations.

We agree with the commenter on the importance of working closely with the EPA's Office of Environmental Justice (OEJ), as well as other offices across the agency, to develop criteria and specific guidance on how to interpret and apply the outcome of our analyses in the rulemaking process. While the EJSEAT and OTIS database are general tools that can be used in considering environmental justice issues, the

demographic analyses we performed are more appropriate for this source category-specific rulemaking. We are working with the OEJ, the Office of Research and Development and other Agency offices in an ongoing effort to assess ways to address cumulative risk and develop new tools for considering environmental justice in rulemakings.

In addition, as addressed more fully in the RTC, while we understand that some communities are exposed to multiple pollutants emitted by many different types of sources, EPA under Plan 2014 is assessing ways to address these exposures through a cumulative impact analysis.

4. Emissions Estimates

Comment: In response to the 2012 supplemental proposal, one commenter contacted approximately 300 of the facilities that EPA identified as having the highest emissions and received information from 181 plants. The commenter stated that out of the plants that responded, 62 plants were closed, 24 plants do not use chromium, 39 plants have lower emissions than reported by EPA, and 7 plants have emissions estimates consistent with that relied on by EPA. The commenter also claimed the data for several other plants were incorrect. If revisions were made to emissions estimates for these 181 plants based on this information, the resulting overall emissions would be 73% lower than the EPA's estimates for these 181 plants. The commenter recognized that estimates found for the higher-emitting, higher-risk facilities could in part be counterbalanced by emissions estimates for lower risk facilities the commenter did not investigate, but the commenter believes that EPA's analysis would still not account for the 73% reduction in emissions for this set of facilities resulting from facility closures and switches to non-hexavalent chromium processes.

Response: We reviewed the data provided by the commenter and we created a separate source category emissions dataset that reflects most of the changes suggested by the commenter. Specifically, we excluded all plants reported by the commenter to be closed or to not use hexavalent chromium. We also included revised emissions estimates for several plants. We conducted risk modeling with this dataset, and the results were not significantly different from the assessment conducted for the supplemental proposal. The MIR, HI, and incidence estimates for all source categories were essentially unchanged, and the population risk differences were

not significantly different. For example, for the hard chromium electroplating source category, the number of people estimated to be at cancer risk greater than or equal to 1-in-1 million is 120,000 based on the new dataset, and 130,000 in the previous assessment. Because of the very small differences in risk results based on this modeling, we decided that the data do not warrant revising the overall risk assessment we conducted for the supplemental proposed rule. Regardless, the data do not change the decisions set forth in the supplemental proposal.

5. Costs and Economic Impacts of Proposed Limits

Comment: One commenter believes that EPA has under-estimated the costs associated with using non-PFOS fume suppressants and questions whether EPA evaluated comparable products when coming up with costs for fume suppressants. The commenter noted that fume suppressants are available in a number of different formulations that contain non-PFOS and PFOS in various concentrations. The commenter stated that EPA has not included all of the additional costs associated with the use of non-PFOS fume suppressants, such as the differences in the frequency that suppressants need to be added to plating baths, and the increased surface tension monitoring and maintenance associated with use of non-PFOS fume suppressants. The commenter further explained that several facilities have reported that costs for converting to non-PFOS fume suppressant may be more than 30 percent higher than using PFOS fume suppressants. The commenter stated that one facility estimated that its annual costs for fume suppressants would increase by approximately \$100,000 with the switch to non-PFOS fume suppressants.

Response: To support the supplemental proposal, EPA contacted several fume suppressant vendors in order to calculate the costs of both PFOS and non-PFOS based fume suppressants. After reviewing the information from vendors, we concluded costs for the non-FOS suppressants would be similar to the costs for PFOS suppressants or slightly higher. To be conservative (more likely to overestimate rather than underestimate the costs), we estimated that the cost of non-PFOS fume suppressants was 15% higher than that of PFOS fume suppressants (see *Procedures for Determining Control Costs and Cost Effectiveness for Chromium Electroplating Supplemental Proposal* memorandum, which is available in the docket for this action).

After receiving comment on the supplemental proposal, EPA contacted several facilities in Minnesota that have switched from a PFOS-based fume suppressant to a non-PFOS-based fume suppressant and asked for information on the price differences between the two products. Three facilities contacted agreed that the price of non-PFOS was slightly higher, but were not aware of how much higher, while three other facilities stated they did not consider the products to have a significant difference in price. Additionally, EPA asked facilities about any changes in fume suppressant consumption that may have occurred after switching to a non-PFOS fume suppressant. One facility stated that they consume less fume suppressant after switching to a non-PFOS fume suppressant and therefore overall costs were similar or perhaps have decreased since switching to the non-PFOS suppressant. All other facilities stated they did not notice any difference in effectiveness, consumption, or required maintenance of the non-PFOS fume suppressant (see *Information on non-PFOS Fume Suppressants in Minnesota Chromium Electroplating Facilities* memorandum, which is available in the docket for this action). While the commenters raise general concerns about potential higher costs, they did not provide any specific details about why costs would be higher for any specific facility or group of facilities. Based on the best information available to us, we believe that the price and cost methodology we are relying on for this rule provide reasonable estimates of the costs associated with using non-PFOS fume suppressants.

6. Non-PFOS Fume Suppressants

Comment: Two commenters stated that EPA has not demonstrated that the proposed surface tension limits can be met using non-PFOS fume suppressants. One commenter pointed out that the data used by EPA to support the proposed surface tension limits are based on chromium electroplating tanks controlled with WAFS that contain PFOS. The commenter recognized that EPA proposed a 3-year compliance date for the limit on the use of WAFS containing PFOS. The commenter believes that EPA has not demonstrated that the proposed surface tension limits can be met using non-PFOS WAFS.

One commenter stated that EPA has provided no data in the record that shows non-PFOS fume suppressants can achieve the proposed new surface tension levels and that EPA merely assumes non-PFOS fume suppressants are equivalent in performance to PFOS fume suppressants without presenting

any scientific proof or supporting data. The commenter believes that EPA ignored the fact that fume suppressants can perform differently in decorative chromium and chromium anodizing plating baths. The commenter explained that the data that EPA references to support its claim that fume suppressants effectively reduce emissions to meet the proposed limits is flawed and provides no scientific evidence that fume suppressants can be used to achieve the proposed emissions limits. The commenter added that EPA cannot claim, in the absence of any credible data in the record, that non-PFOS fume suppressants can reduce emissions as effectively as PFOS fume suppressants. Due to the challenges facing chromium electroplating and anodizing operations in using the new technology to meet the current surface tension levels and the lack of any data in the record to demonstrate that non-PFOS fume suppressants can consistently achieve the proposed surface tension levels, the commenter recommended EPA forego the proposed revisions to the surface tension levels. The commenter also suggested that the burdens of the proposed changes clearly outweigh any perceived benefits. The commenter believes PFOS is a very effective fume suppressant because of its persistent and bio-accumulative nature and acknowledged that PFOS and other long-chain perfluorinated compounds (PFCs) are being phased out by EPA and by other regulatory agencies globally because of the environmental impacts that may result from the use of PFOS. The commenter, however, feels that the biggest challenge in meeting the revised surface tension levels stems from the phase-out of PFOS. The commenter stated that facilities that have switched to non-PFOS fume suppressants have achieved moderate success in meeting the current surface tension levels, but many challenges and problems persist. The commenter believes the switch to non-PFOS fume suppressants diminishes a facility's margin of compliance in meeting the current surface tension levels. The commenter goes on to say that where non-PFOS has shown promise in lowering surface tension levels, it requires more frequent additions, more frequent monitoring, and more labor to maintain surface tension levels compared to the use of PFOS fume suppressants.

Response: Fume suppressants are used to lower the surface tension of electroplating baths, which in turn, reduces the size of gas bubbles generated during electrolysis. These smaller bubbles travel more slowly

through the solution and have less energy when they arrive at the solution's surface. The lower surface tension also reduces the energy with which the resulting droplets are ejected into the air. Together, both of these effects can reduce the emission of droplets, which in turn reduces the amount of chromium emitted by the tank. It is our understanding that this relationship between surface tension and chromium emissions is dependent primarily on the surface tension of the tank and not on the product used to reduce surface tension.

We acknowledge that there may be differences in the performance of non-PFOS based fume suppressants in different types of chromium electroplating tanks, but this is also true of PFOS based fume suppressants. The performance of any type of fume suppressant can depend on the characteristics of the chemical and tank (i.e., temperature, contaminants present, etc.), but EPA has found no evidence that supports the idea that non-PFOS based fume suppressants are unable to reach the surface tension limits being finalized in this rulemaking. EPA contacted several fume suppressant vendors to request information on non-PFOS fume suppressants. The vendors who responded were confident that their non-PFOS fume suppressants could reach the proposed surface tension limits (see *Information on Non-PFOS Fume Suppressants for Chromium Electroplating Supplemental Proposal* memorandum). It has been reported that there are now suitable, successful and well proven non-PFOS fume suppressants for hard and decorative chromium electroplating, and that the surface tension can be reduced to as low as 20 dynes/cm in baths, but are commonly maintained at about 30 dynes/cm. At this level, consumption of the suppressant is minimized and emissions are controlled (Barlowe, G. and Patton, N., 2011). For example, surface tension data from one decorative chromium electroplating plant in Minnesota that has been using non-PFOS fume suppressant for years show they had an average surface tension of 28.7 dynes/cm over the first 6 months of 2012, and their highest reading was 32.4 dynes/cm. They had several readings below 23 dynes/cm, and some values were as low as 18.5 dynes/cm. These data indicate that 33 dynes/cm is quite feasible, especially for decorative chromium electroplating sources. Furthermore, a study by the Danish EPA (Danish EPA, 2011) found that the non-PFOS fume suppressant reduced

emissions just as effectively as the PFOS for about the same costs.⁸

In a separate meeting, the EPA discussed the effectiveness of non-PFOS fume suppressants with a major distributor of both PFOS and non-PFOS fume suppressant. The distributor discussed issues that arise when using any type of fume suppressant and stated that, worldwide, they have experienced issues with the switch to non-PFOS based fume suppressants with only a couple of companies. The distributor was confident that their non-PFOS based products could reach the proposed limits and noted that the phase-out of PFOS fume suppressants in Europe and Japan occurred seamlessly (See Summary of EPA Meeting with Atotech March 1, 2012, in the docket for this rulemaking).

EPA also contacted several facilities in Minnesota that have switched from a PFOS-based fume suppressant to a non-PFOS fume suppressant and asked them to describe any changes in the effectiveness or consumption of the fume suppressant. All facilities stated that the non-PFOS based fume suppressant was equally effective as the PFOS-based fume suppressant, with one facility noting the non-PFOS based fume suppressant performed more effectively. In terms of consumption, all facilities stated they have not noticed any increase in fume suppressant consumption since the switch, with one facility stating they consume less fume suppressant per operating hour since switching to the non-PFOS fume suppressant. The facilities that responded also reported no issues with maintaining surface tension levels consistent with the limits we are establishing in the final rule, with one facility stating that since the switch they have seen less surface tension fluctuations in their tank. The responses of Minnesota facilities are summarized in the *Information on Non-PFOS Fume Suppressant Use at Minnesota Chromium Electroplating Facilities* memorandum located in the docket of this rulemaking. Also industry representatives submitted comments supporting the PFOS phase-out.

Comment: One commenter stated that the phase-out of PFOS is being proposed without adequate study of the non-PFOS materials ability to perform as well as PFOS and meet the proposed lower emission limits (as measured by surface tension). The commenter indicated that neither the 2010 proposal

⁸ Danish, EPA. 2011. Substitution of PFOS for use in non-decorative hard chrome plating. Pia Brunn Poulsen, Lars K. Gram and Allan Astrup Jensen. Danish Environmental Protection Agency. Environmental Project No. 1371 2011.

docket nor the docket for the supplemental proposal included the reference materials needed to substantiate EPA's conclusions on the availability and feasibility of using non-PFOS fume suppressants to meet the proposed surface tension or emission limits. The commenter is also concerned with the lack of information on how these alternate materials may affect the parts being plated and noted that the procedures followed for their aircraft maintenance are very tightly controlled with extensive testing done prior to implementation of any new procedures. The commenter stated that until adequate testing is completed, which can take longer than the proposed three year timetable for the PFOS phase-out, they will be unable to change to an alternate fume suppressant. The commenter recommended additional study of the available alternatives for aeronautics plating and a process by which industry may petition for additional time to complete the transition to non-PFOS fume suppressants.

Response: EPA has included several documents on the performance of non-PFOS based fume suppressants in the docket to this rule-making (see previous responses). EPA agrees that some electroplaters of highly specialized products may need to perform additional testing in order to integrate the use of non-PFOS fume suppressants and that this testing may require a longer time commitment compared to other products. Nevertheless, we believe that this testing can be accomplished by the compliance date, which is 3 years after the date of publication of this **Federal Register** notice. Additionally, the Clean Air Act allows facilities to apply for an extra year if needed for compliance. Therefore, facilities could have up to 4 years to comply, which should be adequate time to resolve any remaining issues associated with the switch to non-PFOS suppressants.

B. Comments and Responses Associated With the Steel Pickling Source Category

Comment: One commenter opposed the proposed removal of the source-specific alternative concentration standard for chlorine (Cl₂) at HCl acid regeneration facilities. The commenter stated that the current regulation was specifically written to allow for the production of iron oxide of acceptable quality, and that removing the "alternative concentration standard" may have the unintended consequence of reducing the quality of the iron oxide produced and negatively impact the marketability of the material. The commenter noted that there are a

number of operational variables, including temperature and excess air, that must be manipulated to produce product to particular specifications. The commenter stated, "HCl regeneration plants have had to regularly modify and adapt operational parameters such as burner temperatures and nozzle types and pressures in order to meet the changing product specifications of the marketplace. The current regulation accounts for such variability by allowing for the setting of 'alternative concentration standards' due to the impact that such operational adjustments may have on Cl₂ emissions. The existing regulation demonstrates EPA's intent to allow HCl regeneration plants the ability to produce marketable products in changing markets and changing operational conditions. The proposed revision would undermine that intent and remove the operational flexibility that is necessary for HCl regeneration facilities to adapt to changing markets."

Response: We agree with the commenter to the extent the commenter suggests that the basis for the alternative compliance standard in the original MACT was for the purpose of allowing sources to "produce iron oxide of acceptable quality." However, section 112(d)(2) provides that EPA must establish a standard that ensures the maximum reductions of air pollutants subject to section 112, taking into consideration several factors. For existing sources that standard may not be less than the average emission limit achieved by the best performing 12 percent of existing sources or the average emission limitation achieved by the best performing five sources for which EPA could reasonably obtain information where the source category contains fewer than 30 sources. This is referred to as the MACT floor. Section 112 makes no allowance for establishing a standard less stringent than the floor for sources to which the floor applies. (72 FR 61060). For that reason, we believe that we inappropriately promulgated the alternative compliance limit at the time we promulgated the initial MACT standard. While it is true that the changing operational conditions have an effect on Cl₂ emissions, EPA believes there are available techniques for controlling Cl₂ emissions other than the modification of the operational parameters mentioned by the commenter. EPA believes that both a marketable product can be produced and the Cl₂ emission limit can be met. If a facility is unable to meet the Cl₂ emission limit and produce a marketable product by adjusting their

operational parameters, our review and analysis of available information indicate that the emission limit for chlorine can be met using available control technologies such as alkaline scrubbers.

Comment: One commenter noted that while EPA asserts that the source-specific alternative concentration provision does not meet the requirements in section 112(d)(2) and (3) of the CAA because MACT standards for existing sources cannot be less stringent than the average emissions limitation achieved by the best performing 12 percent of existing sources in the category or subcategory (or the best-performing five sources for categories or subcategories with fewer than 30 sources), EPA previously promulgated a regulation which allowed an alternative concentration standard. The commenter also stated that the CAA allows EPA the regulatory flexibility to set source-specific concentration standards for particular pollutants.

The commenter also noted that despite recently concluding that no new technology has been developed since the promulgation of the current regulation, and despite no new interpretation of the data supporting the promulgation of the current regulation, EPA has proposed to remove the "alternative concentration standard" provision. The commenter claims such a deletion is not merited by the facts nor required by the Clean Air Act, and that the current rule is lawful. The commenter also noted that the existing NESHAP provides an ample margin of safety to protect public health and prevent an adverse environmental effect.

Response: EPA believes that the alternate source specific provision does not meet the requirements in section 112(d)(2) and (3) of the CAA, and the CAA does not allow the regulatory flexibility to set source-specific concentration standards for particular pollutants. We disagree to the extent the commenter is suggesting that because EPA previously promulgated the alternative, it therefore must be consistent with the CAA. Neither the proposed nor final MACT rule provided the legal basis for the alternative and, since that time, the courts have rejected similar provisions in other standards. (72 FR 61060). The commenter cites no specific authority for the statement that the CAA allows EPA to set source-specific concentration standards for particular pollutants.

We also disagree with the commenters statement that in the original MACT rulemaking we concluded that we could set a numerical emission standard for

Cl₂ "so long as there was also the option to set alternative source-specific limits in order to ensure that facilities could actually produce marketable products." We drew no such linkage in that rulemaking. We agree with the commenter that we have not identified any new technology to provide further control of chlorine emissions. However, we are not basing this revision on section the 112(d)(6) review of developments in processes and control technologies. Rather, we are making this correction under CAA sections 112(d)(2) & (3) because we believe that the alternative compliance option was improperly promulgated at the time we promulgated the initial MACT standard. Although not relevant to the decision that a less stringent alternative compliance is not appropriate under section 112(d)(2) & (3), we note that the commenter has not claimed that it cannot meet the MACT standard through the use of alkaline scrubbers. The final rule based the standard for chlorine emission control on the use of single stage water scrubbing and the limit of 6 parts per million by volume (ppmv) is based on test data from facilities using that technology. However, if a facility cannot meet the limit using water scrubbing, they still have the option of using an alkaline scrubber to achieve compliance. The EPA stated in 62 FR 49063, "Wet scrubbing systems that do not use alkaline solution as the collection medium do not effectively control Cl₂ emissions."

Comment: One commenter stated that, "EPA must look to the emissions in the industry to determine the MACT floor at the time EPA proposes to amend the rule." The commenter also noted that it does not appear that EPA has considered any new data in making the decision to do away with the "alternative concentration standards." The commenter argued that the MACT floor is more than the existing standard of 6 ppmv, and in addition, EPA has the authority under the CAA to account for variability in emissions or operational factors in setting such standards, and cites *Cement Kiln Recycling Coalition v. EPA*, 255 F.3d 855 (DC Cir. 2001).

The commenter would like to know how EPA proposes to address such facilities' requests for alternative concentration standards, and how EPA proposes to regulate any facilities with alternative concentration standards.

Response: During the development of the original rule, EPA calculated the MACT floor for existing sources to be 6 ppmv and EPA does not believe the MACT floor would currently be any higher. In this rulemaking, we are not

amending the MACT standard nor re-assessing the MACT floor. Rather, we are removing the provision in the regulation allowing sources to seek a less stringent emission limit than the floor limit. Thus, we do not agree that we need to recalculate the MACT floor. However, we note that the commenter did not provide, and we are not aware of, any information that would indicate that a MACT floor determined 10 years after the original MACT was promulgated would be less stringent, particularly in light of the fact that 3 out of the 5 sources subject to the MACT standard have never indicated that there are compliance issues with that standard. The elimination of the alternative standard from the rule means the rule will no longer allow facilities to request alternative concentration standards.

Comment: One commenter stated that EPA's conclusion that the proposed removal of the "alternative concentration standard" provision will have a capital cost in the range of \$100,000 to \$200,000, cannot be supported by fact. The commenter also noted that in its description of the proposed revision, EPA states that there is no control technology available that is more effective in removing Cl₂ than existing technology already used by HCl regeneration facilities. The commenter stated that EPA's two statements are irreconcilable; how can a facility spend \$100,000 to \$200,000 to upgrade control equipment with new technology that does not exist? The commenter would like to know what EPA proposes existing facilities do that already have state of the art control technology.

Response: As noted in previous responses, alkaline scrubbers constitute an existing technology that is effective at controlling Cl₂ emissions. We are not suggesting that facilities upgrade to

"new technology" but rather that they convert at least one of their existing water scrubbers to an alkaline scrubber. The cost range presented in the proposed rule represents the estimated capital cost to upgrade a scrubber from using water to using an alkaline solution, if necessary to meet the emission limit. Based on available information, EPA believes sources can achieve the MACT standard with readily available control technologies (e.g., alkaline scrubbers) at reasonable cost and still produce a marketable product.

V. Summary of Cost, Environmental and Economic Impacts

A. What are the affected sources?

1. Chromium Electroplating and Chromium Anodizing

For the amendments to the Chromium Electroplating NESHAP, the affected sources are each hard chromium electroplating tank, each decorative chromium electroplating tank, and each chromium anodizing tank located at a facility that performs hard chromium electroplating, decorative chromium electroplating, or chromium anodizing.

2. Steel Pickling

For the amendments to the Steel Pickling NESHAP, the affected sources are steel pickling and hydrochloric acid regeneration plants that are major sources of HAP.

B. What are the emission reductions?

1. Chromium Electroplating and Chromium Anodizing

Overall, the amendments to the Chromium Electroplating NESHAP will reduce nationwide emissions of chromium compounds by an estimated 224 pounds per year (lbs/yr) from the current levels of 956 lbs/yr down to 732

lbs/yr. For large hard chromium electroplating, the amendments will reduce chromium compound emissions by about 148 lbs/yr from 454 lbs/yr down to 306 pounds. For small hard chromium electroplating, the amendments will reduce chromium compound emissions by an estimated 33 lbs/yr from 223 lbs/yr to 190 lbs/yr. For decorative chromium electroplating, the amendments will reduce chromium compound emissions by an estimated 35 lbs/yr from 222 lbs/yr down to 187 lbs/yr. For chromium anodizing, the amendments will reduce chromium compound emissions by an estimated 8 lbs/yr from 57 lbs/yr down to 49 lbs/yr. The amendments will have negligible impacts on secondary emissions because the additional control equipment that would be required will not significantly impact energy use by the affected facilities.

2. Steel Pickling

We estimate that the amendment to remove the alternative compliance provision for hydrochloric acid regeneration facilities will reduce emissions of chlorine by 15 tpy.

C. What are the cost impacts?

1. Chromium Electroplating and Chromium Anodizing

We estimate that these amendments will achieve 224 pounds reductions in hexavalent chromium emissions, and that the total capital and total annualized cost for these amendments is \$8.2 million and \$2.4 million, respectively. The overall cost effectiveness is \$10,600 per pound of hexavalent chromium emissions reductions. A summary of the estimated costs and reductions of hexavalent chromium emissions are shown in Table 8.

TABLE 8—SUMMARY OF COST IMPACTS FOR CHROMIUM ELECTROPLATING AND ANODIZING ASSOCIATED WITH SURFACE TENSION AND EMISSION LIMIT REQUIREMENTS

Source category or subcategory	Number of affected plants	Capital costs (controls + WAFS + all testing)	Annualized costs (controls + WAFS + all testing), \$/yr	Emissions reductions (lbs/yr)	Cost effectiveness (per lb)
Large Hard Chromium Electroplating	57	\$6,377,000	\$1,686,000	148	\$11,400
Small Hard Chromium Electroplating	91	1,424,000	476,000	33	14,600
Decorative Chromium Electroplating	313	163,000	166,000	35	4,800
Chromic Acid Anodizing	74	235,000	51,000	8	6,600
Total	535	8,200,000	2,380,000	224	10,600

Additionally, the total estimated capital and annualized cost for the housekeeping requirements of these

amendments is \$934,000 and \$228,000, respectively.

2. Steel Pickling

For HCl acid regeneration plants, we estimate that the total capital cost for the amendments is between \$100,000

and \$200,000, depending on whether the existing equipment can be upgraded or will need to be replaced. The annualized costs are estimated to be between \$11,419 and \$22,837 per year. The estimated cost effectiveness is \$761 to \$1,522 per ton of HAP (mainly chlorine).

D. What are the economic impacts?

1. Chromium Electroplating and Chromium Anodizing

EPA performed a screening analysis for impacts on affected small entities by comparing compliance costs to average sales revenues by employment size category.⁹ This is known as the cost-to-revenue or cost-to-sales ratio, or the “sales test.” The “sales test” is the impact methodology EPA primarily employs in analyzing small entity impacts as opposed to a “profits test,” in which annualized compliance costs are calculated as a share of profits. The sales test is frequently used because revenues or sales data are commonly available for entities impacted by EPA regulations, and profits data normally made available are often not the true profit earned by firms because of accounting and tax considerations. The use of a “sales test” for estimating small business impacts for a rulemaking is consistent with guidance offered by EPA on compliance with SBREFA¹⁰ and is consistent with guidance published by the U.S. SBA’s Office of Advocacy that suggests that cost as a percentage of total revenues is a metric for evaluating cost increases on small entities in relation to increases on large entities (U.S. SBA, 2010).¹¹

Based on the analysis, we estimate that approximately 97 percent of all affected facilities have a cost-to-sales ratio of less than 1 percent. In addition, for approximately 1 percent of all affected facilities, or 9 facilities with fewer than 20 employees, the potential for cost-to-sales impacts may be between 3 and 9 percent. All of these facilities are in the hard chromium electroplating category, with 3 of the facilities in the small hard chromium electroplating category and 6 in the large hard chromium electroplating

⁹ <http://www.census.gov/econ/subs/data/subs2002.html>.

¹⁰ The SBREFA compliance guidance to EPA rulewriters regarding the types of small business analysis that should be considered can be found at: <http://www.epa.gov/sbrefa/documents/Guidance-RegFlexAct.pdf>. See Table 2 on page 36 for guidance on interpretations of the magnitude of the cost-to-sales numbers.

¹¹ U.S. SBA, Office of Advocacy. A Guide for Government Agencies, How to Comply with the Regulatory Flexibility Act, Implementing the President’s Small Business Agenda and Executive Order 13272, June 2010.

category. For these categories, because the average sales receipts used for the analysis may understate sales for some facilities and because these facilities are likely to be able to pass cost increases through to their customers, we do not anticipate the final rule to result in firm closures, significant price increases, or substantial profit loss. We conclude that this final rule will not have a significant economic impact on a substantial number of small entities. More information and details of this analysis are provided in the technical document “Economic Impact Analysis for Risk and Technology Review: Chromium Electroplating and Chromium Anodizing Source Categories,” which is available in the docket for this final rule.

2. Steel Pickling

Because only one of the approximately 100 facilities incurs any cost for controls and that cost is estimated to be less than 1 percent of sales, no significant price or productivity impacts are anticipated due to these amendments.

E. What are the benefits?

1. Chromium Electroplating and Chromium Anodizing

The estimated reductions in chromium emissions that will be achieved by this rule will provide benefits to public health. The limits will result in significant reductions in the actual and allowable emissions of hexavalent chromium therefore will reduce the actual and potential cancer risks due to emissions of chromium from this source category.

2. Steel Pickling

The estimated reductions in chlorine emissions that will result from this action will provide benefits to public health. The limits will result in reductions in the potential for noncancer health effects due to emissions of these HAP.

VI. Statutory and Executive Order Reviews

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

Under Executive Order 12866 (58 FR 51735, October 4, 1993), this action is a significant regulatory action because it raises novel legal and policy issues. Accordingly, EPA submitted this action to the Office of Management and Budget (OMB) for review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011) 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 requirements related to the Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants MACT standards. However, the OMB has previously approved the information collection requirements contained in the existing regulations 40 CFR part 63, subpart CCC under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501, et seq and assigned OMB Control Number 2060–0419.

The information collection requirements in this rule for the Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks NESHAP have been submitted for approval to OMB under the Paperwork Reduction Act, 44 U.S.C. 3501, et seq. The Information Collection Request (ICR) document prepared was assigned EPA ICR number 1611.10. Burden changes associated with these amendments would result from the emission testing requirements and compliance demonstrations being promulgated with today’s action. The estimated average burden per response is 9 hours; the frequency of response is one-time for all respondents that must comply with the rule’s reporting requirements and the estimated average number of likely respondents per year is 485. The cost burden to respondents resulting from the collection of information includes the total capital cost annualized over the equipment’s expected useful life (\$100,958), a total operation and maintenance component (\$0 per year), and a labor cost component (about \$152,116 per year). Burden is defined at 5 CFR 1320.3(b).

An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA’s regulations in 40 CFR are listed in 40 CFR part 9. When this ICR is approved by OMB, the Agency will publish a technical amendment to 40 CFR part 9 in the **Federal Register** to display the OMB control number for the approved information collection requirements contained in this final rule.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the

Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of today's rule on small entities, small entity is defined as: (1) A small business that is a small industrial entity as defined by the Small Business Administration's (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.

After considering the economic impact of this final rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. This rule imposes more stringent emissions limits and lower surface tension requirements. These new requirements and restrictions to the hard and decorative chromium electroplating and chromium anodizing tanks MACT standard will impact small entities, but those impacts have been estimated to be nominal. The emissions limits reflect the level of performance currently being achieved by most facilities, and many facilities currently have emissions that are far below the limits. With regard to the remaining facilities (those that will need to achieve emissions reductions), most of these facilities can achieve the limits at low costs (e.g., by using additional fume suppressants).

The EPA's analysis estimated that 97 percent of the affected entities will have an annualized cost of less than 1 percent of sales. In addition, approximately 1 percent of affected entities, or 9 facilities with fewer than 20 employees, may have cost-to-sales ratios between 3 to 9 percent. All of these facilities are in the hard chromium electroplating category, with 3 of the facilities in the small hard chromium electroplating category and 6 in the large hard chromium electroplating category.

Since our analysis indicates that a small subset of facilities (about 1 percent) may have cost-to-sales ratios greater than 3 percent, we have conducted additional economic impact analyses on this small subset of facilities to better understand the potential economic impacts for these facilities. The additional analyses indicate the

estimates of costs-to-sales ratios in the initial analyses are more likely to be overstated rather than understated because the additional analyses indicate that sales are typically higher for these sources than the average value used in the initial analysis.

Moreover, because of the nature of the market, these facilities are likely to be able to pass cost increases through to their customers. As such, we do not anticipate the rule to result in firm closures, or substantial profit loss. More information and details of this analysis are provided in the technical document "Economic Impact Analysis for Risk and Technology Review: Chromium Electroplating," which is available in the docket for this final rule.

Although this rule will not have a significant economic impact on a substantial number of small entities, EPA nonetheless has tried to reduce the impact of this rule on small entities.

D. Unfunded Mandates Reform Act

This rule does not contain a Federal mandate under the provisions of Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1531–1538 for state, local, or tribal governments or the private sector. The rule will not result in expenditures of \$100 million or more for State, local, and tribal governments, in aggregate, or the private sector in any 1 year. The rule imposes no enforceable duties on any State, local, or tribal governments or the private sector. Thus, this rule is not subject to the requirements of sections 202 or 205 of the UMRA.

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

E. Executive Order 13132: Federalism

This rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. None of the facilities subject to this action are owned or operated by State governments and do not impose significant economic costs on state or local governments. Thus, Executive Order 13132 does not apply to this rule.

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

This rule will not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). It will not have substantial direct effect on tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes, as specified in Executive Order 13175. Thus, Executive Order 13175 does not apply to this action.

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

This rule is not subject to Executive Order 13045 (62 FR 19885, April 23, 1997) because it is not economically significant as defined in Executive Order 12866. However, some of the pollutants addressed by this action may present a disproportionate risk to children.¹² The phase-out of PFOS fume suppressants will help to reduce a disproportionate risk to children. This action will not relax the control measures on existing regulated sources and will result in reductions in cancer risks due to chromium emissions for people of all ages, including children. The EPA's risk assessments (included in the docket for this rule) demonstrate that these regulations, with the amendments being promulgated in today's action, will be health protective.

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

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

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law No. 104–113, 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards (VCS) in its regulatory

¹² The EPA has not yet determined whether hexavalent chromium poses disproportionate risks to children by acting as a mutagenic carcinogen. The EPA is currently developing an IRIS assessment of hexavalent chromium which likely will address that issue.

activities unless to do so would be inconsistent with applicable law or otherwise impractical. VCS are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by VCS bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable VCS.

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

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

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

To examine the potential for any environmental justice issues that might be associated with two of the source categories associated with today's rule (Hard Chromium Electroplaters and Decorative Chromium Electroplaters), we evaluated the percentages of various social, demographic, and economic groups within the at-risk populations living near the facilities where these source categories are located and compared them to national averages. We did not conduct this type of analysis for the chromic acid anodizing or steel pickling categories because the numbers of people for whom cancer risks were greater than 1-in-1 million due to HAP emissions from these source categories were low.

The analysis indicated that certain minority groups and low-income populations may be disproportionately exposed to emissions from these categories and to any risks that may result due to these emissions because the communities most proximate to facilities within these categories have a higher proportion of these groups than the national demographic profile. We did not, however, identify any vulnerability or susceptibility to risks particular to minority and low income populations from pollutants emitted from this source category.

We determined that this rule will not have disproportionately high and

adverse human health or environmental effects on minority or low-income populations because it maintains or increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority low-income, or indigenous populations. Further, after implementation of the provisions of this rule, the public health of all demographic groups will be protected with an ample margin of safety.

The development of demographic analyses to inform the consideration of environmental justice issues in EPA rulemakings is an evolving process. The EPA offers the demographic analyses in this rulemaking as examples of how such analyses might be developed to inform such consideration, with the hope that this will support the refinement and improve utility of such analyses for future rulemakings.

Our analysis of the demographics of the population with estimated risks greater than 1-in-1 million indicates potential disparities in risks between demographic groups, including the African American, Other and Multiracial, Hispanic, Below the Poverty Level, and the Over 25 without a High School Diploma groups. These groups stand to benefit the most from the emission reductions achieved by this rulemaking.

EPA defines "Environmental Justice" to include meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. To promote meaningful involvement, after the rule was proposed, EPA conducted a webinar to inform the public about the rule and to outline how to submit written comments to the docket. Further stakeholder and public input occurred through public comment and follow-up meetings with interested stakeholders.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801, *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that, before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. The EPA will submit a report containing this final rule and other required information to the United States Senate, the United States House of Representatives, and the

Comptroller General of the United States prior to publication of the final rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a "major rule" as defined by 5 U.S.C. 804(2). The final rules will be effective on September 19, 2012.

List of Subjects in 40 CFR Part 63

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

Dated: August 15, 2012.

Lisa P. Jackson,
Administrator.

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

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

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

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

- 2. Amend § 63.341 by:
- a. Adding, in alphabetical order, in paragraph (a), definitions for "affirmative defense," "contains hexavalent chromium," "existing affected source," "new affected source," and "perfluorooctane sulfonic acid (PFOS)-based fume suppressant";
 - b. Revising in paragraph (a) the definition for "wetting agent"; and
 - c. Revising paragraph (b)(10).

The added and revised text reads as follows:

§ 63.341 Definitions and nomenclature.

(a) * * *

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

* * * * *

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

* * * * *

Existing affected source means an affected hard chromium electroplating tank, decorative chromium electroplating tank, or chromium anodizing tank, the construction or

reconstruction of which commenced on or before February 8, 2012.

* * * * *

New affected source means an affected hard chromium electroplating tank, decorative chromium electroplating tank, or chromium anodizing tank, the construction or reconstruction of which commenced after February 8, 2012.

* * * * *

Perfluorooctane sulfonic acid (PFOS)-based fume suppressant means a fume suppressant that contains 1 percent or greater PFOS by weight.

* * * * *

Wetting agent means the type of commercially available chemical fume suppressant that materially reduces the surface tension of a liquid.

(b) * * *

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

■ 3. Amend § 63.342 by:

- a. Revising paragraph (a);
- b. Revising paragraph (b)(1);
- c. Revising paragraphs (c)(1)(i), (c)(1)(ii), and (c)(1)(iii);
- d. Adding paragraphs (c)(1)(iv) and (c)(1)(v);
- e. Revising paragraphs (c)(2)(i), (c)(2)(ii), (c)(2)(iii), and (c)(2)(iv);
- f. Adding paragraphs (c)(2)(v), (c)(2)(vii), and (c)(2)(viii);
- g. Revising paragraphs (d)(1) and (d)(2);
- h. Adding paragraphs (d)(3) and (d)(4);
- i. Revising paragraph (e)(1);
- j. Redesignating paragraphs (e)(2) and (e)(3) as paragraphs (e)(3) and (e)(4), and revising the newly designated paragraph (e)(4);
- k. Adding a new paragraph (e)(2);
- l. Adding paragraph (f)(3)(i)(F); and
- m. Adding Table 2 to read as follows:

§ 63.342 Standards.

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

to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

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

(b) * * *

(1) The emission limitations in this section apply during tank operation as defined in § 63.341, and during periods of startup and shutdown as these are routine occurrences for affected sources subject to this subpart. In response to an action to enforce the standards set forth in this subpart, the owner or operator may assert a defense to a claim for civil penalties for violations of such standards that are caused by a malfunction, as defined in 40 CFR 63.2. Appropriate penalties may be assessed, however, if the owner or operator fails to meet the burden of proving all the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunctive relief.

(i) To establish the affirmative defense in any action to enforce such a standard, the owner or operator must timely meet the reporting requirements of paragraph (b)(1)(ii) of this section, and must prove by a preponderance of evidence that:

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

(B) Repairs were made as expeditiously as possible when exceeded violation occurred. Off-shift and overtime labor were used, to the extent practicable to make these repairs; and

(C) The frequency, amount and duration of the violation (including any bypass) were minimized to the maximum extent practicable; and

(D) If the violation resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life,

personal injury, or severe property damage; and

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

(F) All emissions monitoring and control systems were kept in operation if at all possible, consistent with safety and good air pollution control practices; and

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

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

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

(ii) *Report.* The owner or operator seeking to assert an affirmative defense shall submit a written report to the Administrator with all necessary supporting documentation, that it has met the requirements set forth in paragraph (i) of this section. This affirmative defense report shall be included in the first periodic compliance, deviation report or excess emission report otherwise required after the initial occurrence of the violation of the relevant standard (which may be the end of any applicable averaging period). If such compliance, deviation report or excess emission report is due less than 45 days after the initial occurrence of the violation, the affirmation defense report may be included in the second compliance, deviation report or excess emission report due after the initial occurrence of the violation of the relevant standard.

(c)(1) * * *

(i) Not allowing the concentration of total chromium in the exhaust gas stream discharged to the atmosphere to exceed 0.011 milligrams of total chromium per dry standard cubic meter (mg/dscm) of ventilation air (4.8×10^{-6} grains per dry standard cubic foot (gr/dscf)) for all open surface hard chromium electroplating tanks that are existing affected sources and are located at large hard chromium electroplating facilities; or

(ii) Not allowing the concentration of total chromium in the exhaust gas stream discharged to the atmosphere to

exceed 0.015 mg/dscm (6.6×10^{-6} gr/dscf) for all open surface hard chromium electroplating tanks that are existing affected sources and are located at small, hard chromium electroplating facilities; or

(iii) If a chemical fume suppressant containing a wetting agent is used, not allowing the surface tension of the electroplating or anodizing bath contained within the affected tank to exceed 40 dynes per centimeter (dynes/cm) (2.8×10^{-3} pound-force per foot (lbf/ft)), as measured by a stalagmometer, or 33 dynes/cm (2.3×10^{-3} lbf/ft), as measured by a tensiometer at any time during tank operation; or

(iv) Not allowing the concentration of total chromium in the exhaust gas stream discharged to the atmosphere to exceed 0.006 mg/dscm of ventilation air (2.6×10^{-6} gr/dscf) for all open surface hard chromium electroplating tanks that are new affected sources; or

(v) After September 21, 2015, the owner or operator of an affected open surface hard chromium electroplating tank shall not add PFOS-based fume suppressants to any affected open surface hard chromium electroplating tank.

(2) * * *

(i) Not allowing the concentration of total chromium in the exhaust gas stream discharged to the atmosphere to exceed 0.011 mg/dscm of ventilation air (4.8×10^{-6} gr/dscf) for all enclosed hard chromium electroplating tanks that are existing affected sources and are located at large hard chromium electroplating facilities; or

(ii) Not allowing the concentration of total chromium in the exhaust gas stream discharged to the atmosphere to exceed 0.015 mg/dscm (6.6×10^{-6} gr/dscf) for all enclosed hard chromium electroplating tanks that are existing affected sources and are located at small, hard chromium electroplating facilities; or

(iii) If a chemical fume suppressant containing a wetting agent is used, not allowing the surface tension of the electroplating or anodizing bath contained within the affected tank to exceed 40 dynes/cm (2.8×10^{-3} lbf/ft), as measured by a stalagmometer, or 33 dynes/cm (2.3×10^{-3} lbf/ft), as

measured by a tensiometer at any time during tank operation; or

(iv) Not allowing the mass rate of total chromium in the exhaust gas stream discharged to the atmosphere to exceed the maximum allowable mass emission rate determined by using the calculation procedure in § 63.344(f)(1)(i) for all enclosed hard chromium electroplating tanks that are existing affected sources and are located at large hard chromium electroplating facilities; or

* * * * *

(vi) Not allowing the concentration of total chromium in the exhaust gas stream discharged to the atmosphere to exceed 0.006 mg/dscm of ventilation air (2.6×10^{-6} gr/dscf) for all enclosed hard chromium electroplating tanks that are new affected sources; or

(vii) Not allowing the mass rate of total chromium in the exhaust gas stream discharged to the atmosphere to exceed the maximum allowable mass emission rate determined by using the calculation procedure in § 63.344(f)(1)(iii) if the enclosed hard chromium electroplating tank is a new affected source.

(viii) After September 21, 2015, the owner or operator of an affected enclosed hard chromium electroplating tank shall not add PFOS-based fume suppressants to any affected enclosed hard chromium electroplating tank.

(d) * * *

(1) Not allowing the concentration of total chromium in the exhaust gas stream discharged to the atmosphere to exceed 0.007 mg/dscm (3.1×10^{-6} gr/dscf) for all existing decorative chromium electroplating tanks using a chromic acid bath and all existing chromium anodizing tanks; or

(2) Not allowing the concentration of total chromium in the exhaust gas stream discharged to the atmosphere to exceed 0.006 mg/dscm (2.6×10^{-6} gr/dscf) for all new or reconstructed decorative chromium electroplating tanks using a chromic acid bath and all new or reconstructed chromium anodizing tanks; or

(3) If a chemical fume suppressant containing a wetting agent is used, not allowing the surface tension of the electroplating or anodizing bath contained within the affected tank to exceed 40 dynes/cm (2.8×10^{-3} lbf/ft), as measured by a stalagmometer or 33

dynes/cm (2.3×10^{-3} lbf/ft), as measured by a tensiometer at any time during tank operation, for all existing, new, or reconstructed decorative chromium electroplating tanks using a chromic acid bath and all existing, new, or reconstructed chromium anodizing tanks; or

(4) After September 21, 2015, the owner or operator of an affected decorative chromium electroplating tank or an affected chromium anodizing tank shall not add PFOS-based fume suppressants to any affected decorative chromium electroplating tank or chromium anodizing tank.

(e) * * *

(1) Each owner or operator of an existing, new, or reconstructed decorative chromium electroplating tank that uses a trivalent chromium bath that incorporates a wetting agent as a bath ingredient is subject to the recordkeeping and reporting requirements of §§ 63.346(b)(14) and 63.347(i), but are not subject to the work practice requirements of paragraph (f) of this section, or the continuous compliance monitoring requirements in § 63.343(c). The wetting agent must be an ingredient in the trivalent chromium bath components purchased as a package.

(2) After September 21, 2015, the owner or operator of an affected decorative chromium electroplating tank using a trivalent chromium bath shall not add PFOS-based fume suppressants to any affected decorative chromium electroplating tank.

* * * * *

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

(f) * * *

(3) * * *

(i) * * *

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

* * * * *

TABLE 2 TO § 63.342—HOUSEKEEPING PRACTICES

For	You must:	At this minimum frequency
1. Any substance used in an affected chromium electroplating or chromium anodizing tank that contains hexavalent chromium.	(a) Store the substance in a closed container in an enclosed storage area or building; AND (b) Use a closed container when transporting the substance from the enclosed storage area.	At all times, except when transferring the substance to and from the container. Whenever transporting substance, except when transferring the substance to and from the container.
2. Each affected tank, to minimize spills of bath solution that result from dragout. Note: this measure does not require the return of contaminated bath solution to the tank. This requirement applies only as the parts are removed from the tank. Once away from the tank area, any spilled solution must be handled in accordance with Item 4 of these housekeeping measures.	(a) Install drip trays that collect and return to the tank any bath solution that drips or drains from parts as the parts are removed from the tank; OR (b) Contain and return to the tank any bath solution that drains or drips from parts as the parts are removed from the tank; OR (c) Collect and treat in an onsite wastewater treatment plant any bath solution that drains or drips from parts as the parts are removed from the tank.	Prior to operating the tank. Whenever removing parts from an affected tank. Whenever removing parts from an affected tank.
3. Each spraying operation for removing excess chromic acid from parts removed from, and occurring over, an affected tank.	Install a splash guard to minimize overspray during spraying operations and to ensure that any hexavalent chromium laden liquid captured by the splash guard is returned to the affected chromium electroplating or anodizing tank.	Prior to any such spraying operation.
4. Each operation that involves the handling or use of any substance used in an affected chromium electroplating or chromium anodizing tank that contains hexavalent chromium.	Begin clean up, or otherwise contain, all spills of the substance. Note: substances that fall or flow into drip trays, pans, sumps, or other containment areas are not considered spills.	Within 1 hour of the spill.
5. Surfaces within the enclosed storage area, open floor area, walkways around affected tanks contaminated with hexavalent chromium from an affected chromium electroplating or chromium anodizing tank.	(a) Clean the surfaces using one or more of the following methods: HEPA vacuuming; Hand-wiping with a damp cloth; Wet mopping; Hose down or rinse with potable water that is collected in a wastewater collection system; Other cleaning method approved by the permitting authority; OR (b) Apply a non-toxic chemical dust suppressant to the surfaces.	At least once every 7 days if one or more chromium electroplating or chromium anodizing tanks were used, or at least after every 40 hours of operating time of one or more affected chromium electroplating or chromium anodizing tank, whichever is later. According to manufacturer's recommendations.
6. All buffing, grinding, or polishing operations that are located in the same room as chromium electroplating or chromium anodizing operations.	Separate the operation from any affected electroplating or anodizing operation by installing a physical barrier; the barrier may take the form of plastic strip curtains.	Prior to beginning the buffing, grinding, or polishing operation.
7. All chromium or chromium-containing wastes generated from housekeeping activities.	Store, dispose, recover, or recycle the wastes using practices that do not lead to fugitive dust and in accordance with hazardous waste requirements.	At all times.

■ 4. Section 63.343 is amended by:
 ■ a. Revising paragraphs (a)(1), (a)(2), and (a)(4), and adding paragraph (a)(8);
 ■ b. Revising paragraph (b)(1); and
 ■ c. Revising paragraphs (c) introductory text, (c)(1)(ii), (c)(2)(ii), (c)(4)(ii), (c)(5)(i), (c)(5)(ii), and (c)(6)(ii).
 The added and revised text reads as follows:

§ 63.343 Compliance provisions.

(a)(1) The owner or operator of an existing affected source shall comply with the emission limitations in § 63.342 no later than September 19, 2014.

(2) The owner or operator of a new or reconstructed affected source that has an initial startup after September 19, 2012, shall comply immediately upon startup of the source.

* * * * *

(4) The owner or operator of a new area source (i.e., an area source for which construction or reconstruction was commenced after February 8, 2012, that increases actual or potential emissions of hazardous air pollutants such that the area source becomes a major source must comply with the provisions for new major sources, immediately upon becoming a major source.

* * * * *

(8) After March 19, 2013, the owner or operator of an affected source that is subject to the standards in paragraphs § 63.342(c) or (d) shall implement the housekeeping procedures specified in Table 2 of § 63.342.

(b) *Methods to demonstrate initial compliance.* (1) Except as provided in paragraphs (b)(2) and (b)(3) of this

section, an owner or operator of an affected source subject to the requirements of this subpart is required to conduct an initial performance test as required under § 63.7, using the procedures and test methods listed in §§ 63.7 and 63.344.

* * * * *

(c) *Monitoring to demonstrate continuous compliance.* The owner or operator of an affected source subject to the emission limitations of this subpart shall conduct monitoring according to the type of air pollution control technique that is used to comply with the emission limitation. The monitoring required to demonstrate continuous compliance with the emission limitations is identified in this section for the air pollution control techniques expected to be used by the owners or

operators of affected sources. As an alternative to the daily monitoring, the owner or operator of an affected source may install a continuous pressure monitoring system.

* * * * *

(c) * * *
(1) * * *

(ii) On and after the date on which the initial performance test is required to be completed under § 63.7, the owner or operator of an affected source, or group of affected sources under common control, shall monitor and record the pressure drop across the composite mesh-pad system once each day that any affected source is operating. To be in compliance with the standards, the composite mesh-pad system shall be operated within ±2 inches of water column of the pressure drop value established during the initial performance test, or shall be operated within the range of compliant values for pressure drop established during multiple performance tests.

* * * * *

(2) * * *

(ii) On and after the date on which the initial performance test is required to be completed under § 63.7, the owner or operator of an affected source, or group of affected sources under common control, shall monitor and record the velocity pressure at the inlet to the packed-bed system and the pressure drop across the scrubber system once each day that any affected source is operating. To be in compliance with the standards, the scrubber system shall be operated within ±10 percent of the velocity pressure value established during the initial performance test, and within ±1 inch of water column of the pressure drop value established during the initial performance test, or within the range of compliant operating parameter values established during multiple performance tests.

* * * * *

(4) * * *

(ii) On and after the date on which the initial performance test is required to be completed under § 63.7, the owner or operator of an affected source, or group of affected sources under common control, shall monitor and record the pressure drop across the fiber-bed mist eliminator, and the control device installed upstream of the fiber bed to prevent plugging, once each day that any affected source is operating. To be in compliance with the standards, the fiber-bed mist eliminator and the upstream control device shall be operated within ±1 inch of water column of the pressure drop value established during the initial

performance test, or shall be operated within the range of compliant values for pressure drop established during multiple performance tests.

* * * * *

(5) *Wetting agent-type or combination wetting agent-type/foam blanket fume suppressants.* (i) During the initial performance test, the owner or operator of an affected source complying with the emission limitations in § 63.342 through the use of a wetting agent in the electroplating or anodizing bath shall determine the outlet chromium concentration using the procedures in § 63.344(c). The owner or operator shall establish as the site-specific operating parameter the surface tension of the bath using Method 306B, appendix A of this part, setting the maximum value that corresponds to compliance with the applicable emission limitation. In lieu of establishing the maximum surface tension during the performance test, the owner or operator may accept 40 dynes/cm, as measured by a stalagmometer, or 33 dynes/cm, as measured by a tensiometer, as the maximum surface tension value that corresponds to compliance with the applicable emission limitation. However, the owner or operator is exempt from conducting a performance test only if the criteria of paragraph (b)(1) of this section are met.

(ii) On and after the date on which the initial performance test is required to be completed under § 63.7, the owner or operator of an affected source shall monitor the surface tension of the electroplating or anodizing bath. Operation of the affected source at a surface tension greater than the value established during the performance test, or greater than 40 dynes/cm, as measured by a stalagmometer, or 33 dynes/cm, as measured by a tensiometer, if the owner or operator is using this value in accordance with paragraph (c)(5)(i) of this section, shall constitute noncompliance with the standards. The surface tension shall be monitored according to the following schedule:

* * * * *

(6) * * *

(ii) On and after the date on which the initial performance test is required to be completed under § 63.7, the owner or operator of an affected source shall monitor the foam blanket thickness of the electroplating or anodizing bath. Operation of the affected source at a foam blanket thickness less than the value established during the performance test, or less than 2.54 cm (1 inch) if the owner or operator is using this value in accordance with paragraph

(c)(6)(i) of this section, shall constitute noncompliance with the standards. The foam blanket thickness shall be measured according to the following schedule:

* * * * *

- 5. Section 63.344 is amended by:
- a. Revising paragraph (a) introductory text;
- b. Removing “and” from the end of paragraph (b)(1)(iii);
- c. Removing the period from the end of paragraph (b)(1)(iv) and adding “; and” in its place;
- d. Adding paragraphs (b)(1)(v) through (b)(1)(viii);
- e. Removing and reserving paragraph (b)(2);
- f. Revising paragraph (c)(1);
- g. Revising paragraphs (e)(3)(iii), (e)(3)(iv), and (e)(3)(v);
- h. Revising paragraphs (e)(4)(ii) and (e)(4)(iv);
- i. Revising paragraphs (f)(1)(i)(A) and (f)(1)(ii)(A); and
- j. Adding paragraph (f)(1)(iii).

The added and revised text reads as follows:

§ 63.344 Performance test requirements and test methods.

(a) *Performance test requirements.* Performance tests shall be conducted using the test methods and procedures in this section. Performance tests shall be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance of the affected source for the period being tested. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests. Performance test results shall be documented in complete test reports that contain the information required by paragraphs (a)(1) through (9) of this section. The test plan to be followed shall be made available to the Administrator prior to the testing, if requested.

* * * * *

(b)(1) * * *

- (v) The performance test was conducted after January 25, 1995;
- (vi) As of September 19, 2012 the source was using the same emissions controls that were used during the compliance test;
- (vii) As of September 19, 2012, the source was operating under conditions that are representative of the conditions under which the source was operating during the compliance test; and
- (viii) Based on approval from the permitting authority.

* * * * *

(c) * * *

(1) Method 306 or Method 306A, "Determination of Chromium Emissions From Decorative and Hard Chromium Electroplating and Anodizing Operations," appendix A of this part shall be used to determine the chromium concentration from hard or decorative chromium electroplating tanks or chromium anodizing tanks. The sampling time and sample volume for

each run of Methods 306 and 306A, appendix A of this part shall be at least 120 minutes and 1.70 dscm (60 dscf), respectively. Methods 306 and 306A, appendix A of this part allow the measurement of either total chromium or hexavalent chromium emissions. For the purposes of this standard, sources using chromic acid baths must demonstrate compliance with the

emission limits of § 63.342 by measuring the total chromium.

* * * * *

(e) * * *

(3) * * *

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

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

$$VR_{tot} \times \frac{IDA_i}{\sum IA_{total}} = VR_{inlet} \tag{1}$$

where VR_{tot} is the average total ventilation rate in dscm/min for the three test runs as determined at the outlet by means of the Method 306 or 306A testing; IDA_i is the total inlet area for all ducts associated with

affected sources; $\sum IA_{total}$ is the sum of all inlet duct areas from both affected and nonaffected sources; and VR_{inlet} is the total ventilation rate from all inlet ducts associated with affected sources.

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

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

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

equation 2 should be equal to or more than the outlet three-run average mass emission rate determined from Method 306 or 306A testing in order for the source to be in compliance with the standard.

(4) * * *

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

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

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

of all duct areas from both affected and nonaffected sources; and $VR_{inlet,a}$ is the total ventilation rate from all inlet ducts conveying chromic acid from each type of affected source performing the same operation, or each type of affected source subject to the same emission limitation.

* * * * *

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

$$AMR_{hc1} + AMR_{hc2} + AMR_{dc} + AMR_{ca} = AMR_{sys} \tag{8}$$

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

* * * * *

(f) * * *

(1) * * *

(i)(A) The owner or operator of an enclosed hard chromium electroplating tank that is an existing affected source and is located at a large hard chromium electroplating facility who chooses to meet the mass emission rate standard in

§ 63.342(c)(2)(iv) shall determine compliance by not allowing the mass rate of total chromium in the exhaust gas stream discharged to the atmosphere to exceed the maximum allowable mass emission rate calculated using equation 9:

$$MAMER = ETSA \times K \times 0.011 \text{ mg/dscm} \tag{9}$$

* * * * *

(ii)(A) The owner or operator of an enclosed hard chromium electroplating tank that is an existing affected source

located at a small hard chromium electroplating facility who chooses to meet the mass emission rate standard in § 63.342(c)(2)(v) shall determine

compliance by not allowing the mass rate of total chromium in the exhaust gas stream discharged to the atmosphere to exceed the maximum allowable mass

emission rate calculated using equation 10:

$$\text{MAMER} = \text{ETSA} \times K \times 0.015 \text{ mg/dscm.} \quad (10)$$

* * * * *
 (iii)(A) The owner or operator of an enclosed hard chromium electroplating tank that is a new source who chooses

to meet the mass emission rate standard in § 63.342(c)(2)(vii) shall determine compliance by not allowing the mass rate of total chromium in the exhaust

gas stream discharged to the atmosphere to exceed the maximum allowable mass emission rate calculated using equation 11:

$$\text{MAMER} = \text{ETSA} \times K \times 0.006 \text{ mg/dscm.} \quad (11)$$

(B) Compliance with the alternative mass emission limit is demonstrated if the three-run average mass emission rate determined from testing using Method 306 or 306A of appendix A to part 63 is less than or equal to the maximum allowable mass emission rate calculated from equation 11.

■ 6. Amend § 63.346 by revising paragraphs (b)(2),(b)(4) and (b)(13) to read as follows:

§ 63.346 Recordkeeping requirements.

* * * * *
(b) * * *

(2) Records of all maintenance performed on the affected source, the add-on air pollution control device, and monitoring equipment, except routine housekeeping practices;

* * * * *

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

* * * * *

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

* * * * *

■ 7. Amend § 63.347 by:
 ■ a. Adding paragraph (f)(3);
 ■ b. Redesignating paragraphs (g)(3)(xii) and (g)(3)(xiii) as (g)(3)(xiii) and (g)(3)(xiv), respectively, and adding a new paragraph (g)(3)(xii); and
 ■ c. Revising paragraphs (h)(2)(i) introductory text and (h)(2)(i)(A) to read as follows:

§ 63.347 Reporting requirements.

* * * * *

(f) * * *

(3)(i) Within 60 days after the date of completing each performance test (defined in § 63.2) as required by this subpart, you must submit the results of the performance tests, including any associated fuel analyses, required by this subpart to the EPA's WebFIRE database by using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through the EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). Performance test data must be submitted in the file format generated through use of the EPA's Electronic Reporting Tool (ERT) (see <http://www.epa.gov/ttn/chief/ert/index.html>). Only data collected using test methods on the ERT Web site are subject to this requirement for submitting reports electronically to WebFIRE. Owners or operators who claim that some of the information being submitted for performance tests is confidential business information (CBI) must submit a complete ERT file including information claimed to be CBI on a compact disk, flash drive or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: WebFIRE Administrator, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT file with the CBI omitted must be submitted to the EPA via CDX as described earlier in this paragraph. At the discretion of the delegated authority, you must also submit these reports, including the confidential business information, to the delegated authority in the format specified by the delegated authority. For any performance test conducted using test methods that are not listed on the ERT Web site, the owner or operator shall submit the results of the performance test to the Administrator at the appropriate address listed in § 63.13.

* * * * *

(g) * * *
(3) * * *

(xii) The number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with § 63.342(a)(1), including actions taken to correct a malfunction.

(xiii) The name, title, and signature of the responsible official who is certifying the accuracy of the report; and

(xiv) The date of the report.

* * * * *

(h) * * *

(2) * * *

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

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

* * * * *

■ 8. Amend Table 1 to Subpart N by:
 ■ a. Adding in alphanumerical order entries 63.1(a)(5), 63.1(a)(7)-(9), 63.1(a)(12), 63.1(c)(3)-(4), 63.4(a)(1)-(2), 63.4(a)(3)-(5), 63.4(b)-(c), 63.5(b)(2), 63.5(c), 63.6(c)(3)-(4), 63.6(d), 63.6(e)(1)-(3), 63.6(h)(1), 63.6(h)(2), 63.6(i)(15), 63.7(a)(2)(i)-(viii), 63.7(a)(4), 63.7(e)(1), 63.7(e)(2)-(4), 63.7(g)(2), 63.8(a)(3), and 63.9(h)(4).

■ b. Removing entries 63.1(a)(7) and 63.1(a)(8), 63.1(a)(12)-(a)(14), 63.1(c)(4), 63.4, 63.6(e), 63.6(h), 63.7(a)(2)(i)-(vi), and 63.7(e).

■ c. Revising entries 63.1(b)(2), 63.5(b)(5), 63.6(b)(6), and 63.9(b)(3),

The added and revised text reads as follows:

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

General provisions reference	Applies to subpart N	Comment
63.1(a)(5)	No	[Reserved]
63.1(a)(7)–(9)	No	[Reserved]
63.1(a)(12)	Yes	
63.1(b)(2)	No	[Reserved]
63.1(c)(3)–(4)	No	[Reserved]
63.4(a)(1)–(2)	Yes.	
63.4(a)(3)–(5)	No	[Reserved]
63.4(b)–(c)	Yes.	
63.5(b)(2)	No	[Reserved]
63.5(b)(5)	No	[Reserved]
63.5(c)	No	[Reserved]
63.6(b)(6)	No	[Reserved]
63.6(c)(3)–(4)	No	[Reserved]
63.6(d)	No	[Reserved]
63.6(e)(1)–(3)	No	§ 63.342(f) of subpart N contains work practice standards (operation and maintenance requirements) that override these provisions.
63.6(h)(1)	No	SSM Exception
63.6(h)(2)	No	Subpart N does not contain any opacity or visible emission standards.
63.6(i)(15)	No	[Reserved]
63.7(a)(2)(i)–(viii)	No	[Reserved]
63.7(a)(4)	Yes	
63.7(e)(1)	No	See § 63.344(a). Any cross reference to § 63.7(e)(1) in any other general provision incorporated by reference shall be treated as a cross-reference to § 63.344(a).
63.7(e)(2)–(4)	Yes	Subpart N also contains test methods specific to affected sources covered by that subpart.
63.7(g)(2)	No	[Reserved]
63.8(a)(3)	No	[Reserved]
63.9(b)(3)	No	[Reserved]
63.9(h)(4)	No	[Reserved]

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

General provisions reference	Applies to subpart N	Comment
Subpart CCC—[AMENDED]		
<p>■ 9. Section 63.1155 is amended by adding paragraph (d) to read as follows:</p>	<p>ambient air quality, the environment, and human health; and (vi) All emissions monitoring and control systems were kept in operation if at all possible, consistent with safety and good air pollution control practices; and (vii) All of the actions in response to the violation were documented by properly signed, contemporaneous operating logs; and (viii) At all times, the affected source was operated in a manner consistent with good practices for minimizing emissions; and (ix) A written root cause analysis has been prepared, the purpose of which is to determine, correct, and eliminate the primary causes of the malfunction and the violation resulting from the malfunction event at issue. The analysis shall also specify, using the best monitoring methods and engineering judgment, the amount of excess emissions that were the result of the malfunction.</p>	<p>defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding.</p>
<p>§ 63.1155 Applicability.</p>		
<p>(d) In response to an action to enforce the standards set forth in this subpart, the owner or operator may assert an affirmative defense to a claim for civil penalties for violations of such standards that are caused by a malfunction, as defined in § 63.2. Appropriate penalties may be assessed, however, if the owner or operator fails to meet the burden of proving all the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunctive relief.</p>	<p>(x) To establish the affirmative defense in any action to enforce such a standard, the owner or operator must timely meet the reporting requirements of paragraph (d)(2) of this section, and must prove by a preponderance of evidence that:</p>	<p>■ 11. Section 63.1157 is amended by revising paragraph (b)(2) to read as follows:</p>
<p>(1) To establish the affirmative defense in any action to enforce such a standard, the owner or operator must timely meet the reporting requirements of paragraph (d)(2) of this section, and must prove by a preponderance of evidence that:</p>	<p>(i) The violation was caused by a sudden, infrequent, and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal and usual manner; and could not have been prevented through careful planning, proper design, or better operation and maintenance practices; and did not stem from any activity or event that could have been foreseen and avoided, or planned for; and was not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and</p>	<p>§ 63.1157 Emission standards for existing sources.</p>
<p>(ii) Repairs were made as expeditiously as possible when exceeded violation occurred. Off-shift and overtime labor were used, to the extent practicable to make these repairs; and</p>	<p>(ii) A written root cause analysis has been prepared, the purpose of which is to determine, correct, and eliminate the primary causes of the malfunction and the violation resulting from the malfunction event at issue. The analysis shall also specify, using the best monitoring methods and engineering judgment, the amount of excess emissions that were the result of the malfunction.</p>	<p>(b) * * * (2) In addition to the requirement of paragraph (b)(1) of this section, no owner or operator of an existing plant shall cause or allow to be discharged into the atmosphere from the affected plant any gases that contain chlorine (Cl₂) in a concentration in excess of 6 ppmv.</p>
<p>(iii) The frequency, amount, and duration of the violation (including any bypass) were minimized to the maximum extent practicable; and</p>	<p>(2) <i>Report.</i> The owner or operator seeking to assert an affirmative defense shall submit a written report to the Administrator with all necessary supporting documentation, that it has met the requirements set forth in paragraph (d)(1) of this section. This affirmative defense report shall be included in the first periodic compliance, deviation report or excess emission report otherwise required after the initial occurrence of the violation of the relevant standard (which may be the end of any applicable averaging period). If such compliance, deviation report or excess emission report is due less than 45 days after the initial occurrence of the violation, the affirmation defense report may be included in the second compliance, deviation report or excess emission report due after the initial occurrence of the violation of the relevant standard.</p>	<p>■ 12. Section 63.1159 is amended by adding paragraph (c) to read as follows:</p>
<p>(iv) If the violation resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and</p>	<p>■ 10. Section 63.1156 is amended by adding in alphabetical order a definition for “affirmative defense” to read as follows:</p>	<p>§ 63.1159 Operational and equipment standards for existing, new, or reconstructed sources.</p>
<p>(v) All possible steps were taken to minimize the impact of the violation on</p>	<p>§ 63.1156 Definitions. * * * * * <i>Affirmative defense</i> means, in the context of an enforcement proceeding, a response or a defense put forward by a defendant, regarding which the</p>	<p>(c) <i>General duty to minimize emissions.</i> At all times, each owner or operator must operate and maintain any affected source subject to the requirements of this subpart, including associated air pollution control equipment and monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the owner or operator to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.</p>
		<p>■ 13. Section 63.1160 is amended by revising paragraph (b) to read as follows:</p>
		<p>§ 63.1160 Compliance dates and maintenance requirements.</p>
		<p>(b) <i>Maintenance requirements.</i> (1) The owner or operator shall prepare an</p>

operation and maintenance plan for each emission control device to be implemented no later than the compliance date. The plan shall be incorporated by reference into the source's title V permit. All such plans must be consistent with good maintenance practices, and, for a scrubber emission control device, must at a minimum:

(i) Require monitoring and recording the pressure drop across the scrubber once per shift while the scrubber is operating in order to identify changes that may indicate a need for maintenance;

(ii) Require the manufacturer's recommended maintenance at the recommended intervals on fresh solvent pumps, recirculating pumps, discharge pumps, and other liquid pumps, in addition to exhaust system and scrubber fans and motors associated with those pumps and fans;

(iii) Require cleaning of the scrubber internals and mist eliminators at intervals sufficient to prevent buildup of solids or other fouling;

(iv) Require an inspection of each scrubber at intervals of no less than 3 months with:

(A) Cleaning or replacement of any plugged spray nozzles or other liquid delivery devices;

(B) Repair or replacement of missing, misaligned, or damaged baffles, trays, or other internal components;

(C) Repair or replacement of droplet eliminator elements as needed;

(D) Repair or replacement of heat exchanger elements used to control the temperature of fluids entering or leaving the scrubber; and

(E) Adjustment of damper settings for consistency with the required air flow.

(v) If the scrubber is not equipped with a viewport or access hatch allowing visual inspection, alternate means of inspection approved by the Administrator may be used.

(vi) The owner or operator shall initiate procedures for corrective action within 1 working day of detection of an operating problem and complete all corrective actions as soon as practicable. Procedures to be initiated are the applicable actions that are specified in the maintenance plan. Failure to initiate or provide appropriate repair, replacement, or other corrective action is a violation of the maintenance requirement of this subpart.

(vii) The owner or operator shall maintain a record of each inspection, including each item identified in paragraph (b)(2)(iv) of this section, that is signed by the responsible maintenance official and that shows the date of each inspection, the problem

identified, a description of the repair, replacement, or other corrective action taken, and the date of the repair, replacement, or other corrective action taken.

(2) The owner or operator of each hydrochloric acid regeneration plant shall develop and implement a written maintenance program. The program shall require:

(i) Performance of the manufacturer's recommended maintenance at the recommended intervals on all required systems and components;

(ii) Initiation of procedures for appropriate and timely repair, replacement, or other corrective action within 1 working day of detection; and

(iii) Maintenance of a daily record, signed by a responsible maintenance official, showing the date of each inspection for each requirement, the problems found, a description of the repair, replacement, or other action taken, and the date of repair or replacement.

■ 14. Section 63.1161 is amended by:

■ a. Revising paragraph (a); and

■ b. Removing and reserving paragraph (c)(2).

§ 63.1161 Performance testing and test methods.

(a) *Demonstration of compliance.* The owner or operator shall conduct an initial performance test for each process or emission control device to determine and demonstrate compliance with the applicable emission limitation according to the requirements in § 63.7 of subpart A of this part and in this section. Performance tests shall be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance of the affected source for the period being tested. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

* * * * *

■ 15. Section 63.1164 is amended by:

■ a. Revising paragraph (a); and

■ b. Revising paragraph (c).

§ 63.1164 Reporting requirements.

(a) *Reporting results of performance tests.* Within 60 days after the date of completing each performance test (defined in § 63.2), as required by this subpart you must submit the results of the performance tests, including any associated fuel analyses, required by this subpart to the EPA's WebFIRE database by using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through the

EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). Performance test data must be submitted in the file format generated through use of the EPA's Electronic Reporting Tool (ERT) (see <http://www.epa.gov/ttn/chief/ert/index.html>). Only data collected using test methods on the ERT Web site are subject to this requirement for submitting reports electronically to WebFIRE. Owners or operators who claim that some of the information being submitted for performance tests is confidential business information (CBI) must submit a complete ERT file including information claimed to be CBI on a compact disk, flash drive or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: WebFIRE Administrator, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT file with the CBI omitted must be submitted to the EPA via CDX as described earlier in this paragraph. At the discretion of the delegated authority, you must also submit these reports, including the confidential business information, to the delegated authority in the format specified by the delegated authority. For any performance test conducted using test methods that are not listed on the ERT Web site, the owner or operator shall submit the results of the performance test to the Administrator at the appropriate address listed in § 63.13.

* * * * *

(c) *Reporting malfunctions.* The number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded shall be stated in a semiannual report. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with § 63.1159(c), including actions taken to correct a malfunction. The report, to be certified by the owner or operator or other responsible official, shall be submitted semiannually and delivered or postmarked by the 30th day following the end of each calendar half.

■ 16. Section 63.1165 is amended by:

■ a. Revising paragraph (a)(1);

■ b. Revising paragraph (a)(4);

■ c. Removing paragraph (a)(5), and redesignating paragraphs (a)(6) through (a)(11) as (a)(5) through (a)(10).

The revisions read as follows:

§ 63.1165 Recordkeeping requirements.

(a) * * *

(1) The occurrence and duration of each malfunction of operation (*i.e.*, process equipment);

* * * * *

(4) Actions taken during periods of malfunction to minimize emissions in accordance with § 63.1259(c) and the dates of such actions (including corrective actions to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation);

* * * * *

- 17. Table 1 to Subpart CCC is amended by:
 - a. Removing entry 63.6(a)–(g);
 - b. Adding entry 63.6(a)–(d) in alphanumerical order;
 - c. Adding entries 63.6(e)(1)(i), 63.6(e)(1)(ii), 63.6(e)(1)(iii), 63.6(e)(2), 63.6(e)(3), 63.6(f)(1), 63.6(f)(2)–(3), and 63.6(g) in alphanumerical order;
 - d. Removing entry 63.7–63.9;
 - e. Adding entries 63.7, 63.8(a)–(c), 63.8(d)(1)–(2), 63.8(d)(3), and 63.8(e)–(f) in alphanumerical order;

- f. Removing entry 63.10(a)–(c);
 - g. Adding entries 63.10(a), 63.10(b)(1), 63.10(b)(2)(i), 63.10(b)(2)(ii), 63.10(b)(2)(iii), 63.10(b)(2)(iv)–(v), 63.10(b)(2)(vi)–(xiv), 63.10(b)(3), 63.10(c)(1)–(9), 63.10(c)(10), 63.10(c)(11), 63.10(c)(12)–(14), and 63.10(c)(15) in alphanumerical order;
 - h. Removing entry 63.10(d)(4)–(5); and
 - i. Adding entries 63.10(d)(4) and 63.10(d)(5) in alphanumerical order.
- The additions read as follows:

TABLE 1 TO SUBPART CCC OF PART 63—APPLICABILITY OF GENERAL PROVISIONS (40 CFR PART 63, SUBPART A) TO SUBPART CCC

Reference	Applies to subpart CCC	Explanation
63.6 (a)–(d)	Yes.	
63.6(e)(1)(i)	No	See § 63.1259(c) for general duty requirement. Any cross-reference to § 63.6(e)(1)(i) in any other general provision incorporated by reference shall be treated as a cross-reference to § 63.1259(c).
63.6(e)(1)(ii)	No.	
63.6(e)(1)(iii)	Yes.	
63.6(e)(2)	No	Section reserved.
63.6(e)(3)	No.	
63.6(f)(1)	No.	
63.6(f)(2)–(3)	Yes.	
63.6(g)	Yes.	
63.7	Yes.	
63.8(a)–(c)	Yes.	
63.8(d)(1)–(2)	Yes.	
63.8(d)(3)	Yes, except for last sentence.	
63.8(e)–(f)	Yes.	
63.10(a)	Yes.	
63.10(b)(1)	Yes.	
63.10(b)(2)(i)	No.	
63.10(b)(2)(ii)	No	See § 63.1265(a)(1) for recordkeeping of occurrence and duration of malfunctions. See § 63.1265(a)(4) for recordkeeping of actions taken during malfunction. Any cross-reference to § 63.10(b)(2)(ii) in any other general provision incorporated by reference shall be treated as a cross-reference to § 63.1265(a)(1).
63.10(b)(2)(iii)	Yes.	
63.10(b)(2)(iv)–(b)(2)(v)	No.	
63.10(b)(2)(vi)–(b)(2)(xiv)	Yes.	
63.10(b)(3)	Yes.	
63.10(c)(1)–(9)	Yes.	
63.10(c)(10)	No	See § 63.1164(c) for reporting malfunctions. Any cross-reference to § 63.10(c)(10) in any other general provision incorporated by reference shall be treated as a cross-reference to § 63.1164(c).
63.10(c)(11)	No	See § 63.1164(c) for reporting malfunctions. Any cross-reference to § 63.10(c)(11) in any other general provision incorporated by reference shall be treated as a cross-reference to § 63.1164(c).
63.10(c)(12)–(c)(14)	Yes.	
63.10(c)(15)	No.	
63.10(d)(4)	Yes.	
63.10(d)(5)	No.	

- 18. Amend Appendix A to part 63, Method 306B by:
 - a. Revising paragraph 1.2;
 - b. Revising paragraph 6.1;

- c. Revising paragraphs 11.1 through 11.1.3; and
- d. Revising paragraph 11.2.2.

■ The added and revised text reads as follows:

**Appendix A to Part 63—Test Methods
Pollutant Measurement Methods From
Various Waste Media**

* * * * *

**METHOD 306B—SURFACE TENSION
MEASUREMENT FOR TANKS USED AT
DECORATIVE CHROMIUM
ELECTROPLATING AND CHROMIUM
ANODIZING FACILITIES**

* * * * *

1.0 Scope and Application

* * * * *

1.2 Applicability. This method is applicable to all chromium electroplating and chromium anodizing operations, and continuous chromium plating at iron and steel facilities where a wetting agent is used in the tank as the primary mechanism for reducing emissions from the surface of the plating solution.

* * * * *

6.0 Equipment and Supplies

6.1 Stalagmometer. Any commercially available stalagmometer or equivalent surface tension measuring device may be used to measure the surface tension of the plating or anodizing tank liquid provided the procedures specified in Section 11.1.2 are followed.

* * * * *

11.0 Analytical Procedure

11.1 Procedure. The surface tension of the tank bath may be measured using a tensiometer, stalagmometer, or any other equivalent surface tension measuring device for measuring surface tension in dynes per centimeter.

11.1.1 If a tensiometer is used, the procedures specified in ASTM Method D 1331–89 must be followed.

11.1.2 If a stalagmometer is used, the procedures specified in Sections 11.1.2.1 through 11.1.2.3 must be followed.

11.1.2.1 Check the stalagmometer for visual signs of damage. If the stalagmometer appears to be chipped, cracked, or otherwise in disrepair, the instrument shall not be used.

11.1.2.2 Using distilled or deionized water and following the procedures provided by the manufacturer, count the number of drops corresponding to the distilled/deionized water liquid volume between the upper and lower etched marks on the stalagmometer. If the number of drops for the distilled/deionized water is not within ± 1 drop of the number indicated on the instrument, the stalagmometer must be cleaned, using the procedures specified in Section 11.1.3 of this method, before using the instrument to measure the surface tension of the tank liquid.

11.1.2.2.1 If the stalagmometer must be cleaned, as indicated in Section 11.1.2.2, repeat the procedure specified in Section 11.1.2.2 before proceeding.

11.1.2.2.2 If, after cleaning and performing the procedure in Section 11.1.2.2, the number of drops indicated for the distilled/deionized water is not within ± 1 drop of the number indicated on the instrument, either use the number of drops corresponding to the distilled/deionized water volume as the reference number of drops, or replace the instrument.

11.1.2.3 Determine the surface tension of the tank liquid using the procedures specified by the manufacturer of the stalagmometer.

11.1.3 *Stalagmometer cleaning procedures.* The procedures specified in Sections 11.1.3.1 through 11.1.3.10 shall be used for cleaning a stalagmometer, as required by Section 11.1.2.2.

11.1.3.1 Set up the stalagmometer on its stand in a fume hood.

11.1.3.2 Place a clean 150 (mL) beaker underneath the stalagmometer and fill the

beaker with reagent grade concentrated nitric acid.

11.1.3.3 Immerse the bottom tip of the stalagmometer (approximately 1 centimeter (0.5 inches)) into the beaker.

11.1.3.4 Squeeze the rubber bulb and pinch at the arrow up (1) position to collapse.

11.1.3.5 Place the bulb end securely on top end of stalagmometer and carefully draw the nitric acid by pinching the arrow up (1) position until the level is above the top etched line.

11.1.3.6 Allow the nitric acid to remain in stalagmometer for 5 minutes, then carefully remove the bulb, allowing the acid to completely drain.

11.1.3.7 Fill a clean 150 mL beaker with distilled or deionized water.

11.1.3.8 Using the rubber bulb per the instructions in Sections 11.1.3.4 and 11.1.3.5, rinse and drain stalagmometer with deionized or distilled water.

11.1.3.9 Fill a clean 150 mL beaker with isopropyl alcohol.

11.1.3.10 Again using the rubber bulb per the instructions in Sections 11.1.3.4 and 11.1.3.5, rinse and drain stalagmometer twice with isopropyl alcohol and allow the stalagmometer to dry completely.

11.2 * * *

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11.2.2 If a measurement of the surface tension of the solution is above the 40 dynes per centimeter limit when measured using a stalagmometer, above 33 dynes per centimeter when measured using a tensiometer, or above an alternate surface tension limit established during the performance test, the time interval shall revert back to the original monitoring schedule of once every 4 hours. A subsequent decrease in frequency would then be allowed according to Section 11.2.1.

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