

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 63**

[OAR-2002-0034; FRL-7554-5]

RIN 2060-AE43

**National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries**

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

**ACTION:** Final rule.

**SUMMARY:** This action promulgates national emission standards for hazardous air pollutants (NESHAP) for iron and steel foundries. The EPA has identified iron and steel foundries as a major source of hazardous air pollutant (HAP) emissions. These standards implement section 112(d) of the Clean Air Act (CAA) by requiring all major sources to meet HAP emissions

standards reflecting application of the maximum achievable control technology (MACT).

The HAP emitted by facilities in the iron and steel foundries source category include metal and organic compounds. For iron and steel foundries that produce low alloy metal castings, metal HAP emitted are primarily lead and manganese with smaller amounts of cadmium, chromium, and nickel. For iron and steel foundries that produce high alloy metal or stainless steel castings, metal HAP emissions of chromium and nickel can be significant. Organic HAP emissions include acetophenone, benzene, cumene, dibenzofurans, dioxins, formaldehyde, methanol, naphthalene, phenol, pyrene, toluene, triethylamine, and xylene. Exposure to these substances has been demonstrated to cause adverse health effects, including cancer and chronic or acute disorders of the respiratory, reproductive, and central nervous

systems. When fully implemented, the final rule will reduce HAP emissions from iron and steel foundries by over 820 tons per year (tpy).

**EFFECTIVE DATE:** April 22, 2004.

**ADDRESSES:** The official public docket is available for public viewing at the EPA Docket Center, EPA West, Room B102, 1301 Constitution Ave., NW., Washington, DC 20460.

**FOR FURTHER INFORMATION CONTACT:** Kevin Cavender, Metals Group (C439-02), Emission Standards Division, Office of Air Quality Planning and Standards, U.S. EPA, Research Triangle Park, NC 27711, telephone number (919) 541-2364, electronic mail (e-mail) address, *cavender.kevin@epa.gov*.

**SUPPLEMENTARY INFORMATION:** *Regulated Entities.* Categories and entities potentially regulated by this action include:

Category	NAICS code <sup>1</sup>	Examples of regulated entities
Industry .....	331511 331512 331513	Iron foundries. Iron and steel plants. Automotive and large equipment manufacturers. Steel investment foundries. Steel foundries (except investment).
Federal government .....	.....	Not affected.
State/local/tribal government .....	.....	Not affected.

<sup>1</sup> North American Industry Classification System.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. To determine whether your facility is regulated by this action, you should examine the applicability criteria in § 63.7682 of the final rule. If you have any questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

**Docket.** The EPA has established an official public docket for this action including both Docket ID No. OAR-2002-0034 and Docket ID No. A-2000-56. The official public docket consists of the documents specifically referenced in this action, any public comments received, and other information related to this action. All items may not be listed under both docket numbers, so interested parties should inspect both docket numbers to ensure that they have received all materials relevant to the final rule. Although a part of the official public docket, the public docket does not include Confidential Business Information or other information whose disclosure is restricted by statute. The official public docket is available for public viewing at the EPA Docket

Center (Air Docket), EPA West, Room B-102, 1301 Constitution Avenue, NW., Washington, DC. The EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Reading Room is (202) 566-1744, and the telephone number for the Air Docket is (202) 566-1742.

**Electronic Docket Access.** You may access the final rule electronically through the EPA Internet under the **Federal Register** listings at <http://www.epa.gov/fedrgstr/>.

An electronic version of the public docket is available through EPA's electronic public docket and comment system, EPA Dockets. You may use EPA Dockets at <http://www.epa.gov/edocket/> to view public comments, access the index listing the contents of the official public docket, and to access those documents in the public docket that are available electronically. Once in the system, select "search," then key in the appropriate docket identification number. Although not all docket materials may be available electronically, you may still access any of the publicly available docket materials through EPA Dockets. (See

Docket No. A-2000-56 in the Air Docket).

**Worldwide Web (WWW).** In addition to being available in the docket, an electronic copy of today's final rule is also available on the WWW through the Technology Transfer Network (TTN). Following the Administrator's signature, a copy of the rule will be placed on the TTN's policy and guidance page for newly proposed or promulgated rules at <http://www.epa.gov/ttn/oarpg>. The TTN provides information and technology exchange in various areas of air pollution control. If more information regarding the TTN is needed, call the TTN HELP line at (919) 541-5384.

**Judicial Review.** This action constitutes final administrative action on the proposed NESHAP for iron and steel foundries (67 FR 78274, December 23, 2002). Under section 307(b)(1) of the CAA, judicial review of the rule is available only by filing a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit by June 21, 2004. Only those objections to the NESHAP which were raised with reasonable specificity during the public comment period may be raised during judicial review. Under section 307(b)(2) of the CAA, the requirements that are

the subject of today's final rule may not be challenged separately in civil or criminal proceedings brought by the EPA to enforce these requirements.

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

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**I. Background**

Section 112(d) of the CAA requires us (the EPA) to establish national emission standards for all categories and subcategories of major sources of HAP and for area sources listed for regulation under section 112(c). Major sources are those that emit or have the potential to emit at least 10 tpy of any single HAP or 25 tpy of any combination of HAP. Area sources are stationary sources of HAP that are not major sources. Additional information on the NESHAP development process can be found in the preamble to the proposed rule (67 FR 78274).

We received a total of 83 comment letters on the proposed NESHAP from trade associations, individual plants, consultants, vendors, State agencies, environmental groups, and private citizens. We provided a 60-day comment period and held a public hearing on January 22, 2003 to provide the opportunity for oral presentations of data, views, or arguments concerning the proposed rule.

Today's final rule reflects our full consideration of all the comments we received. A detailed response to all the comments is included in the Background Information Document (BID) for the Promulgated Standards (Docket ID No. OAR-2002-0034).

**II. Summary of the Final Rule**

*A. What Is the Affected Source?*

The affected source is each new or existing iron and steel foundry that is a major source of HAP emissions. A new affected source is an iron and steel foundry for which construction or reconstruction began after December 23, 2002. An existing affected source is an iron and steel foundry for which construction or reconstruction began on or before December 23, 2002. The final

rule defines an "iron and steel foundry" as:

A facility or portion of a facility that melts scrap, ingot, and/or other forms of iron and/or steel and pours the resulting molten metal into molds to produce final or near final shape products for introduction into commerce. Research and development facilities and operations that only produce non-commercial castings are not included in this definition.

The final rule covers emissions from metal melting furnaces, scrap preheaters, pouring areas, pouring stations, automated conveyor and pallet cooling lines that use a sand mold system, automated shakeout lines that use a sand mold system, and mold and core making lines. The final rule also covers fugitive emissions from foundry operations.

*B. What Are the Emissions Limitations?*

The final rule includes emissions limits for metal and organic HAP as well as operating limits for capture systems and control devices. Particulate matter (PM) and opacity serve as surrogate measures of metal HAP emissions; emissions limits for total metal HAP are included as alternatives to the PM limits. The final rule also includes emissions limits for volatile organic HAP (VOHAP) and triethylamine (TEA). Except for the fugitive emissions opacity limit, each of the emissions limits apply to emissions discharged to the atmosphere through a conveyance. The term "conveyance" means the system of equipment that is designed to capture pollutants, convey them through ductwork, and exhaust them using forced ventilation. The opacity limit for fugitive emissions applies to each building or structure housing any emissions source at the iron and steel foundry. The emissions limitations and work practice requirements are:

Emissions source	Emissions limit or work practice standard
Electric arc metal melting furnace, electric induction metal melting furnace, or scrap preheater at an existing iron and steel foundry.	<ul style="list-style-type: none"> <li>• 0.005 grains per dry standard cubic foot (gr/dscf) of PM; or</li> <li>• 0.0004 gr/dscf of total metal HAP.</li> </ul>
Cupola metal melting furnace at an existing iron and steel foundry .....	<ul style="list-style-type: none"> <li>• 0.006 gr/dscf of PM; or</li> <li>• 0.0005 gr/dscf of total metal HAP.</li> </ul>
Cupola metal melting furnace or electric arc metal melting furnace at a new iron and steel foundry.	<ul style="list-style-type: none"> <li>• 0.002 gr/dscf of PM; or</li> <li>• 0.0002 gr/dscf of total metal HAP.</li> </ul>
Electric induction metal melting furnace or scrap preheater at a new iron and steel foundry.	<ul style="list-style-type: none"> <li>• 0.001 gr/dscf of PM; or</li> <li>• 0.00008 gr/dscf of total metal HAP.</li> </ul>
All metal melting furnaces .....	<ul style="list-style-type: none"> <li>• Scrap certification; or</li> <li>• Scrap selection and inspection program.</li> </ul>
Pouring station at an existing iron and steel foundry .....	<ul style="list-style-type: none"> <li>• 0.010 gr/dscf of PM; or</li> <li>• 0.0008 gr/dscf of total metal HAP.</li> </ul>
Pouring area or pouring station at a new iron and steel foundry .....	<ul style="list-style-type: none"> <li>• 0.002 gr/dscf of PM; or</li> <li>• 0.0002 gr/dscf of total metal HAP.</li> </ul>
Fugitive emissions from a building or structure at a new or existing iron and steel foundry.	<ul style="list-style-type: none"> <li>• 20 percent opacity, except for one 6-minute average per hour that does not exceed 27 percent opacity.</li> </ul>
Cupola metal melting furnace at a new or existing iron and steel foundry.	<ul style="list-style-type: none"> <li>• 20 parts per million by volume (ppmv) of VOHAP, corrected to 10 percent oxygen.</li> </ul>

Emissions source	Emissions limit or work practice standard
Scrap preheater at an existing iron and steel foundry .....	<ul style="list-style-type: none"> <li>• Direct contact gas-fired preheater; or</li> <li>• Scrap certification; or</li> <li>• 20 ppmv of VOHAP.</li> </ul>
Scrap preheater at a new iron and steel foundry .....	<ul style="list-style-type: none"> <li>• 20 ppmv of VOHAP; or</li> <li>• Scrap certification.</li> </ul>
Automated conveyor and pallet cooling lines and automated shakeout lines that use a sand mold system at a new iron and steel foundry.	<ul style="list-style-type: none"> <li>• 20 ppmv VOHAP (flow-weighted average).</li> </ul>
TEA cold box mold and core making line at a new or existing foundry ..	<ul style="list-style-type: none"> <li>• 1 ppmv of TEA or 99 percent emissions reduction, as determined when scrubbing with fresh acid solution.</li> </ul>
Furan warm box mold and core making line at a new or existing foundry.	<ul style="list-style-type: none"> <li>• No methanol in the catalyst.</li> </ul>

The final rule requires a capture system for those emissions sources subject to VOHAP or TEA limits. You (the owner or operator) must establish operating limits for identified capture system parameter (or parameters) that are appropriate for assessing capture system performance. At a minimum, the limits must indicate the level of ventilation draft and damper position settings. You must operate the capture systems at or above the lowest value or setting established in the operation and maintenance (O&M) plan.

If you use a wet scrubber to control PM or total metal HAP emissions from a metal melting furnace, scrap preheater, pouring area, or pouring station, the 3-hour average pressure drop and scrubber water flow rate must not fall below the minimum levels established during the initial (or subsequent) performance test. If you use a combustion device to control VOHAP emissions from a cupola metal melting furnace, the 15-minute average combustion zone temperature must not fall below 1,300 degrees Fahrenheit (°F). Periods when the cupola is off blast and for 15 minutes after going on blast from an off blast condition are not included in the 15-minute average. If you use a combustion device to control VOHAP emissions from a scrap preheater or TEA cold box mold or core making line, the 3-hour average combustion zone temperature must not fall below the minimum level established during the initial (or subsequent) performance test. If you use a wet acid scrubber to control TEA emissions, the 3-hour average scrubbing liquid flow rate must not fall below the minimum level established during the initial (or subsequent) performance test and the 3-hour average pH level of the scrubber blowdown (or the pH level during a production shift) must not exceed 4.5.

Operating limits do not apply to control devices for automated conveyor and pallet cooling lines or automated shakeout lines that use a sand mold system at a new iron and steel foundry. The final rule requires a continuous

emissions monitoring system (CEMS) for these emissions sources. However, the final rule includes procedures for requesting alternative monitoring requirements. To obtain approval of alternative monitoring requirements, you must submit a monitoring plan containing information needed to demonstrate continuous compliance along with performance test results showing compliance with the emissions limit.

The final rule also includes work practice standards. Facilities must meet certification requirements for their charge materials or develop and implement a scrap selection and inspection program to minimize the amount of organics and HAP metals in furnace charge materials. The certification option requires the foundry to purchase and use only certified-metal ingots, pig iron, skittle, or other materials that do not include post-consumer automotive body scrap, post-consumer engine blocks, oil filters, oily turnings, lead components, mercury switches, plastics, or organic liquids. The scrap selection plan option requires scrap specifications, a certification that the scrap supplier has implemented procedures to remove mercury switches and lead components from automotive scrap, and visual inspection procedures to ensure materials meet the specifications.

The owner or operator of an existing iron and steel foundry must install, operate, and maintain a gas-fired preheater where the flame directly contacts the scrap charged. As alternative compliance options, the owner or operator may meet a 20 ppmv limit for VOHAP emissions or may charge to a preheater only materials subject to the scrap certification requirement. The owner or operator of a new iron and steel foundry must meet the 20 ppmv limit for VOHAP emissions and the operating limit for combustion devices. As an alternative compliance option for new scrap preheaters, the owner or operator must meet the scrap certification requirements.

Plants with a furan warm box mold or core making line at a new or existing iron and steel foundry must use a binder chemical formulation that contains no methanol, as listed in the Material Data Safety Sheet. This requirement applies to the catalyst portion (and not the resin portion) of the binder system.

*C. What Are the Operation and Maintenance Requirements?*

All foundries must prepare and follow a written operation and maintenance (O&M) plan for capture systems and control devices. The plan must include operating limits for capture systems; requirements for inspections and repairs; preventative maintenance procedures and schedules; and procedures for operation of bag leak detection systems (including corrective action steps to be taken in the event of a bag leak detection system alarm). The plan also must contain procedures for igniting gases from mold vents in pouring areas and pouring stations that use sand mold systems. These procedures may consider the ignitability of the mold gases, accessibility to the molds, and safety issues associated with igniting the gases.

The final rule also requires a startup, shutdown, and malfunction plan that meets the requirements in § 63.6(e) of the NESHAP General Provisions. The plan must include procedures for operating and maintaining the emissions source during periods of startup, shutdown, and malfunction and a program of corrective action for malfunctioning process equipment, air pollution control systems, and monitoring systems. The final rule requires that the plan also include a description of the conditions that constitute a shutdown of a cupola and normal operating conditions following startup of a cupola. The owner or operator may use the standard operation procedures manual for the emissions source or other type of plan if it meets EPA's requirements. For more information on startup, shutdown, and malfunction plans, see the amendments

to the NESHAP General Provisions published on May 30, 2003 (68 FR 32586).

#### *D. What Are the Requirements for Demonstrating Initial and Continuous Compliance?*

##### Emissions Limits

Foundries must demonstrate initial compliance by conducting performance tests for all emissions sources subject to an emissions limit. To determine compliance with the metal HAP emissions limits, EPA Methods 1 through 4, and either Method 5, 5B, 5D, 5F, or 5I, as applicable (to measure PM) or Method 29 (to measure total metal HAP) are required. To determine compliance with the organic HAP limits, foundries can use EPA Method 18 to measure VOHAP, Method 25 to measure total gaseous nonmethane organics (TGNMO) as hexane, or Method 25A to measure total organic compounds (TOC) as hexane. All of these methods are in appendix A to 40 CFR part 60.

The performance test requirements for automated conveyor and pallet cooling lines and automated shakeout lines at new foundries allow you to either meet the 20 ppmv emissions limit directly using the volatile organic compound (VOC) CEMS to measure total hydrocarbons (as a surrogate for VOHAP) or to establish a site-specific VOC limit for the CEMS that is correlated to the VOHAP emissions limit. The final rule also includes procedures for computing the flow-weighted average of multiple exhaust streams from automated conveyor and pallet cooling lines or automated shakeout lines, and for determining compliance for combined emissions streams. Procedures for establishing operating limits for capture systems and control devices, and revising the limits, if necessary or desired, after the initial performance test are given in § 63.7733 of the final rule. Previous performance tests (conducted since December 22, 2002) may be used to establish operating limits.

Monitoring of capture system and control device operating parameters is required to demonstrate continuous compliance with the operating limits. These requirements include bag leak detection systems for baghouses and continuous parameter monitoring systems (CPMS) for capture systems (unless damper positions are fixed) and control devices. For wet acid scrubbers, the final rule allows plants to measure the pH every 8 hours during process operations using a pH probe and meter as an alternative to a pH CPMS. The

owner or operator of automated conveyor and pallet cooling lines that use a sand mold system at a new iron and steel foundry must monitor organic HAP emissions using a CEMS unless they apply for alternative monitoring requirements. Technical specifications, along with requirements for installation, operation, and maintenance of CPMS and CEMS, are included in the final rule. Records are required to document compliance with the monitoring, inspection, and maintenance requirements for monitoring equipment. The final rule requires performance tests every 5 years to demonstrate continuous compliance with the PM (or total metal HAP), VOHAP, and TEA emissions limits and every 6 months to demonstrate continuous compliance with the opacity limit for fugitive emissions. Subsequent performance tests are not required for foundries that demonstrate continuous compliance using a CEMS.

##### Work Practice Standards

No performance test is required to demonstrate initial compliance with the work practice standards. Foundries must certify that they have prepared the required plans, have installed a direct flame contact gas-fired scrap preheater if applicable (or that they will comply by meeting the 20 ppmv emissions limit or by only preheating scrap that meets the scrap certification requirements), that they will meet each applicable work practice requirement, and that they have records documenting their certification.

Records are required to demonstrate continuous compliance with compliance certifications or to document conformance with their scrap inspection and selection plan. Foundries also must keep records of the chemical composition of all catalyst binder formulations applied in a furan warm box mold or core making line.

##### Operation and Maintenance Requirements

Foundries must certify in their notification of compliance status that they have prepared the O&M plan and that the plant will operate equipment according to the plan requirements. Records are required to demonstrate continuous compliance with other requirements in the O&M plan for capture systems, control devices, and bag leak detection system corrective actions. To demonstrate continuous compliance with the plan for mold vent ignition, foundries must make a compliance certification in each semiannual report that they have

followed the procedures in their O&M plan.

#### *E. What Are the Notification, Recordkeeping, and Reporting Requirements?*

These requirements rely on the NESHAP General Provisions in 40 CFR part 63, subpart A. Table 1 to subpart EEEEE (the final rule) shows each of the requirements in the General Provisions (§§ 63.1 through 63.15) and whether they apply.

The major notifications include one-time notifications of applicability (due no later than 120 days of promulgation), performance tests (due at least 60 days before each test), performance evaluations, and compliance status. The notification of compliance status is required no later than 60 days after the compliance demonstration if a performance test is required or no later than 30 days after the compliance demonstration if no performance test is required.

Foundries are required to maintain records that are needed to document compliance, such as performance test results; copies of the startup, shutdown, and malfunction plan; O&M plan; scrap selection and inspection plan, and associated corrective action records; monitoring data; and inspection records. Records of annual usage, chemical composition, and HAP content are also required for chemical binders and coating materials. In most cases, records must be kept for 5 years, with records for the most recent 2 years kept onsite. However, the O&M plan; scrap selection and inspection plan; and startup, shutdown, and malfunction plan are to be kept onsite and available for inspection for the life of the affected source (or until the affected source is no longer subject to the rule requirements.)

All foundries must make semiannual compliance reports of any deviation from an emissions limitation (including an operating limit), work practice standard, or O&M requirement. If no deviation occurred and no monitoring systems were out of control, only a summary report is required. More detailed information is required in the report if a deviation did occur. An immediate report is required if actions taken during a startup, shutdown, or malfunction were not consistent with the startup, shutdown, and malfunction plan.

#### *F. What Are the Compliance Deadlines?*

Existing iron and steel foundries must comply with most requirements by April 23, 2007. The final rule requires existing foundries to comply with the work practice standards in § 63.7700(b)

or (c), as applicable, by April 22, 2005. New or reconstructed iron and steel foundries that start up on or before April 22, 2004 must comply by April 22, 2004. New or reconstructed iron and steel foundries that start up after April 22, 2004 must comply upon initial startup.

### III. Summary of Environmental, Energy, and Economic Impacts

#### A. What Are the Air Quality Impacts?

Most iron and steel foundries have had emissions controls in place for many years similar to those in the final rule. Overall, we expect the final rule to reduce HAP emissions by more than 820 tpy. The NESHAP will also reduce PM and VOC emissions by about 2,550 tpy. Implementation of scrap selection and inspection procedures is expected to reduce mercury emissions by 1.4 tpy—an 80 percent reduction from current levels.

#### B. What Are the Cost Impacts?

The total annualized cost of the final rule is estimated at \$21 million, including costs for control equipment, compliance tests monitoring, recordkeeping, and reporting. This cost also includes the annualized cost of capital and the annual operating and maintenance costs for supplies, control equipment, monitoring devices, and recordkeeping media.

The nationwide total capital cost of the final rule is about \$188 million. The capital costs associated with the final rule are primarily due to the costs of installing modular pulse-jet baghouse systems to control emissions of metal HAP and PM from cupolas currently controlled using venturi scrubbers. This capital cost is estimated at \$175 million and includes the cost of removing the venturi scrubbers and installing modular pulse-jet baghouse systems. Based on information provided by the iron and steel foundry industry, we used a retrofit cost factor of 2.2 (*i.e.*, the cost of installing a baghouse at an existing facility was estimated to be 2.2 times the cost of installing an identical baghouse at a new facility). This retrofit cost factor is considerably higher than the typical retrofit costs suggested by the literature (typical retrofit cost factors range from 1.2 to 1.5). As the cost of operating a baghouse is less than the cost of operating a PM wet scrubber due to lower energy consumption (lower pressure drop) of the baghouse system and the avoidance of wastewater treatment/disposal costs, the annual operating and maintenance cost of the final rule is actually estimated to be less than the cost of operating the current

control equipment for cupolas. Therefore, there will be a net savings in the annual operating and maintenance costs for baghouses over venturi scrubbers of \$6 million.

The cost impacts also include:

- The cost of installing and operating baghouses on currently uncontrolled electric induction metal melting furnaces;
- The cost of installing and operating baghouses on currently uncontrolled pouring stations;
- The cost of installing and operating wet acid scrubbers for currently uncontrolled TEA cold box mold and core making lines;
- The cost of installing and operating monitoring equipment (predominantly baghouse leak detection systems) for emissions sources; and
- The cost of electronic and paper recordkeeping media.

#### C. What Are the Economic Impacts?

We conducted a detailed assessment of the economic impacts associated with the final rule. The compliance costs are estimated to increase the price of iron and steel castings by 0.1 percent with domestic production declining by 8,400 tons in aggregate. The analysis also indicates no impact on the market price for foundry coke, which is used by cupolas in the production of iron castings. Foundry coke production is projected to decrease by less than 0.1 percent.

Through the market impacts described above, the final rule is predicted to have distributional impacts across producers and consumers of iron and steel castings. Consumers would incur \$13.2 million of the overall regulatory burden of the final rule (\$21.2 million) because of higher prices and forgone consumption. Domestic producers of iron and steel castings are expected to experience profit losses of \$9.0 million due to compliance costs and lower output levels, while foreign producers may experience profit gains of \$1 million associated with the higher prices. For more information, consult the economic impact analysis that is available in the docket.

#### D. What Are the Non-Air Health, Environmental, and Energy Impacts?

The final rule will generally provide positive secondary environmental and energy impacts. Replacing cupola wet scrubber control systems with baghouses will increase emissions of sulfur oxides by 370 tpy. However, due to the lower energy requirements for operating a baghouse versus a wet scrubber, which more than offset the energy requirements of the other new

control equipment, the final rule is projected to result in a net reduction in annual energy consumption of 121,000 megawatt hours per year. This will lead to a reduction in emissions of nitrogen oxides and sulfur oxides from power plants of roughly 180 tpy and 370 tpy, respectively. Therefore, the final rule will have no net impact on emissions of sulfur oxides. There is uncertainty about the estimates of secondary emission reductions due to energy savings because we have not conducted a detailed analysis that identifies the fuel sources used at power plants from which the energy savings will be realized. Furthermore, the SO<sub>2</sub> emission reduction estimates may be overstated if the national cap on SO<sub>2</sub> emissions is binding. The replacement of wet scrubbers with baghouses is also responsible for the final rule's estimated 18.1 billion gallons per year reduction in water consumption and waste water disposal rates. Although baghouses have slightly higher dust collection efficiencies, the dust is collected in a dry form while PM collected using a wet scrubber contains significant water even after dewatering processes. Therefore, the total volume and weight of solids disposed under the final rule is estimated to be approximately the same as, if not less than, the current solid waste disposal rates.

### IV. Summary of Major Comments and Responses

#### A. Why Did We Revise the Proposed Affected Source Designation?

*Comment:* Industry commenters felt the metal casting department should be separated into two separate affected sources: a melting department and a casting department. The commenters also suggested that we clarify that a foundry may contain multiple affected sources of a single type, such as more than one melting department, which may be operationally different and physically removed from each other. Some commenters felt that HAP emissions from melting are insignificant and suggested that this process either be excluded as an affected source or listed as a separate source category and then delisted.

*Response:* We considered splitting the metal casting department into a melting department and a casting processing department. This further classification of the affected sources might have been appropriate because the melting furnaces (melting department) are often separate from the pouring, cooling, and shakeout lines (casting processing department). However, most commenters requesting a change in the

affected source or separate source categories thought that we could then either de-list melting departments or that the emissions from the melting department could be excluded from emissions limitations. Even if the melting department were a separate source category or affected source, these sources would still be co-located at major source facilities, and we would still be required to develop MACT standards for them. Furthermore, we do not consider emissions exceeding 100 tpy of metal HAP from melting furnaces to be *de minimis* as suggested by industry. Consequently, it is necessary and appropriate to establish MACT standards for these emissions sources.

A secondary rationale for requesting a change in the affected source was the fear of triggering new source MACT requirements. However, upon clarification that defining the melting department as a separate source would not eliminate the requirements to control melting furnace emissions, these commenters supported a broad definition of the affected source.

Therefore, in response to these comments, we have written the final rule to include a broader definition of the affected source (*i.e.*, the iron and steel foundry). This broad definition eliminates a somewhat artificial separation of the mold and core making processes, which can often occur in close proximity, if not in conjunction with the casting (pouring) operations. This approach also avoids instances where an existing foundry might make minor equipment changes that might subject one process or a single piece of equipment subject to the new source emissions limits. This could occur if the affected source was defined as each "metal melting department" which could be delineated as each melting furnace at the foundry.

#### *B. Why Did We Revise the Proposed Emissions Limits?*

##### Metal Melting Furnaces

*Comment:* Most industry commenters opposed the proposed PM limit for melting furnaces and scrap preheaters, especially at a new affected source (*i.e.*, the 0.001 gr/dscf). According to the commenters, the limit cannot be maintained on a continuous basis, will not be guaranteed by vendors, will result in high costs, will be subject to measurements errors, and stretches the capability of Method 5 (40 CFR part 60, appendix A). Several commenters stated that the emissions reductions that would be achieved did not warrant the costs associated with the PM limits. Five commenters stated that the MACT

floor determination did not adequately account for inherent variability and operation under the worst foreseeable conditions. Another commenter stated that it was inappropriate to apply any variability factor in establishing the MACT floor emissions limits. One commenter noted that a limit based on the 95th percentile of performance would suggest that the unit is out of compliance 5 percent of the time.

Several commenters stated that the EPA should not specify the control equipment in establishing the new source PM emissions limits, that the facility EPA used for new source MACT for cupolas was not representative, or that the more stringent limit was a disincentive to modernize plants. Two commenters noted that the vendor guarantee for the facility is 0.0016 gr/dscf (instead of 0.001 gr/dscf as reported by EPA) because the guarantee was 0.001 in grains per actual cubic feet. While two equipment vendors stated that they could not guarantee a long term performance of 0.001 gr/dscf, a representative for control device vendors stated that the 0.001 gr/dscf PM emissions limit for new sources is reasonable and appropriate and that a variety of fabric collector designs can achieve similar results. Most commenters recommended a limit of 0.005 gr/dscf or 0.0052 gr/dscf (which was proposed as the limit for certain new operations at integrated iron and steel plants). One commenter suggested a limit of 0.002 gr/dscf because baghouses achieving an average outlet PM concentration of 0.001 gr/dscf would be out of compliance with a limit of 0.001 gr/dscf about half the time.

*Response:* The CAA directs EPA to set limits that are at least as stringent as the MACT floor. For existing units, the MACT floor is the average emissions limitation achieved in practice by the best performing 12 percent of the existing units (for which we have emissions information). The MACT floor for new sources must not be less stringent than the emission control that is achieved in practice by the best-controlled similar source. Consequently, the comments related to vendor guarantees and high costs are not relevant in establishing the MACT floor for new and existing sources.

We disagree that the limit will result in significant measurement errors or that it stretches the capability of Method 5 (40 CFR part 60, appendix A). We require a minimum gas volume of 60 dry standard cubic feet (dscf) to ensure that sufficient PM is collected to evaluate the compliance of the emissions source with the PM emissions limits. In addition, the practical

quantification limit for Method 5 is a filterable PM catch of 3 milligrams (mg), which is 0.0463 grains (gr). At the practical quantification limit of 3 mg of PM collected from 60 dscf of gas, the practical quantification limit of Method 5 as required in the rule is less than 0.0008 gr/dscf. If less than 3 mg of dust is collected during a test in which at least 60 dscf of gas are collected, we have reasonable assurance that the emissions source is in compliance with a 0.001 gr/dscf PM emissions limit. Without a minimum gas volume of 60 dscf, we could not confidently establish that an emissions source meets the 0.001 gr/dscf emissions limit.

As noted by the commenters, the emissions limits must be achieved at all times, and it is important that the MACT floor limit adequately account for the normal and unavoidable variability in the process and in the operation of the control device. The choice of selecting the 90th, 95th, or 99th percentile performance value depends largely on the adequacy of the data. As there were only 10 to 15 emissions tests for a given type of unit or source with which to assess the performance and variability of baghouse control systems, selecting a higher percentile range is appropriate to reflect additional uncertainty. In response to comments concerning the potential variability in process and control system performance and in recognition of the fact that the available emissions data are from a fairly limited number of short-term tests, we have re-evaluated the MACT floor determination using the 99th percentile of performance. This approach is designed to account for the different sources of variability, including variations in how the process is operated, changes in control device parameters, and variability associated with sampling and analysis.

By selecting the 99th percentile, we have sufficiently accounted for process operation, control device performance, and measurement variability. The 99th percentile is appropriate in this case because it accounts for the extreme end of the range of performance that could occur. Based on this re-evaluation of the MACT floor limits, we have adjusted the floor for cupolas at existing sources from 0.005 gr/dscf to 0.006 gr/dscf. We have adjusted the floor for cupola and electric arc furnaces at new sources from 0.001 gr/dscf to 0.002 gr/dscf. This new source limit of 0.002 gr/dscf is consistent with the vendor guarantee when corrected from actual to standard conditions (0.0016 gr/dscf).

We do not believe that setting a limit at the 95th or 99th percentile means that the emissions source will be out of

compliance 5 percent or 1 percent of the time. Through proper operation and maintenance of the control device and process equipment, the owner or operator can avoid periods of poor performance. As such, a properly operated and maintained control device applied to normal process operations should not experience performance levels that exceed the limit. In the rare event of an unavoidable failure such as a malfunction, the owner or operator can continue to demonstrate compliance by following the procedures in the startup, shutdown, and malfunction plan. If the limit is exceeded as a result of variability that can and should be controlled (*i.e.*, a preventable event), then the event is a deviation.

We understand industry concerns over the representativeness of the test data for one of the foundries that was mentioned. Fortunately, emissions test data are available for an equivalent control system that does not control an additional process which might dilute the emissions. The performance level for this system is also a PM emissions limit of 0.002 gr/dscf. Consequently, the limit for new sources is not dependent only on the source test data from the one facility cited by the commenters.

Unlike cupolas and electric arc furnaces, the furnace control system that represents MACT for electric induction furnaces at new sources is a traditional baghouse, followed by a cartridge filter, followed by a high energy particulate air filter. The limit for this system is still 0.001 gr/dscf when evaluated at the 99th percentile. Therefore, the data clearly support that MACT for electric induction furnaces at new sources is 0.001 gr/dscf.

In the final rule, we have established emissions limits for the emissions sources and do not require a specific type of control device. Foundry owners or operators may use any control measure that will meet the applicable standard. In trying to understand the differences in the performance achieved by certain systems, we evaluated and compared baghouse design, cleaning mechanism, flow rate, temperature, fabric material, and air-to-cloth ratio for each system as operated during the emissions source test. Certainly a number of these factors influence the performance of a fabric filter control system. In evaluating the performance of the cupola control systems, the horizontally-designed baghouses exhibited the best performance of the systems tested. The description regarding these systems was provided primarily to document why the low outlet PM concentrations observed were real and not the result of an unknown

source testing error. We do not endorse any specific baghouse design.

Because the affected sources will be required to comply with the emissions limits at all times, the limits established must account for the normal and unavoidable variability inherent in the process and in the control device operation. The emissions rate for a given emissions source does vary over time, as is demonstrated by the variability seen between individual test runs and repeat tests. As such, the MACT floor should not be developed based on the stack test data without accounting for variability. For each facility for which we have stack test emissions data, we have estimated the emissions limitation that the facility can achieve on a continuous basis by applying statistics to the available emissions data to estimate the emissions rate that facility can achieve at least 99 percent of the time.

In summary, we have established emissions limits for both new and existing emissions sources and have not specified the type of control system that must be used. For cupolas and electric arc furnaces, MACT for new sources is 0.002 gr/dscf, reflecting the 99th percentile level of performance of the median unit in the top 12 percent of best-performing units. The MACT floor for cupolas at existing foundries is 0.006 gr/dscf, reflecting the 99th percentile level of control of the median unit in the top 12 percent of best-performing units. These limits reflect our conclusion that the proposed 0.001 gr/dscf limit for cupolas and electric arc furnaces at new foundries and the 0.005 gr/dscf limit for cupolas at existing foundries did not adequately account for the variability expected in the actual performance of the units that were used to establish the MACT floor for these emissions sources. The 0.001 gr/dscf limit for electric induction furnaces and the 0.002 gr/dscf emissions limit for cupolas and electric arc furnaces at new foundries represent emissions limits that the best-performing sources can and do meet under the most adverse circumstances which can reasonably be expected to recur.

*Comment:* Three commenters recommended that the final rule include emissions limits for individual metal HAP. The commenters suggested that PM is not a good surrogate for lead (which is a semi-volatile metal) or mercury (which typically has low collection efficiencies in baghouses) and does not consider the hazard of the emitted pollutants. In addition, the metal HAP in the PM from some emissions sources comprise only a small portion of emissions from the emissions source or the overall foundry and has

not been characterized for other emissions sources.

*Response:* As described in our MACT floor documentation, metal HAP emissions reductions tracked well with PM emissions reductions for the cupola control systems we tested. Reductions in lead emissions also tracked well with PM emissions reductions. Mercury emissions were a small component of the total metal HAP emissions, but both control systems tested by EPA were ineffective in reducing mercury emissions. Therefore, we do not consider these add-on control devices to be control technologies for the purpose of reducing mercury emissions. The only effective method for reducing mercury emissions at iron and steel foundries is scrap metal selection and inspection to prevent mercury contamination of the furnace charge. For all other metal HAP emissions from metal melting furnaces, the test data show that effective PM emissions control also provides effective metal HAP emissions control. In addition, PM is a reasonable surrogate for metal HAP emissions control effectiveness because MACT is a technology-based standard, and the technologies currently used by foundries that reduce metal HAP emissions are those specifically designed to control PM. Additionally, it is clear from our data the greater the PM reductions are for a specific unit, the greater are the HAP reductions. Thus, we have concluded that it is appropriate to use PM as a surrogate for HAP metals because the unit that achieves the greatest level of control of PM will also achieve the greatest level of control of metal HAP. As discussed in the following response, we have also developed an alternative limit for total metal HAP. Finally, to the extent that it is feasible to reduce metal HAP emissions by means other than operation of emission control devices, we are requiring such measures. Specifically, we are requiring a scrap selection and inspection program to reduce lead and mercury emissions. These requirements combined with the PM limits accurately reflect the MACT level of control.

*Comment:* Two commenters oppose the use of PM as a surrogate because some foundries melt only high quality steel with very low tramp metal content in the induction furnaces rather than scrap iron. Consequently, their uncontrolled melting furnaces may have lower HAP emissions than those from a baghouse on a furnace melting scrap with higher levels of tramp metals. We also received comments that some foundry operations, such as dry scrubbing for sulfur dioxide control,

may result in disproportionately high PM emissions without correspondingly high metal HAP emissions.

*Response:* As discussed in our previous response, PM is a good surrogate for HAP metals other than mercury. However, we recognize that the metal HAP content of the PM can vary significantly depending on the type of metal cast. Some foundries may have very low metal HAP emissions due to very low HAP content in their casting. We also recognize that it is infeasible for all foundries to use scrap with very low HAP metal content because of the limited supply of such scrap and because various levels of certain elements are needed in certain grades and types of iron and steel casting. Also, when foundries use scrubbing techniques for reducing sulfur dioxide emissions, they may have unusually high PM emissions without correspondingly high HAP emissions. Therefore, while PM is a good surrogate with which to judge the performance of a control system to reduce metal HAP emissions, we realize that it is only a surrogate and not a direct measure of HAP emissions, and that in some cases the PM limit may have unwarranted consequences. For the above reasons, we are establishing alternative total metal HAP emissions limits that are equivalent to the PM limits. The alternative metal HAP limits are based on, and are dependent on the MACT limits for PM.

Having identified the appropriate level of control based on PM performance, we re-examined our data on metal HAP emissions and evaluated the metal HAP emissions as a percent of the PM emissions. We evaluated metal HAP emissions to project the range of metal HAP emissions as a percent of PM associated with the performance of the type of control system used by the unit identified as the MACT floor emissions unit. That is, by normalizing the HAP emissions data by the PM emissions and aggregating these data for the various emissions sources being regulated, we calculated a reasonable estimate of the magnitude and variability of the HAP content as a percent of PM for these sources. By applying this information to the specific system that established the MACT floor PM emissions limits for each source type, we developed a total metal HAP emissions limit for each source type that is based on the performance of the MACT floor unit. Each total metal HAP limit is equivalent to the corresponding MACT floor PM emissions limit. We used this calculation to develop alternative limits for total metal HAP for melting furnaces and pouring operations.

The basis of this alternative emissions limit is the MACT floor determination for PM emissions. Because we lack sufficient test data for metal HAP, we could not otherwise derive a metal HAP emissions limit without first identifying the MACT floor unit on the basis of its PM emissions performance. Therefore, we concluded that this total metal HAP emissions limit is an alternative to the PM emissions limit, and not an additional MACT floor requirement.

We developed a distribution of the PM emissions for each emissions source based on the actual performance of the unit identified as the 6th percentile unit and the same 0.4 relative standard deviation used to determine the MACT floor performance limits. A separate distribution based on the available metal HAP emissions data was developed to characterize the total metal HAP content of the emitted PM. Using Monte Carlo techniques, 5,000 randomizations were generated for each of these distributions and the projected metal HAP emissions were calculated for each of the 5,000 randomizations. This is a common statistical approach for establishing a distribution for a parameter that is dependent on multiple, variable parameters.

As with the MACT floor determination of PM emissions performance, we selected the 99th percentile metal HAP concentrations determined from these distributions. These metal HAP emissions limits were equivalent to approximately 8 percent of the 99th percentile PM emissions limit (*i.e.*, the MACT floor PM emissions limit) for each of the emissions sources. That is, this analysis indicated that the total metal HAP emissions limit that is equivalent to the MACT floor PM emissions limit can be calculated by multiplying the PM emissions limit by 0.08 (*i.e.*, assuming the PM is 8 percent metal HAP). The final metal HAP emissions limits were rounded to one significant digit in keeping with the relative accuracy of the assessment.

As the identification of the unit that represents the MACT floor is solely dependent on the PM emissions performance, these metal HAP emissions limits do not represent a separate MACT floor that must be met at all emissions sources, but rather an alternative emissions limit that is equivalent to the MACT floor PM emissions limit. The alternative metal HAP emissions limits provide foundry operators with more flexibility in meeting the metal HAP emissions limits (for example, by adopting a scrap program that is more stringent than the MACT requirement, in conjunction with PM emissions controls to further reduce

metal HAP emissions). This alternative also avoids, in some cases, the need for replacing well-performing venturi wet scrubbers with high efficiency baghouses to achieve a required PM emissions reduction when other measures might be used to achieve the desired metal HAP emissions reduction. The alternative also accommodates facilities that may have disproportionate PM emissions but low HAP emissions, as in the case for dry scrubbers used to control sulfur dioxide.

*Comment:* More than twenty industry commenters opposed the proposed carbon monoxide (CO) emissions limit for cupolas (200 ppmv). Several of these commenters stated that CO data from CEMS and CO monitors show that the limit cannot be achieved. They explained that the cupola operation is a dynamic process that is affected by changes in the melt rate and iron chemistry, which requires the CO combustor to adjust and seek a new equilibrium; CO concentrations are highly variable even in the best afterburner systems. The material being melted, coke sources, and seasonal adjustments also affect CO emissions. One vendor stated that his company could not guarantee equipment that can meet the 200 ppmv CO emissions limit. The commenters also suggested that the CO limit is based on the Illinois emissions standard, which was found to be improperly derived and never enforced.

Five commenters stated that EPA failed to provide sufficient data that maintaining a CO concentration of 200 ppmv is an effective surrogate for organic HAP destruction, while two commenters supported the use of CO as a surrogate for HAP. One commenter asked why VOC was not used as the surrogate for organic HAP emissions from the cupolas.

*Response:* The proposed CO emissions limit was based upon the emissions source test data for CO emissions from cupolas; it was not based upon the Illinois CO emissions limit. Two of the CO emissions tests used to develop the 200 ppm CO emissions limit were from foundries located in New Jersey, where CO CEMS are required. Therefore, EPA requested CO CEMS emissions data from these foundries to verify the performance of these systems and to better understand the variability associated with the process. Data were received from one of these foundries which supported the assertion that the 200 ppmv limit did not adequately accommodate the variability in the process operations and control device performance. Additionally, emissions test data were

also received from a cupola-afterburner system that measured CO and VOC (minus methane) emissions concurrently. For the individual runs of this test, the average outlet CO concentrations were 701, 1470, and 849 ppmv, while the average VOC emissions were 3.4, 4.2 and 5.1 ppmv as propane. This limited data supports the industry commenters' assertion that organic HAP emissions (as indicated by VOC emissions) are not well correlated, although there is a limited range of CO and VOC emissions considered in this single emissions test.

As discussed in the preamble to the proposed rule, CO is an indicator of good (complete) combustion, but, at some lower level of CO, further reductions in CO concentrations do not necessarily result in further reductions of organic HAP. That is, we recognize that CO is not a perfect surrogate for organic HAP emissions from the best-performing units, but it is a surrogate for which emissions data were available and one that provides a reasonable indication of adequate combustion characteristics. However, based on the comments and the additional data received, we agree that we do not have sufficient data to support the establishment of a specific CO concentration limit as a surrogate for the organic HAP emissions performance of a cupola afterburner system.

We reviewed the submitted data and other data in the docket for VOC and organic HAP for the best-controlled cupolas (those using afterburners). These data are too limited to identify the level of performance of the best-performing units or to establish a specific organic HAP or VOC emissions limit. Therefore, we rely on our experience with the performance of thermal destruction systems such as these afterburners. This experience clearly indicates that these units should be able to meet a 98 percent destruction efficiency or an outlet concentration of 20 ppmv (as the chemical emitted), whichever is less stringent. However, due to safety issues associated with typical equipment configurations, sampling between the cupola chamber and the afterburner is impracticable and unsafe. Therefore, we provide only the 20 ppmv exhaust concentration alternative. The limited available data on organic HAP emissions from cupola afterburners suggest that the 20 ppmv emissions limit is achievable and reflects the level of performance of the best controlled units, and that the 98 percent reduction alternative is not needed for this application.

Furthermore, we establish this emissions limit as the sum of all volatile

organic HAP (or VOHAP) emitted, thereby eliminating the need to select a surrogate. However to provide flexibility in conducting the performance tests, we are providing compliance alternatives to allow for demonstration of compliance using test methods to measure TGNMO or TOC concentrations (in ppmv as hexane). These test method alternatives will measure both HAP and non-HAP compounds, and will, therefore, ensure that a unit is meeting an emissions level as stringent or more stringent than the VOHAP emissions limit. However, these test methods are cheaper and easier to perform, and therefore, these options may be desirable for some sources. Hexane was selected for the concentration equivalency because the primary HAP expected to be emitted are C6 hydrocarbons or higher (e.g., benzene, toluene, and xylenes).

*Comment:* While one commenter supported the proposed rule requirement for direct measurement of CO emissions from cupolas using a CEMS, many industry commenters were opposed. They argued that the final rule should include an operating limit for the afterburner temperature measured by a CPMS. According to the commenters, a CO CEMS is not technically feasible or reliable because of the harsh conditions of the gas stream, and it is costly while achieving minimal benefit.

*Response:* We have deleted the requirement for a CO CEMS from the final rule because the CO limit has been replaced by a limit for VOHAP emissions. The autoignition temperature of the organic HAP present in the cupola exhaust stream (primarily benzene, toluene, and xylenes) is lower than the autoignition temperature of CO, which is 1,300 °F. Therefore, an adequately designed afterburner operating at a minimum of 1,300 °F will effectively ensure combustion of the organic HAP. Once a performance test indicates that the cupola afterburner is sufficiently engineered (in terms of excess air flow, residence time and mixing) to achieve the required VOHAP emissions limit, then continuous monitoring of combustion zone temperature will provide adequate assurance of continuous compliance. Therefore, we require foundry operators to install and operate a CPMS for combustion zone temperature, and we require that the 15-minute average combustion zone temperature must not fall below 1,300 °F. Periods when the cupola is off blast and for 15 minutes after going on blast from an off blast condition are not included in the 15-minute average.

*Comment:* Several industry commenters objected to the proposed VOC emissions limit for scrap preheaters (20 ppmv as propane or 98 percent reduction). The commenters contended that the VOC limit based on afterburning technology does not meet the requirements for determining the MACT floor because only 4 or 5 of 169 preheaters nationwide (3 percent) currently use afterburners. The commenters stated that there is no basis for the proposed limit, there are no data indicating the presence of organic HAP in preheater emissions, and improvements in direct flame preheaters have made the afterburners an outdated technology. Commenters also stated the existing units cannot achieve 20 ppmv because of process variability and the likely presence of uncombusted methane from the preheater, which can contribute significantly to the VOC concentration, especially when measured as propane.

*Response:* Based on the information available at the time the proposed rule was developed, it appeared that more than 6 percent of the scrap preheaters were controlled by afterburners. However, we have confirmed that, as the commenters suggested, one foundry that had reported using afterburners had subsequently upgraded their material handling system and installed direct flame preheater systems. With this change, the median of the top 12 percent of units is no longer a unit using an afterburner, but a unit using a direct flame preheater.

There are two basic types of preheater designs: direct flame contact preheaters and hot gas flow preheaters. Direct flame contact preheaters primarily use gas-fired burners where the flame impinges on the scrap. The primary heating mechanism for direct flame contact preheaters is the burner flames contacting the scrap. Hot gas flow preheaters may use gas-fired burners or electricity to heat air and the hot air (and combustion gases from the burner, if applicable) is used to preheat the scrap. In hot gas flow preheaters, the scrap is not heated by direct contact with a high temperature flame. Preheaters are used primarily to remove water and organic contaminants that could cause explosions or other hazards when the scrap is melted in induction furnaces. Although both types of preheaters are effective for this purpose, the different preheater designs have different HAP emissions potentials.

For preheaters generally, we require a scrap selection and inspection program to limit, to the extent practicable, the amount of organic HAP precursors (i.e., oils and other organic liquids) entering

a scrap preheater, and we are establishing a work practice standard to require either preheaters with direct flame contact or application of an afterburner. Because the scrap selection and inspection program cannot completely exclude the potential presence of tramp organic materials, scrap preheaters are a potential source of organic HAP emissions. Furthermore, we could not identify specific scrap selection and inspection programs for these types of scrap materials that would be more effective than those proposed. Therefore, the primary variable affecting the organic HAP emissions from scrap preheaters is the preheater design. Additionally, it is not feasible to capture and convey emissions from all preheaters at existing foundries because of certain design and operational constraints, such as preheaters with moving grates, interferences with overhead moving cranes, and lack of space. However, preheaters at new foundries can be designed to capture and convey emissions prior to construction.

Based on an engineering assessment of the scrap preheater designs and control systems, units that operate with an external combustion system (afterburner) are expected to be the best performing for organic HAP emissions. The next most effective control is the use of direct flame contact preheaters, which have lower organic HAP emissions than hot gas flow (indirect heating) preheaters because organic contaminants in the scrap are thermally destroyed by direct contact with the preheater flame. We ranked scrap preheater systems according to their projected organic HAP destruction efficiency based on the heating methods that are used. From this analysis, we identified the MACT floor unit as one that uses natural gas, direct flame, scrap preheating (used at well over 12 percent of existing sources). The direct flame contact provides efficient destruction of organic HAP, and organic HAP control is improved when combined with the requirements of the scrap selection and inspection program. Moreover, many of the direct flame contact preheaters use an open burner design where the burners are directed onto the scrap, even when the preheater uses a moving grate system where it is not feasible to collect the emissions through a conveyance. Therefore, we believe a work practice standard is appropriate, and we are requiring foundry owners and operators to use direct flame contact preheaters. However, we are allowing foundries to use a properly designed and operated afterburner as a

compliance option for the preheater MACT standard because an afterburner on either a direct flame or indirect flame preheater will result in better control of organic emissions than the use of direct flame preheating alone. This option is reflected by an alternative standard of 20 ppmv VOHAP. Furthermore, we also conclude that afterburners are not a cost-effective "beyond-the-floor" technology for existing preheaters based both on the costs associated with redesigning the burner configuration to allow capture and control of the emissions and the small amount of additional emissions reductions achieved by the additional afterburner control.

The MACT floor for scrap preheaters at new sources, however, is still based on an afterburner control system. As discussed when considering the performance limits for cupola afterburners, we believe that a 20 ppmv emissions limit is still appropriate, but that the 20 ppmv limit should be based on specific VOHAP and should not necessarily include uncombusted methane emissions.

We have acknowledged that all foundries cannot completely eliminate organic contaminants from their scrap. However, some foundries use only scrap that can be certified to be free of the organic contaminants. In the final rule, we distinguish two general grades of scrap in the scrap selection and inspection program. Under a certification program, foundries can certify that they use only certified-metal ingots, pig iron and similar material that do not contain organic contaminants. Foundries that use scrap without organic contaminants will not generate organic HAP emissions from their scrap, regardless of the type of preheater used. Most foundries that use this type of material are small production foundries, and most of these are not major sources of HAP emissions. However, this may be a potentially viable alternative for some major source foundries as well. Therefore, we provide a compliance option for scrap preheaters that charge only clean scrap as described by the certification alternative in the scrap selection and inspection program. The compliance option for scrap preheaters that charge clean scrap at new and existing iron and steel foundries is the work practice of charging only material that has been certified to comply with the scrap certification alternative in the scrap selection and inspection program.

In summary, based on comments received and changes in the control configurations used at the top 12 percent of scrap preheaters, we revised the organic HAP MACT floor for scrap

preheaters. The MACT floor for scrap preheaters at existing sources is the work practice of using a gas-fired preheater in which the gas flame directly contacts the scrap. Alternatively, scrap preheaters at existing sources can meet a 20 ppmv VOHAP emissions limit (with alternatives of measuring TGNMO or TOC as hexane as a surrogate for VOHAP). MACT for scrap preheaters at new iron and steel foundries is the 20 ppmv VOHAP emissions limit. Also, we provide an alternative compliance option for preheaters at new and existing foundries that charge only clean scrap as described in the certification alternative of the scrap selection and inspection program. In this case, owners or operators need only certify that their preheater heats only scrap as described in the scrap certification alternative.

*Comment:* Several commenters opposed the requirement for direct measurement of VOC emissions from scrap preheaters and pouring, cooling, and shakeout (PCS) lines. The commenters believed that CEMS are not practical for scrap preheaters or justifiable (technically or economically) for PCS lines. Some commenters noted that VOC measurements for scrap preheaters and PCS lines would be more accurate with calibration by xylene or toluene rather than propane. One commenter explained that most HAP emitted from foundries have six carbons or more. Therefore, the VOC measurement should be calibrated with toluene or xylene as these would provide a better measure of VOC emissions than propane.

*Response:* The point concerning the representativeness of propane to characterize the HAP emissions is well-taken. Even though a wide variety of HAP are expected to be emitted from these sources, an analysis of the available VOHAP emissions data indicate that the average carbon number for the VOC emitted from these operations is six. Additionally, the historical documents where EPA has established the 20 ppm VOC emissions limit indicates that it was established by compound exit concentration rather than by a specified indicator of VOC, such as propane. Therefore, based on the available data and a review of the basis for VOC measurements, we have adjusted the organic HAP emissions limits to either measure VOHAP concentrations directly or to measure TOC using hexane as the calibration gas (*i.e.*, measure VOC outlet concentrations as hexane or C6 equivalents) as a surrogate for VOHAP. These organic HAP emissions limits now apply to cupolas (at new and existing foundries),

scrap preheaters (at new foundries and as an alternative at existing foundries), and automated conveyor and pallet cooling lines and automated shakeout lines that use sand mold systems (at new foundries).

Although a VOC CEMS is technically feasible for these applications, especially for new foundries, a review of the relative costs associated with these monitoring requirements compared to the control equipment costs to achieve the emissions limits does not appear to justify the requirement to install and operate VOC CEMS for cupola afterburners or scrap preheaters. Furthermore, for cupolas and scrap preheaters which use thermal destruction, the combustion zone (or flame) temperature provides an excellent indicator of on-going control device performance. Therefore, alternative continuous parameter monitoring requirements for these emissions sources can be used that will ensure continuous compliance with the emissions limit without undue additional costs. No alternative continuous parameter monitoring requirement could be identified for the cooling and shakeout operations. As the organic HAP emissions limits only apply to automated conveyor and pallet cooling lines and automated shakeout lines that use a sand mold system at a new iron and steel foundry, we maintained the VOC CEMS requirement for these emissions sources. We provide options to either meet the 20 ppmv VOHAP limit directly using the VOC CEMS (measuring total hydrocarbons as hexane) or to develop an equivalent site-specific VOC CEMS emissions limit based on the results of the VOHAP emissions measured during the performance test. The VOC CEMS actually measures total hydrocarbons, which includes non-HAP compounds. As a result, using a VOC CEMS to directly measure total hydrocarbons may be more stringent than the site-specific VOC limit correlated to measured VOHAP emissions.

We also included procedures in the final rule that will allow other monitoring methods to demonstrate compliance with the VOHAP emissions limit. For example, if you use a carbon adsorption system to control organic HAP emissions, appropriate monitoring parameters may include carbon breakthrough by replacing the carbon at specified frequencies. Other compliance methods, such as a pollution prevention (P2) techniques, also may be used to meet the VOHAP emissions limit. If you use P2 techniques, appropriate monitoring methods may include measuring loss on ignition or recording

the type of binder formulation used, total chemical usage rate, and/or chemical usage rate per volume of sand. If through P2 measures you can eliminate all HAP emissions from the emissions source or you can demonstrate continued HAP emissions reductions equal to or better than the MACT level of control, you may be eligible for a P2 compliance alternative under amendments to the NESHAP General Provisions (40 CFR part 63, subpart A). These amendments were proposed on May 15, 2003 (68 FR 26249).

The procedures in the final rule require that you submit a monitoring plan that includes a description of the control technique (or P2 measures), a description of the continuous monitoring system or method (including appropriate operating parameters to be monitored), test results demonstrating compliance with the emissions limit, operating limit(s) if applicable determined according to the test results, and the frequency of measuring and recording to establish continuous compliance. If applicable, you also must include operation and maintenance requirements for the monitor(s).

#### Pouring, Cooling, and Shakeout

*Comment:* Several commenters requested that we clarify the applicability of the emissions limits with regard to "pouring areas" and "shakeout." In general, large area casting producers requested that we remove reference in the definition of "pouring area" to maintaining the molds in a stationary position through cooling. One commenter requested that the definition for "shakeout" be revised to indicate that it is a mechanical operation, typically automated, and does not include manual operations that dismantle or separate castings from molds as seen in pouring areas. The change is needed because otherwise such manual operations may be subject to the requirements for new lines; however, it is infeasible to capture and control these operations, especially when they involve large castings in a pouring area.

Other commenters pointed out that centrifugal and permanent molds have very low organic content compared to sand molds. The commenters recommended that these systems be subcategorized and stated that the MACT floor for pouring, cooling, and shakeout for these operations at new sources would be no control.

*Response:* We agree with some of the commenters suggestions for clarifying definitions. We examined the data and found that no cooling lines associated

with floor or pit molding operations are currently controlled for organic HAP emissions. Of the three cooling lines that have end-of-pipe controls, two are automated conveyor lines and one is a pallet line. One of the foundries that has a carbon adsorption unit performs both pallet and floor molding; however, only the pallet cooling line is controlled.

Based on this information and in response to comments, we removed the proposed rule definition of "pouring, cooling, and shakeout line" and adjusted the proposed rule definition of "pouring area" to clarify that it includes floor and pit molding processes. In addition, the molds in a pouring area do not have to remain stationary for the duration of mold cooling. We also adjusted the proposed definition of "pouring station" to clarify that it means the fixed location to which molds are brought by an automated conveyor or pallet molding line. We added a definition for "automated conveyor and pallet cooling line" (*i.e.*, cooling lines associated with pouring stations) and "floor and pit cooling operation" (*i.e.*, a cooling operation associated with a pouring area). We also removed the proposed rule definition of "shakeout" and added a definition for "automated shakeout line" that distinguishes automated shakeout operations from manual knockout operations. The purpose of these revisions is to clarify that the 20 ppmv VOHAP limit for a new iron and steel foundry applies only to automated conveyor and pallet cooling lines and to automated shakeout lines.

As discussed in the BID for the final standards, permanent and centrifugal molds have significantly lower organic HAP emissions than green sand molds. Our re-evaluation of new source MACT for organic HAP demonstrates the need for a subcategorization of permanent and centrifugal molds for cooling and shakeout. For this reason, we also adjusted the VOHAP limit for new foundries to apply only to lines (automated conveyor and pallet cooling lines and automated shakeout lines) that use a sand mold system.

#### Capture Systems

*Comment:* Several commenters stated that the requirement of a minimum face velocity of 200 feet per minute (ft/min) has no underlying MACT floor basis and that it does not account for variability. Numerous commenters stated that a blanket requirement of 200 ft/min is not universally applicable and it is not consistent with good engineering design. Other commenters stated that the capture requirements creates a safety hazard, increases energy requirements

(for building heating and air conditioning), and creates defects in the castings (especially during pouring).

Several commenters noted that indoor air quality is regulated by other agencies and stated that when a process is operated in a manner that limits worker exposure (e.g., so as to comply with standards established by the Occupational Safety and Health Administration), then there is no basis for requiring stricter capture and ventilation standards. Another commenter noted that adjustments to individual fans for workers, which were installed for worker comfort, can change air flow in the surrounding area and impact face velocity, making it difficult to maintain compliance with the standard. Consequently, the requirement to maintain a minimum of 200 ft/min face velocity would require much higher design and operating face velocities in order to ensure continuous compliance, increasing energy consumption with no demonstrable environmental benefit.

A few commenters stated that it was technically infeasible to install close capture hoods on their induction furnaces, pouring stations, or pouring areas due to process configurations and accessibility limitations. The only option would be to evacuate the entire building at huge costs and energy requirements for very limited HAP emissions reduction.

One commenter noted that their foundry has reduced VOC and HAP emissions by judicious reductions in capture and collection, and that the prescriptive ventilation requirement would reduce operator flexibility and may increase HAP emissions. Another commenter noted that they had received a patent for controllers that limit air ventilation at times of lower emissions, which saves heating and energy costs without impairing air quality.

Most of the commenters recommended that the final rule require that existing capture systems be operated consistent with good engineering practices and consistent with the facility's operation and maintenance plan. Two commenters recommended requiring a best engineering design based on the "Industrial Ventilation Manual of Recommended Practice."

*Response:* Due to the comments received regarding the capture system requirements, we have decided to eliminate the 200 ft/min capture velocity requirement. In the final rule, we require that capture systems be designed and operated according to accepted engineering practices, such as the "Industrial Ventilation Manual of

Recommended Practice." Periodic inspection, maintenance, and continuous parametric monitoring are required to ensure they are properly operated and maintained on a continuing basis.

Additionally, we agree that there are process configurations and designs for which capture is infeasible, impractical, and ineffective. For example, capture systems at some iron and steel foundries would interfere with the movement of overhead cranes used to move large molds. Some pouring areas cover several thousand square feet, which makes capture impractical because of the enormous evacuation rate that would be needed. Physical constraints and space limitations, such as inadequate clearance between equipment and structural columns, also pose problems for installing capture systems. For operations that cannot feasibly be captured, the emissions from the operation are released into the interior of foundry buildings and may be emitted as fugitive emissions through roof vents, doors, and other openings. We specifically require control of such fugitive emissions as described above.

#### Opacity Limit

*Comment:* Several commenters recommended that fugitive emissions from miscellaneous sources not be included because the control of these emissions would be costly and will not contribute to a significant reduction in HAP emissions. These commenters do not believe an opacity limit for fugitive emissions is necessary or appropriate. One commenter noted that an opacity limit of 5 percent would be beyond the MACT floor. The commenter stated that they have two plants regulated under a single permit that included a 5 percent opacity limit as a condition to proposed modifications. Modifications have been completed to one of the plants to meet this limit and modifications are planned at the other plant (at an investment of \$3 to \$11 million) to enable them to meet the permit limit by December 2004.

On the other hand, two commenters stated that EPA needs to set a limit for fugitive emissions and also develop work practices to control fugitive emissions. One of the commenters submitted a summary of dust analysis results surrounding a steel foundry indicated elevated levels of several HAP, including chromium (total), lead, manganese, and nickel, near the foundry. The commenter suggested that these elevated metal HAP emissions are due largely to uncontrolled fugitive emissions from the foundry.

*Response:* The CAA directs EPA to establish standards under section 112(d) to reduce emissions of HAP from stationary sources, and expressly includes fugitive emissions. Our data indicate that there are significant sources of fugitive HAP emissions at iron and steel foundries. Fugitive HAP emissions from iron and steel foundries include un-captured metal fumes from metal melting and pouring operations. The available emissions data clearly demonstrates that metal fumes from these sources contain metal HAP including manganese, lead, and other heavy metals. Additionally, commenters have submitted data regarding the elevated HAP content in dust surrounding one foundry, and suggested that fugitive emissions may have contributed to these high HAP concentrations. In general, it is clear that fugitive emissions contribute to the overall HAP emissions from foundry operations. Moreover, such fugitive emissions are often subject to emission limitations.

Our evaluation indicates that these fugitive emissions have been effectively regulated by establishing opacity limits. We examined State regulations for fugitive emissions and found that almost all States apply an opacity limit for the buildings that house the process equipment. We ranked the regulations and chose the most stringent (Michigan's limit of 20 percent with one exception per hour up to 27 percent) because at least 6 percent of the foundries are subject to this limit. This opacity limit represents the MACT floor for existing sources and is the primary standard for fugitive emissions.

This opacity limit is indicative of the achievable performance of these foundries under the most adverse circumstances that can reasonably be expected to recur. Based on observations of visual emissions at a number of iron and steel foundries, this opacity limit can be achieved at well controlled foundries. Furthermore, we know of no facility that is currently subject to, and able to meet, a more stringent opacity limit. One commenter appears to be in the process of trying to meet a 5 percent opacity, but the overall regulated facility (which consists of two plants) has yet to be able to meet this limit, and as such, we do not consider the 5 percent opacity limit achieved. Therefore, we conclude that the MACT floor for fugitive emissions from new sources is the same as for existing sources (20 percent opacity except for one 6-minute average per hour not to exceed 27 percent) because this is the emissions limit required of the best performing facility, and we believe this

emissions limit is indicative of the actual emissions limitations achieved by these facilities under the most adverse circumstances that can reasonably be expected to recur. The opacity limit applies specifically to fugitive emissions from the foundry buildings, and fugitive emissions are defined as all releases to the atmosphere that are not discharged through a conveyance.

#### Mold and Core Making

*Comment:* Several industry representatives commented that the scrubbers evaluated for MACT appeared to be operating with fresh acid solution with a pH below 2. However, contractors who recycle used TEA will not accept material with a pH less than 2. One commenter felt that recyclers would not accept the scrubber solutions because of the low pH that would result from the 1 ppmv emissions limit. Commenters also questioned the technical validity of the 1 ppmv emissions limit, especially for systems with high inlet TEA concentrations. The commenters recommended that we adjust the proposed operating limit for wet acid scrubbers to require operating within manufacturer's specifications, maintaining the pH at 4.5 or less, and assess performance in terms of percent removal as specified by the manufacturer.

*Response:* The commenters' point regarding the test data being representative of TEA scrubber performance with fresh acid solution is well-founded. All of the available TEA scrubber performance data was generated from tests that used fresh acid solution (pH of 2 or less). Discussions with control equipment vendors indicate that the scrubbers are designed to operate at a scrubbing solution pH of 4.5 or lower. Discussions with foundry operators, as well as the public comments received, indicate that these foundries replace the scrubbing solution when the pH reaches either 4.5 or 5, depending on the foundry. As recycling of the TEA in the scrubbing solution is environmentally beneficial, we do not want to preclude the recycling of TEA by establishing a very low pH operating limit during the performance test. Also, because the performance limits were derived from test data of systems with fresh acid solution, it is not necessarily appropriate to require foundries to meet an emissions limit with spent acid solution (*i.e.*, a pH nearing 4.5) when the data used to establish the performance limit of the scrubbers were all based on performance with fresh acid solution (*i.e.*, a pH of 2 or less). From the information collected regarding the operation of these

systems, at least 12 percent of the units replace the scrubbing solution at a pH of 4.5 or less (rather than at a pH of 5 or less). No units were identified that replaced the scrubbing solution at a pH of 4.0 or less. Therefore, replacing the scrubber solution at a pH of 4.5 or less is representative of MACT floor operating conditions for these scrubbing systems at new and existing iron and steel foundries.

The data used to establish the performance of the wet scrubber systems were also limited in that we have no data for systems with inlet TEA concentrations greater than 250 ppmv. Based on comments received from both foundry and TEA scrubber vendor representatives, the TEA systems are designed to achieve a percent removal of TEA and that the 1 ppmv limit is not achievable for systems with inlet TEA concentrations in the 1,000 ppmv range or higher. We believe that these are valid concerns and that a percent reduction alternative is warranted for systems with high TEA concentrations. After reviewing the source test data and the operating parameters associated with the TEA scrubber at the best-performing sources, we concluded that the MACT floor performance of the TEA scrubbers is correctly defined as a 99 percent or more TEA removal efficiency or an outlet TEA concentration of 1 ppmv or less, as determined when the system is operated with fresh scrubbing media. These emissions limits are consistent with the available data that establish the MACT floor level of control, and the operating limits are consistent with the operation of the best-performing TEA acid scrubbers.

For these reasons, we adjusted the proposed emissions limit to require the owner or operator to reduce TEA emissions from a TEA cold box mold or core making line at a new or existing foundry by at least 99 percent or to a level that does not exceed 1 ppmv, as determined when scrubbing with fresh acid solution. We also adjusted the proposed operating limit to require that the 3-hour average pH of the scrubber blowdown not exceed 4.5. We also added compliance provisions to implement these new requirements. Plants must conduct an initial performance test to establish that the TEA scrubber is correctly designed to meet the required emissions limit and to establish the minimum flow rate of scrubbing media that must be maintained. Continuous compliance is established by maintaining the scrubber media flow rate at or above the limit established during the performance test and maintaining the pH of the scrubbing media at or below a pH of 4.5.

#### C. Why Did We Revise the Proposed Work Practice Standards?

##### Scrap Selection and Inspection

*Comment:* We received about 20 comments from foundries and recyclers on the proposed work practice standards. Most believed that the requirements are unnecessary because the emissions limits for organic HAP already require capture and control. They stated that cupolas are both designed for and capable of handling some of the restricted material, such as oily scrap, and a cupola is the most environmentally acceptable process in which to recycle these materials.

*Response:* We proposed a single scrap selection and inspection requirement regardless of the type of melting furnace used. Upon consideration of the public comments and data submitted regarding used oil filter recycling, we agree that a cupola, properly controlled with an afterburner, provides a safe and environmentally beneficial means of recycling oily scrap. That is, our test data and engineering analyses indicate that the afterburner will destroy organic compounds resulting from the melting of oily scrap. Therefore, we have included a specific provision that allows oily scrap in cupolas as long as it is drained of free liquids and an afterburner is used that meets specific design and operating requirements to ensure destruction of organic compounds.

*Comment:* Several commenters recommended that we include additional specifications or a requirement to ensure that no mercury switches are included in the scrap. These requirements are needed to reduce mercury emissions from the furnaces. These commenters provided information on programs to remove mercury switches from automobile scrap and the potential reductions in mercury emissions when this scrap is melted. Other commenters stated that restrictions on HAP metals in scrap were unnecessary because the melting furnaces have PM controls and are subject to emissions limits for PM.

*Response:* Although there are provisions for metal HAP emissions control for all furnace types, mercury is not well-controlled by these control systems because of its volatility. We agree with the commenters that removing mercury switches from automobile scrap is the best technique to reduce mercury emissions from melting furnaces. We researched programs currently in place for the removal of mercury switches. We found that there are some mandatory and voluntary programs that are being

implemented by the States to remove mercury switches from end of life vehicles. However, we could not confirm that the removal of mercury switches would be part of the floor of a scrap inspection program for iron and steel foundries because some programs were voluntary and others affected scrap recyclers rather than foundries. We evaluated the costs and emissions reductions of mercury switch removal and found that the removal of mercury switches associated with convenience lighting was cost effective. The switches are readily accessible, and for automobiles manufactured in 2001 and earlier, they account for the vast majority of mercury in automobile components. We estimate that such a program could achieve annual mercury reductions of 2,800 pounds at an annual cost of only \$3.6 million. This evaluation indicates that it is a reasonable and cost effective beyond-the-floor alternative. Consequently, we incorporated requirements into the scrap inspection program to address the removal of mercury switches from under hoods and trunks.

We also considered the feasibility of the removal of the small amount of mercury that may be used in flat panel displays used in entertainment and navigation systems and in some headlamps. These uses of mercury comprise only 1 percent of that used in automobiles historically, such as convenience light switches. The small amount of mercury, poor accessibility to the mercury, and the costs of removal indicated that removal of mercury from these small applications was not a cost effective alternative for beyond the MACT floor.

There are several other efforts underway to reduce the use of mercury switches in automobiles and to remove them from end of life vehicles. The U.S. automobile industry has committed to removing mercury convenience lighting switches from new automobiles. The Alliance of Automobile Manufacturers (a trade association of car and light truck manufacturers) reports that the use of mercury in automobile components has been reduced to 1 percent of the level used in the 2001 calendar year. Several States and EPA have initiated programs, such as legislative efforts, pilot projects, and outreach campaigns to facilitate the removal of mercury switches from automobile scrap, which is particularly important for vehicles manufactured in 2001 and earlier. These efforts supplement the scrap inspection program in the final rule and will help to ensure continued reductions in mercury emissions in the future.

Several commenters also expressed concerns that lead may not necessarily be well-controlled by these systems depending on the operating temperatures of the control system. Although the data for the two cupola control systems that we tested indicated excellent control of lead emissions, experience with a variety of PM control systems at other industries (but similar types of emissions) indicate that lead removal efficiency may be reduced at higher temperatures. In addition, many plants already limit and inspect for lead components, and many such components are identifiable in scrap. Our analysis of the practices currently used by iron and steel foundries indicates that preventing or removing identifiable lead components in scrap is part of the MACT floor. Therefore, we have included requirements restricting lead components in scrap. However, we have eliminated restrictions for other metal components, such as galvanized parts, both because it is difficult to distinguish these parts from other scrap metals and because the metal HAP that might be released during the melting process are low in volatility and are well controlled by PM control devices over the range of temperatures that these devices operate.

*Comment:* Numerous commenters recommended that we write the final rule to include specifications with restrictions on the amount of free liquids, grease, oil, and plastic parts; procedures to inspect a representative number of scrap shipments (e.g., 10 percent), and procedures to ensure that oily turnings are properly drained of free liquids. These commenters also stated that the requirement to perform the inspections at the best vantage point was nebulous and makes compliance difficult to ensure. One commenter requested that we write the final rule to exempt any foundry from the scrap inspection and recordkeeping requirements if they use certified metal ingots that do not contain HAP.

*Response:* We reconsidered the practicality and, in some cases, the vagueness of the proposed scrap inspection program. These commenters have offered several suggestions that will improve the program, and we have written the scrap selection and inspection requirements to incorporate many of these suggestions. For example, we realize it is impractical and almost impossible to inspect all shipments, so we require inspection of representative shipments (but not less than 10 percent of the shipments). The undefined best vantage point for performing the inspections has been revised to a reasonable vantage point. We also

clarified that a continuing scrap inspection program is not necessary for those foundries that do not use scrap containing the HAP generating contaminants if they meet compliance certification requirements for their furnace charge materials. These adjustments and the resulting requirements are consistent with the practices at the best-controlled foundries and are representative of the MACT floor.

*Comment:* Several commenters requested that EPA require foundries to implement the work practice requirements that will reduce mercury emissions (i.e., scrap selection and inspection program) within 1 year of the effective date. The commenters pointed out that most foundries already have these programs in place and no control equipment is needed that might require more time to install. Implementing these requirements sooner would result in greater reductions in mercury emissions especially considering the phase out of mercury switches in new automobiles.

*Response:* We agree with the commenters' suggestions and see no reason why foundries can not implement the scrap selection and inspection program or certification requirements sooner. While owners or operators of iron and steel foundries are provided 3 years after the effective date of the final rule to comply with other requirements, we are requiring that existing iron and steel foundries comply with the scrap selection and inspection program in § 63.7700(b) or the certification requirements in § 63.7700(c) within 1 year of the effective date of the final rule.

#### Mold and Core Making

*Comment:* Several commenters opposed the proposed requirement to manually light off molds because some molds do not produce gases that will support combustion, and they would automatically ignite if they were combustible. It is not practical to inspect each mold vent at high production foundries, and in some cases, hoods or enclosures make it impractical and unsafe to manually ignite and inspect vents. Some commenters stated that the requirements are burdensome and unclear with respect to how to demonstrate compliance (e.g., how quickly they must be lit, how long must they burn, and does the requirement depend on mold size and binder type). Others stated that EPA has not demonstrated that mold light off represents the MACT floor and presented no data to show that HAP emissions would be reduced.

*Response:* From our observations of foundry operations, ignition of mold vents was a standard operating procedure, although we recognize that ignition of mold vent gases generally occurs spontaneously. In reviewing the public comments, it is evident that the requirements, as proposed, had several significant short-comings. For foundries with mold vents that are not ignitable, there must be a mechanism to document this fact, they should not be required to try to manually ignite every mold vent, and it should not be necessary to keep records of which mold vents did not ignite. In addition, we did not intend to endanger the safety of the workers through this requirement. Finally, we did not intend to limit mold light off to only manual means. The use of natural gas pilot flames in automated cooling lines to light off mold vents is certainly acceptable; consequently, we adjusted the requirement to manually ignite the gases.

There is no doubt that mold vent gases contain HAP and that the ignition of the mold vent gases will reduce the HAP emissions that occur due to mold off-gassing. Therefore, we have not eliminated requirements for mold vent light off, but we have significantly revised the requirements. The final rule incorporates the mold vent ignition requirements into the O&M plan. The plan must include procedures for providing an ignition source to mold vents unless the owner or operator determines the gases either are not ignitable, ignite automatically, or cannot be ignited due to legitimate accessibility or safety reasons. Criteria are included for determining ignitability. The final rule requires that foundries document and maintain records of this determination.

#### *Coating and Binder Formulations*

*Comment:* We received one comment supporting the proposed requirement for non-HAP coating formulations. We also received many comments from industry representatives opposing the total elimination of HAP. Most of these commenters asked us to allow HAP compounds in small percentages in coatings when they are needed to achieve the physical and chemical properties required by the coating specifications. One commenter explained that there is a small but specialized need for methanol-based coatings. The methanol-based coatings are designed for light off in which the flammable components are consumed so that minimal methanol is released to the environment. Methanol used as a carrier in the coating could be replaced, but not methanol used as an active ingredient in

the coating. While methanol has been replaced in many cases by water, methanol in small quantities is needed in coatings as a biocide or surfactant. Several commenters suggested that Material Safety Data Sheets be used to satisfy recordkeeping requirements.

*Response:* After considering the numerous comments and the technical details associated with this issue, we concluded that we could not show that prohibiting methanol in this application would be a cost-effective beyond-the-floor option. In addition, we cannot show that it is technically feasible in all cases, considering the specialized use of methanol in some applications and the unknown effect on the quality of certain products that must meet coating specifications. For these reasons, we deleted the proposed requirement for non-HAP coating formulations from the final rule. Consistent with our intent to have foundries consider the HAP content and potential HAP emissions from their coating formulations, we are applying recordkeeping requirements to HAP used in coatings. These include requirements to record annual chemical usage rates for each binder system, annual HAP specific usage rates for each binder system, and total HAP usage rate by the foundry. These records will identify those systems with the highest HAP usage rates and make it easier for foundries to focus on opportunities to reduce the HAP content.

*Comment:* Several commenters said the no methanol requirements placed on furan warm box binder systems should be removed because they were beyond the floor and had not been justified. Also, there is no assurance that binders without methanol can provide the quality of castings that is needed. The commenters explained that the catalyst portion of the binder system is water-based in most current formulations, but the resin portion of the binder system typically contains up to 5 percent methanol as a stabilizer for the resin. Therefore, the no methanol requirement for furan warm box systems should be clarified to limit the requirement of no methanol only to the catalyst and should allow up to 5 percent methanol in the resin material. One commenter recommended that EPA defer all specific binder reformulation requirements until residual risk standards; this will allow time to complete testing on low-emitting binder systems. Another commenter recommended that all specific binder reformulation requirements be deleted because they limit greener alternatives from being evaluated.

*Response:* The proposed no methanol requirement was not based on a beyond-

the-floor analysis; it was based on the fact that over 40 percent of the mold and core making lines using the furan warm box system (based on responses to a detailed industry survey) had switched from a methanol-based catalyst. However, it appears that we mischaracterized the extent to which methanol can be eliminated from the furan warm box system. The survey responses used to establish the MACT floor specifically indicated that the conversion was performed only for the catalyst portion of the binder system. The comments we received verify that conversion to a no-methanol or water-based catalyst is technically feasible. Therefore, we revised the requirement for furan warm box binder systems to indicate that foundries must use a furan warm box catalyst that does not include methanol as a specific ingredient as listed in the Material Data Safety Sheet. We also revised this provision to clarify that the requirement does not apply to the resin portion of the binder system. Methanol is allowed in the resin portion of the binder system. The final rule also requires plants to maintain records of all catalyst binder formulations.

*Comment:* While one commenter supported the proposed requirement for naphthalene-depleted solvents in binders for phenolic urethane cold box or nobake mold or core making lines, several commenters opposed the requirement. According to these commenters, EPA should delete the requirement because it is beyond the floor and unjustified. Three commenters stated that naphthalene-depleted solvents may increase VOC emissions and that EPA had underestimated the cost. One commenter added that the proposed requirement would be ineffective because naphthalene-depleted solvents contain other HAP. The proposed requirement may require expensive tooling modifications and product testing if cores are changed, and there is no assurance that binders without naphthalene will be capable of providing the quality of castings that is needed, will work at all foundries, or will be available for all major source foundries. Some commenters recommended that EPA encourage environmentally friendly resins using New Source Review Clean Technology concepts and have foundries report on the results. Others recommended requiring a study or deferring the requirement until the residual risk is evaluated.

*Response:* Based on a review of the comments and upon further analysis, we determined that the requirement for naphthalene-depleted solvents is not warranted. First, the naphthalene-

depleted solvent does not provide the same characteristics as the traditional phenolic urethane base solvent and, therefore, may not achieve acceptable quality castings in all applications. Second, we feel we underestimated the cost of the required binder system substitution by not considering the cost to recertify the castings through a production parts approval process. Third, we may have overestimated the amount of HAP emissions reductions that are achievable by the use of the naphthalene-depleted solvent. Therefore, we feel that we cannot require that all phenolic urethane binder systems be converted to a naphthalene-depleted solvent. In addition, the requirement to convert solvents is not a cost-effective alternative; consequently, we rejected the use of naphthalene-depleted solvents as a beyond-the-floor requirement. Therefore, this specific requirement has been removed from the final rule. With this change, almost all of the concerns expressed by the commenters have been addressed.

*Comment:* Several commenters recommended that the binder system evaluation requirements be deleted. The mold and core binder assessment is a beyond-the-floor requirement with no economic cost-effectiveness demonstration, imposes a heavy burden on the foundry, and is written in a manner subject to interpretation and potential compliance actions. The MACT floor is mostly no change in formulation. Most of these commenters state that EPA does not have the authority to require a re-evaluation every 5 years because MACT standards are to represent a one-time identification of the technologies currently available.

*Response:* We felt that foundries routinely evaluated alternative binder systems to identify systems that might help to reduce costs, speed production, improve casting quality, and reduce defects. Primarily, we wanted foundries to include in this process an evaluation of the potential HAP emissions and factor in these HAP emissions reductions in the process of selecting an appropriate binder system. However, as proposed, the requirement was too broad (evaluate all binder systems) and too vague (what is a reduced-HAP binder system?) to be practically implemented. As we attempted to craft this requirement into something that could be reasonably implemented without undue burden, we still struggled with numerous questions: what is a reduced-HAP binder system; do we consider emissions only from mold curing or from both mold making

and subsequent releases from cooling and shakeout; and how do we define what is technically and economically feasible?

After considering the numerous comments and the technical details associated with this issue, we concluded that any prescriptive requirement we developed would not be a cost-effective beyond-the-floor option. Consistent with our intent to have foundries consider the HAP content and potential HAP emissions from their binder formulations, we are requiring foundries to record the annual chemical usage rates for each binder system employed at the foundry, the annual HAP specific usage rates for each binder system, and the total annual HAP usage rate by the foundry. These records will identify those systems with the highest HAP usage rates and make it easier for foundry owners or operators to focus on opportunities to reduce HAP content. This information can also be considered when alternative binder systems are routinely evaluated for reasons related to production, cost, and quality. In addition, these data will also help to further address mold and core making emissions, if necessary, under section 112(f) for residual risk.

## V. Statutory and Executive Order Reviews

### A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735, October 4, 1993), the EPA must determine whether the regulatory action is “significant” and, therefore, subject to review by the Office of Management and Budget (OMB) and the requirements of the Executive Order. The Executive Order defines a “significant regulatory action” as one that is likely to result in a rule that may:

- (1) Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
- (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- (3) materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- (4) raise novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, it has been determined

that the final rule is a “significant regulatory action” because it may raise novel legal or policy issues. As such, this action was submitted to OMB for review. Changes made in response to OMB suggestions or recommendations will be documented in the public record.

### B. Paperwork Reduction Act

The information collection requirements in the final rule have been submitted for approval to OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* The information collection requirements are not enforceable until OMB approves them.

The information requirements in the final rule are based on notification, recordkeeping, and reporting requirements in the NESHAP General Provisions (40 CFR part 63, subpart A), which are mandatory for all operators subject to NESHAP. The records and reports required by the final rule are necessary for EPA to: (1) Identify major sources and new or reconstructed sources subject to the rule, (2) ensure that MACT is being properly applied, and (3) ensure that the emissions control devices are being properly operated and maintained on a continuous basis. Based on the reported information, EPA can decide which plants, records, or processes should be inspected. These recordkeeping and reporting requirements are specifically authorized by section 112 of the CAA (42 U.S.C. 7414). All information submitted to the EPA pursuant to the recordkeeping and reporting requirements for which a claim of confidentiality is made is safeguarded according to Agency policies in 40 CFR part 2, subpart B.

The annual average public reporting and recordkeeping burden for this collection of information over the first three years of the information collection request (ICR) is estimated to total 22,325 labor hours per year. This includes 10 responses per year from 98 respondents for an average of 22.7 hours per response. The total annualized cost burden to the facility is estimated at \$1,626,649, including labor, capital, and operation and maintenance. The capital cost of monitoring equipment is estimated at \$293,700; the estimated annual cost for operation and maintenance of monitoring equipment is \$133,300.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology

and systems for the purpose of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An Agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control number for EPA's regulations in 40 CFR part 63 are listed in 40 CFR part 9. When the 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 the final rule.

#### *C. Regulatory Flexibility Act*

The EPA has determined that it is not necessary to prepare a regulatory flexibility analysis in connection with this final rule. The EPA has also determined that the final rule will not have a significant economic impact on a substantial number of small entities. For purposes of assessing the impacts of the final rule on small entities, small entity is defined as: (1) a small business according to the U.S. Small Business Administration size standards for NAICS codes 331511 (Iron Foundries), 331512 (Steel Investment Foundries), and 331513 (Steel Foundries, except Investment) of 500 or fewer employees; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of today's final rule on small entities, EPA has concluded that this action will not have a significant economic impact on a substantial number of small entities. Based on SBA size definitions for the affected industries and reported sales and employment data, we identified 20 of the 63 companies incurring compliance costs as small businesses. These small businesses are expected to incur \$3.3 million in compliance costs, or 15 percent of the total industry compliance costs of \$21.2 million. The mean annual compliance cost as a share of sales for

small businesses is estimated at 0.40 percent, and the median is 0.26 percent, with a range of 0.04 to 1.04 percent. We estimate that one small business may experience an impact between 1 and 3 percent of sales, but no small business is expected to experience an impact greater than 3 percent of sales. No significant impacts on their viability to continue operations and remain profitable is expected.

Although the final rule will not have a significant economic impact on a substantial number of small entities, we have nonetheless worked to minimize the impact of the final rule on small entities, consistent with our obligations under the CAA. We have discussed potential impacts and opportunities for emissions reductions with company representatives, and company representatives have also attended meetings held with industry trade associations to discuss the final rule. By changing the proposed requirements for capture systems and revising our initial MACT floor determinations, we have minimized the final rule impacts on small entities to the maximum extent allowable under the CAA.

#### *D. Unfunded Mandates Reform Act*

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104-4, establishes requirements for Federal agencies to assess effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, the EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with Federal mandates that may result in expenditures by State, local, and tribal governments, in the aggregate, or by the private sector, of \$100 million or more in any 1 year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires the EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least-burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows the EPA to adopt an alternative other than the least-costly, most cost-effective, or least-burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before the EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed

under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

Today's final rule contains no Federal mandate (under the regulatory provisions of the UMRA) for State, local, or tribal governments. The EPA has determined that the final rule does not contain a Federal mandate that may result in estimated costs of \$100 million or more to either State, local, or tribal governments, in the aggregate, or to the private sector in any 1 year. Thus, today's final rule is not subject to sections 202 and 205 of the UMRA. The EPA has also determined that the final rule contains no regulatory requirements that might significantly or uniquely affect small governments. Thus, today's final rule is not subject to the requirements of section 203 of the UMRA.

#### *E. Executive Order 13132: Federalism*

Executive Order 13132 (64 FR 43255, August 10, 1999) requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government."

The final rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. None of the affected facilities are owned or operated by State governments. Thus, Executive Order 13132 does not apply to the final rule.

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

Executive Order 13175 (65 FR 67249, November 9, 2000) requires EPA to develop an accountable process to

ensure “meaningful and timely input in the development of regulatory policies on matters that have tribal implications.”

The final rule does not have tribal implications, as specified in Executive Order 13175. It will not have substantial direct effects on tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes. No tribal governments own or operate facilities subject to the NESHAP. Thus, Executive Order 13175 does not apply to the final rule.

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

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

The EPA interprets Executive Order 13045 as applying only to those regulatory actions that are based on health or safety risks, such that the analysis required under section 5–501 of the Executive Order has the potential to influence the regulation. The final rule is not subject to Executive Order 13045 because it is based on control technology and not on health or safety risks.

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

This final rule is not a “significant energy action” as defined in Executive Order 13211 (66 FR 28355, May 22, 2001) because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. Further, we have concluded that the final rule is not likely to have any adverse energy effects.

#### *I. National Technology Transfer Advancement Act*

Section 12(d) of the National Technology Transfer and Advancement Act (NTTAA) of 1995 (Public Law 104–113; 15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its

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

The final rule involves technical standards. The final rule uses EPA Methods 1, 1A, 2, 2A, 2C, 2D, 2F, 2G, 3, 3A, 3B, 4, 5, 5D, 12, and 18, 25, or 25A in 40 CFR part 60, appendix A. Consistent with the NTTAA, EPA conducted searches to identify voluntary consensus standards in addition to these EPA methods. No applicable voluntary consensus standards were identified for EPA Methods 1A, 2A, 2D, 2F, 2G, 5D, and 12. The search and review results have been documented and are placed in the docket for the final rule.

The search for emissions measurement procedures identified 17 voluntary consensus standards applicable to the final rule. Three of the 17 voluntary consensus standards were not available at the time of promulgation and EPA determined that 14 of these 17 standards were impractical alternatives to EPA test methods. Therefore, EPA is not adopting these standards in the final rule. The reasons for this determination are in docket for the final rule.

The following three of the 17 voluntary consensus standards identified in this search were not available at the time the review was conducted for the purposes of the final rule because they are under development by a voluntary consensus body: ASME/BSR MFC 13M, “Flow Measurement by Velocity Traverse,” for EPA Method 2 (and possibly 1); ASME/BSR MFC 12M, “Flow in Closed Conduits Using Multiport Averaging Pitot Primary Flowmeters,” for EPA Method 2; and ISO/DIS 12039, “Stationary Source Emissions—Determination of Carbon Monoxide, Carbon Dioxide, and Oxygen—Automated Methods,” for EPA Method 3A. While we are not including these standards in today’s rule, the EPA will consider the standards when they are finalized.

#### *J. Congressional Review Act*

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement 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 has submitted a report containing the final rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to the publication of the final rule in today’s **Federal Register**. The final rule is not a “major rule” as defined by 5 U.S.C. 804(2).

#### **VI. Statutory Authority**

The statutory authority for this action is provided by sections 112, 114, 116, and 301 of the CAA, as amended (42 U.S.C. 7401 *et seq.*) This rulemaking is subject to the provisions of section 307(d) of the CAA.

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

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

Dated: August 29, 2003.

**Marianne Lamont Horinko,**  
*Acting Administrator.*

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

#### **PART 63—[AMENDED]**

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

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

#### **Subpart A—[Amended]**

■ 2. Part 63 is amended by adding subpart EEEEE to read as follows:

#### **Subpart EEEEE—National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries**

Sec.

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63.7682 What parts of my foundry does this subpart cover?  
63.7683 When do I have to comply with this subpart?

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Table 1 to Subpart EEEEE of Part 63—  
Applicability of General Provisions to Subpart EEEEE

**What this Subpart Covers****§ 63.7680 What is the purpose of this subpart?**

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for iron and steel foundries. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emissions limitations, work practice standards, and operation and maintenance requirements in this subpart.

**§ 63.7681 Am I subject to this subpart?**

You are subject to this subpart if you own or operate an iron and steel foundry that is (or is part of) a major source of hazardous air pollutant (HAP) emissions. Your iron and steel foundry is a major source of HAP for purposes of this subpart if it emits or has the potential to emit any single HAP at a rate of 10 tons or more per year or any combination of HAP at a rate of 25 tons or more per year or if it is located at a facility that emits or has the potential to emit any single HAP at a rate of 10 tons or more per year or any combination of HAP at a rate of 25 tons or more per year.

**§ 63.7682 What parts of my foundry does this subpart cover?**

(a) The affected source is each new or existing iron and steel foundry.

(b) This subpart covers emissions from metal melting furnaces, scrap preheaters, pouring areas, pouring stations, automated conveyor and pallet cooling lines, automated shakeout lines, and mold and core making lines. This subpart also covers fugitive emissions from foundry operations.

(c) An affected source is existing if you commenced construction or reconstruction of the affected source before December 23, 2002.

(d) An affected source is new if you commenced construction or reconstruction of the affected source on or after December 23, 2002. An affected source is reconstructed if it meets the definition of "reconstruction" in § 63.2.

**§ 63.7683 When do I have to comply with this subpart?**

(a) Except as specified in paragraph (b) of this section, if you have an existing affected source, you must comply with each emissions limitation, work practice standard, and operation and maintenance requirement in this subpart that applies to you no later than

April 23, 2007. Major source status for existing affected sources must be determined no later than April 23, 2007.

(b) If you have an existing affected source, you must comply with the work practice standards in § 63.7700(b) or (c), as applicable, no later than April 22, 2005.

(c) If you have a new affected source for which the initial startup date is on or before April 22, 2004, you must comply with each emissions limitation, work practice standard, and operation and maintenance requirement in this subpart that applies to you by April 22, 2004.

(d) If you have a new affected source for which the initial startup date is after April 22, 2004, you must comply with each emissions limitation, work practice standard, and operation and maintenance requirement in this subpart that applies to you upon initial startup.

(e) If your iron and steel foundry is an area source that becomes a major source of HAP, you must meet the requirements of § 63.6(c)(5).

(f) You must meet the notification and schedule requirements in § 63.7750. Note that several of these notifications must be submitted before the compliance date for your affected source.

**Emissions Limitations****§ 63.7690 What emissions limitations must I meet?**

(a) You must meet each emissions limit or standard in paragraphs (a)(1) through (11) of this section that applies to you.

(1) For each electric arc metal melting furnace, electric induction metal melting furnace, or scrap preheater at an existing iron and steel foundry, you must not discharge emissions through a conveyance to the atmosphere that exceed either the limit for particulate matter (PM) in paragraph (a)(1)(i) of this section or, alternatively the limit for total metal HAP in paragraph (a)(1)(ii) of this section:

(i) 0.005 grains of PM per dry standard cubic foot (gr/dscf), or  
(ii) 0.0004 gr/dscf of total metal HAP.

(2) For each cupola metal melting furnace at an existing iron and steel foundry, you must not discharge emissions through a conveyance to the atmosphere that exceed either the limit for PM in paragraph (a)(2)(i) of this section or, alternatively the limit for total metal HAP in paragraph (a)(2)(ii) of this section:

(i) 0.006 gr/dscf of PM, or  
(ii) 0.0005 gr/dscf of total metal HAP.

(3) For each cupola metal melting furnace or electric arc metal melting

furnace at a new iron and steel foundry, you must not discharge emissions through a conveyance to the atmosphere that exceed either the limit for PM in paragraph (a)(3)(i) of this section or, alternatively the limit for total metal HAP in paragraph (a)(3)(ii) of this section:

- (i) 0.002 gr/dscf of PM, or
- (ii) 0.0002 gr/dscf of total metal HAP.

(4) For each electric induction metal melting furnace or scrap preheater at a new iron and steel foundry, you must not discharge emissions through a conveyance to the atmosphere that exceed either the limit for PM in paragraph (a)(4)(i) of this section or, alternatively the limit for total metal HAP in paragraph (a)(4)(ii) of this section:

- (i) 0.001 gr/dscf of PM, or
- (ii) 0.00008 gr/dscf of total metal HAP.

(5) For each pouring station at an existing iron and steel foundry, you must not discharge emissions through a conveyance to the atmosphere that exceed either the limit for PM in paragraph (a)(5)(i) of this section or, alternatively the limit for total metal HAP in paragraph (a)(5)(ii) of this section:

- (i) 0.010 gr/dscf of PM, or
- (ii) 0.0008 gr/dscf of total metal HAP.

(6) For each pouring area or pouring station at a new iron and steel foundry, you must not discharge emissions through a conveyance to the atmosphere that exceed either the limit for PM in paragraph (a)(6)(i) of this section or, alternatively the limit for total metal HAP in paragraph (a)(6)(ii) of this section:

- (i) 0.002 gr/dscf of PM, or
- (ii) 0.0002 gr/dscf of total metal HAP.

(7) For each building or structure housing any emissions source at the iron and steel foundry, you must not discharge any fugitive emissions to the atmosphere that exhibit opacity greater than 20 percent (6-minute average), except for one 6-minute average per hour that does not exceed 27 percent opacity.

(8) For each cupola metal melting furnace at a new or existing iron and steel foundry, you must not discharge emissions of volatile organic hazardous air pollutants (VOHAP) through a conveyance to the atmosphere that exceed 20 parts per million by volume (ppmv) corrected to 10 percent oxygen.

(9) As an alternative to the work practice standard in § 63.7700(e) for a scrap preheater at an existing iron and steel foundry or in § 63.7700(f) for a scrap preheater at a new iron and steel foundry, you must not discharge emissions of VOHAP through a

conveyance to the atmosphere that exceed 20 ppmv.

(10) For one or more automated conveyor and pallet cooling lines that use a sand mold system or automated shakeout lines that use a sand mold system at a new iron and steel foundry, you must not discharge emissions of VOHAP through a conveyance to the atmosphere that exceed a flow-weighted average of 20 ppmv.

(11) For each triethylamine (TEA) cold box mold or core making line at a new or existing iron and steel foundry, you must meet either the emissions limit in paragraph (a)(11)(i) of this section or, alternatively the emissions standard in paragraph (a)(11)(ii) of this section:

(i) You must not discharge emissions of TEA through a conveyance to the atmosphere that exceed 1 ppmv, as determined when scrubbing with fresh acid solution; or

(ii) You must reduce emissions of TEA from each TEA cold box mold or core making line by at least 99 percent, as determined when scrubbing with fresh acid solution.

(b) You must meet each operating limit in paragraphs (b)(1) through (5) of this section that applies to you.

(1) You must install, operate, and maintain a capture and collection system for all emissions sources subject to an emissions limit or standard for VOHAP or TEA in paragraphs (a)(8) through (11) of this section.

(i) Each capture and collection system must meet accepted engineering standards, such as those published by the American Conference of Governmental Industrial Hygienists.

(ii) You must operate each capture system at or above the lowest value or settings established as operating limits in your operation and maintenance plan.

(2) You must operate each wet scrubber applied to emissions from a metal melting furnace, scrap preheater, pouring area, or pouring station subject to an emissions limit for PM or total metal HAP in paragraphs (a)(1) through (6) of this section such that the 3-hour average pressure drop and scrubber water flow rate does not fall below the minimum levels established during the initial or subsequent performance test.

(3) You must operate each combustion device applied to emissions from a cupola metal melting furnace subject to the emissions limit for VOHAP in paragraph (a)(8) of this section, such that the 15-minute average combustion zone temperature does not fall below 1,300 degrees Fahrenheit (°F). Periods when the cupola is off blast and for 15 minutes after going on blast from an off

blast condition are not included in the 15-minute average.

(4) You must operate each combustion device applied to emissions from a scrap preheater subject to the emissions limit for VOHAP in paragraph (a)(9) of this section or from a TEA cold box mold or core making line subject to the emissions limit for TEA in paragraph (a)(11) of this section, such that the 3-hour average combustion zone temperature does not fall below the minimum level established during the initial or subsequent performance test.

(5) You must operate each wet acid scrubber applied to emissions from a TEA cold box mold or core making line subject to the emissions limit for TEA in paragraph (a)(11) of this section such that:

(i) The 3-hour average scrubbing liquid flow rate does not fall below the minimum level established during the initial or subsequent performance test; and

(ii) The 3-hour average pH of the scrubber blowdown, as measured by a continuous parameter monitoring system (CPMS), does not exceed 4.5 or the pH of the scrubber blowdown, as measured once every 8 hours during process operations, does not exceed 4.5.

(c) If you use a control device other than a baghouse, wet scrubber, wet acid scrubber, or combustion device, you must prepare and submit a monitoring plan containing the information listed in paragraphs (c)(1) through (5) of this section. The monitoring plan is subject to approval by the Administrator.

(1) A description of the device;

(2) Test results collected in accordance with § 63.7732 verifying the performance of the device for reducing emissions of PM, total metal HAP, VOHAP, or TEA to the levels required by this subpart;

(3) A copy of the operation and maintenance plan required by § 63.7710(b);

(4) A list of appropriate operating parameters that will be monitored to maintain continuous compliance with the applicable emissions limitation(s); and

(5) Operating parameter limits based on monitoring data collected during the performance test.

#### Work Practice Standards

##### § 63.7700 What work practice standards must I meet?

(a) You must comply with the certification requirements in paragraph (b) of this section or prepare and implement a plan for the selection and inspection of scrap according to the requirements in paragraph (c) of this section.

(b) You must prepare and operate at all times according to a written certification that the foundry purchases and uses only certified-metal ingots, pig iron, slitter, or other materials that do not include post-consumer automotive body scrap, post-consumer engine blocks, oil filters, oily turnings, lead components, mercury switches, plastics, or organic liquids.

(c) You must prepare and operate at all times according to a written plan for the selection and inspection of iron and steel scrap to minimize, to the extent practicable, the amount of organics and HAP metals in the charge materials used by the iron and steel foundry. This scrap selection and inspection plan is subject to approval by the Administrator. You must keep a copy of the plan onsite and readily available to all plant personnel with materials acquisition or inspection duties. You must provide a copy of the material specifications to each of your scrap vendors. Each plan must include the information specified in paragraphs (c)(1) through (3) of this section.

(1) A materials acquisition program to limit organic contaminants according to the requirements in paragraph (c)(1)(i) or (ii) of this section.

(i) For scrap charged to a scrap preheater, electric arc metal melting furnace, or electric induction metal melting furnaces, specifications for scrap materials to be depleted (to the extent practicable) of the presence of used oil filters, plastic parts, organic liquids, and a program to ensure the scrap materials are drained of free liquids; or

(ii) For scrap charged to a cupola metal melting furnace, specifications for scrap materials to be depleted (to the extent practicable) of the presence of plastic, and a program to ensure the scrap materials are drained of free liquids.

(2) A materials acquisition program specifying that the scrap supplier remove accessible mercury switches from the trunks and hoods of any automotive bodies contained in the scrap and remove accessible lead components such as batteries and wheel weights. You must obtain and maintain onsite a copy of the procedures used by the scrap supplier for either removing accessible mercury switches or for purchasing automobile bodies that have had mercury switches removed, as applicable.

(3) Procedures for visual inspection of a representative portion, but not less than 10 percent, of all incoming scrap shipments to ensure the materials meet the specifications.

(i) The inspection procedures must identify the location(s) where

inspections are to be performed for each type of shipment. The selected location(s) must provide a reasonable vantage point, considering worker safety, for visual inspection.

(ii) The inspection procedures must include recordkeeping requirements that document each visual inspection and the results.

(iii) The inspection procedures must include provisions for rejecting or returning entire or partial scrap shipments that do not meet specifications and limiting purchases from vendors whose shipments fail to meet specifications for more than three inspections in one calendar year.

(d) For each furan warm box mold or core making line in a new or existing iron and steel foundry, you must use a binder chemical formulation that does not contain methanol as a specific ingredient of the catalyst formulation as determined by the Material Safety Data Sheet. This requirement does not apply to the resin portion of the binder system.

(e) For each scrap preheater at an existing iron and steel foundry, you must meet either the requirement in paragraph (e)(1) or (2) of this section. As an alternative to the requirement in paragraph (e)(1) or (2) of this section, you must meet the VOHAP emissions limit in § 63.7690(a)(9).

(1) You must install, operate, and maintain a gas-fired preheater where the flame directly contacts the scrap charged; or

(2) You must charge only material that is subject to and in compliance with the scrap certification requirement in paragraph (b) of this section.

(f) For each scrap preheater at a new iron and steel foundry, you must charge only material that is subject to and in compliance with the scrap certification requirement in paragraph (b) of this section. As an alternative to this requirement, you must meet the VOHAP emissions limit in § 63.7690(a)(9).

#### **Operation and Maintenance Requirements**

##### **§ 63.7710 What are my operation and maintenance requirements?**

(a) As required by § 63.6(e)(1)(i), you must always operate and maintain your iron and steel foundry, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by this subpart.

(b) You must prepare and operate at all times according to a written operation and maintenance plan for each capture and collection system and

control device for an emissions source subject to an emissions limit in § 63.7690(a). Your operation and maintenance plan also must include procedures for igniting gases from mold vents in pouring areas and pouring stations that use a sand mold system. This operation and maintenance plan is subject to approval by the Administrator. Each plan must contain the elements described in paragraphs (b)(1) through (6) of this section.

(1) Monthly inspections of the equipment that is important to the performance of the total capture system (*i.e.*, pressure sensors, dampers, and damper switches). This inspection must include observations of the physical appearance of the equipment (*e.g.*, presence of holes in the ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). The operation and maintenance plan must also include requirements to repair the defect or deficiency as soon as practicable.

(2) Operating limits for each capture system for an emissions source subject to an emissions limit or standard for VOHAP or TEA in § 63.7690(a)(8) through (11). You must establish the operating according to the requirements in paragraphs (b)(2)(i) through (iii) of this section.

(i) Select operating limit parameters appropriate for the capture system design that are representative and reliable indicators of the performance of the capture system. At a minimum, you must use appropriate operating limit parameters that indicate the level of the ventilation draft and damper position settings for the capture system when operating to collect emissions, including revised settings for seasonal variations. Appropriate operating limit parameters for ventilation draft include, but are not limited to: volumetric flow rate through each separately ducted hood, total volumetric flow rate at the inlet to the control device to which the capture system is vented, fan motor amperage, or static pressure. Any parameter for damper position setting may be used that indicates the duct damper position related to the fully open setting.

(ii) For each operating limit parameter selected in paragraph (b)(2)(i) of this section, designate the value or setting for the parameter at which the capture system operates during the process operation. If your operation allows for more than one process to be operating simultaneously, designate the value or setting for the parameter at which the capture system operates during each possible configuration that you may operate (*i.e.*, the operating limits with

one furnace melting, two melting, as applicable to your plant).

(iii) Include documentation in your plan to support your selection of the operating limits established for your capture system. This documentation must include a description of the capture system design, a description of the capture system operating during production, a description of each selected operating limit parameter, a rationale for why you chose the parameter, a description of the method used to monitor the parameter according to the requirements of § 63.7740(a), and the data used to set the value or setting for the parameter for each of your process configurations.

(3) Preventative maintenance plan for each control device, including a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance.

(4) A site-specific monitoring plan for each bag leak detection system. For each bag leak detection system that operates on the triboelectric effect, the monitoring plan must be consistent with the recommendations contained in the U.S. Environmental Protection Agency guidance document "Fabric Filter Bag Leak Detection Guidance" (EPA-454/R-98-015). This baghouse monitoring plan is subject to approval by the Administrator. The owner or operator shall operate and maintain the bag leak detection system according to the site-specific monitoring plan at all times. The plan must address all of the items identified in paragraphs (b)(4)(i) through (v) of this section.

(i) Installation of the bag leak detection system.

(ii) Initial and periodic adjustment of the bag leak detection system including how the alarm set-point will be established.

(iii) Operation of the bag leak detection system including quality assurance procedures.

(iv) How the bag leak detection system will be maintained including a routine maintenance schedule and spare parts inventory list.

(v) How the bag leak detection system output will be recorded and stored.

(5) Corrective action plan for each baghouse. The plan must include the requirement that, in the event a bag leak detection system alarm is triggered, you must initiate corrective action to determine the cause of the alarm within 1 hour of the alarm, initiate corrective action to correct the cause of the problem within 24 hours of the alarm, and complete the corrective action as soon as practicable. Corrective actions

taken may include, but are not limited to:

(i) Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions.

(ii) Sealing off defective bags or filter media.

(iii) Replacing defective bags or filter media or otherwise repairing the control device.

(iv) Sealing off a defective baghouse compartment.

(v) Cleaning the bag leak detection system probe or otherwise repairing the bag leak detection system.

(vi) Making process changes.

(vii) Shutting down the process producing the PM emissions.

(6) Procedures for providing an ignition source to mold vents of sand mold systems in each pouring area and pouring station unless you determine the mold vent gases either are not ignitable, ignite automatically, or cannot be ignited due to accessibility or safety issues. You must document and maintain records of this determination. The determination of ignitability, accessibility, and safety may encompass multiple casting patterns provided the castings utilize similar sand-to-metal ratios, binder formulations, and coating materials. The determination of ignitability must be based on observations of the mold vents within 5 minutes of pouring, and the flame must be present for at least 15 seconds for the mold vent to be considered ignited. For the purpose of this determination:

(i) Mold vents that ignite more than 75 percent of the time without the presence of an auxiliary ignition source are considered to ignite automatically; and

(ii) Mold vents that do not ignite automatically and cannot be ignited in the presence of an auxiliary ignition source more than 25 percent of the time are considered to be not ignitable.

#### General Compliance Requirements

##### § 63.7720 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emissions limitations, work practice standards, and operation and maintenance requirements in this subpart at all times, except during periods of startup, shutdown, or malfunction.

(b) During the period between the compliance date specified for your iron and steel foundry in § 63.7683 and the date when applicable operating limits have been established during the initial performance test, you must maintain a log detailing the operation and

maintenance of the process and emissions control equipment.

(c) You must develop and implement a written startup, shutdown, and malfunction plan according to the provisions in § 63.6(e)(3). The startup, shutdown, and malfunction plan also must specify what constitutes a shutdown of a cupola and how to determine that operating conditions are normal following startup of a cupola.

#### Initial Compliance Requirements

##### § 63.7730 By what date must I conduct performance tests or other initial compliance demonstrations?

(a) As required by § 63.7(a)(2), you must conduct a performance test no later than 180 calendar days after the compliance date that is specified in § 63.7683 for your iron and steel foundry to demonstrate initial compliance with each emissions limitation in § 63.7690 that applies to you.

(b) For each work practice standard in § 63.7700 and each operation and maintenance requirement in § 63.7710 that applies to you where initial compliance is not demonstrated using a performance test, you must demonstrate initial compliance no later than 30 calendar days after the compliance date that is specified for your iron and steel foundry in § 63.7683.

(c) If you commenced construction or reconstruction between December 23, 2002 and April 22, 2004, you must demonstrate initial compliance with either the proposed emissions limit or the promulgated emissions limit no later than October 19, 2004 or no later than 180 calendar days after startup of the source, whichever is later, according to § 63.7(a)(2)(ix).

(d) If you commenced construction or reconstruction between December 23, 2002 and April 22, 2004, and you chose to comply with the proposed emissions limit when demonstrating initial compliance, you must conduct a second performance test to demonstrate compliance with the promulgated emissions limit by October 19, 2007 or after startup of the source, whichever is later, according to § 63.7(a)(2)(ix).

##### § 63.7731 When must I conduct subsequent performance tests?

(a) You must conduct subsequent performance tests to demonstrate compliance with all applicable PM or total metal HAP, VOHAP, and TEA emissions limitations in § 63.7690 for your iron and steel foundry no less frequently than every 5 years. The requirement to conduct performance tests every 5 years does not apply to an emissions source for which a

continuous emissions monitoring system (CEMS) is used to demonstrate continuous compliance.

(b) You must conduct subsequent performance tests to demonstrate compliance with the opacity limit in § 63.7690(a)(7) for your iron and steel foundry no less frequently than once every 6 months.

**§ 63.7732 What test methods and other procedures must I use to demonstrate initial compliance with the emissions limitations?**

(a) You must conduct each performance test that applies to your iron and steel foundry according to the requirements in § 63.7(e)(1) and the conditions specified in paragraphs (b) through (h) of this section.

(b) To determine compliance with the applicable emissions limit for PM in § 63.7690(a)(1) through (6) for a metal melting furnace, scrap preheater, pouring station, or pouring area, follow the test methods and procedures in paragraphs (b)(1) through (5) of this section.

(1) Determine the concentration of PM according to the test methods in 40 CFR part 60, appendix A that are specified in paragraphs (b)(1)(i) through (v) of this section.

(i) Method 1 or 1A to select sampling port locations and the number of traverse points in each stack or duct. Sampling sites must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(ii) Method 2, 2A, 2C, 2D, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 5, 5B, 5D, 5F, or 5I, as applicable, to determine the PM concentration. The PM concentration is determined using only the front-half (probe rinse and filter) of the PM catch.

(2) Collect a minimum sample volume of 60 dscf of gas during each PM sampling run. A minimum of three valid test runs are needed to comprise a performance test.

(3) For cupola metal melting furnaces, sample only during times when the cupola is on blast.

(4) For electric arc and electric induction metal melting furnaces, sample only when metal is being melted.

(5) For scrap preheaters, sample only when scrap is being preheated.

(c) To determine compliance with the applicable emissions limit for total metal HAP in § 63.7690(a)(1) through (6) for a metal melting furnace, scrap preheater, pouring station, or pouring area, follow the test methods and procedures in paragraphs (c)(1) through (5) of this section.

(1) Determine the concentration of total metal HAP according to the test methods in 40 CFR part 60, appendix A that are specified in paragraphs (c)(1)(i) through (v) of this section.

(i) Method 1 or 1A to select sampling port locations and the number of traverse points in each stack or duct. Sampling sites must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(ii) Method 2, 2A, 2C, 2D, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 29 to determine the total metal HAP concentration.

(2) Collect a minimum sample volume of 60 dscf of gas during each total metal HAP sampling run. A minimum of three valid test runs are needed to comprise a performance test.

(3) For cupola metal melting furnaces, sample only during times when the cupola is on blast.

(4) For electric arc and electric induction metal melting furnaces, sample only when metal is being melted.

(5) For scrap preheaters, sample only when scrap is being preheated.

(d) To determine compliance with the opacity limit in § 63.7690(a)(7) for fugitive emissions from buildings or structures housing any emissions source at the iron and steel foundry, follow the

procedures in paragraphs (d)(1) and (2) of this section.

(1) Using a certified observer, conduct each opacity test according to the requirements in EPA Method 9 (40 CFR part 60, appendix A) and § 63.6(h)(5).

(2) Conduct each test such that the opacity observations overlap with the PM performance tests.

(e) To determine compliance with the applicable VOHAP emissions limit in § 63.7690(a)(8) for a cupola metal melting furnace or in § 63.7690(a)(9) for a scrap preheater, follow the test methods and procedures in paragraphs (e)(1) through (4) of this section.

(1) Determine the VOHAP concentration for each test run according to the test methods in 40 CFR part 60, appendix A that are specified in paragraphs (b)(1)(i) through (v) of this section.

(i) Method 1 or 1A to select sampling port locations and the number of traverse points in each stack or duct. Sampling sites must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(ii) Method 2, 2A, 2C, 2D, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 18 to determine the VOHAP concentration. Alternatively, you may use Method 25 to determine the concentration of total gaseous nonmethane organics (TGNMO) or Method 25A to determine the concentration of total organic compounds (TOC), using hexane as the calibration gas.

(2) Determine the average VOHAP, TGNMO, or TOC concentration using a minimum of three valid test runs. Each test run must include a minimum of 60 continuous operating minutes.

(3) For a cupola metal melting furnace, correct the measured concentration of VOHAP, TGNMO, or TOC for oxygen content in the gas stream using Equation 1 of this section:

$$C_{\text{VOHAP}, 10\%O_2} = C_{\text{VOHAP}} \left( \frac{10.9\%}{20.9\% - \%O_2} \right) \quad (\text{Eq. 1})$$

Where:

$C_{\text{VOHAP}}$  = Concentration of VOHAP in ppmv as measured by Method 18 in

40 CFR part 60, appendix A or the concentration of TGNMO or TOC in ppmv as hexane as measured by

Method 25 or 25A in 40 CFR part 60, appendix A; and

%O<sub>2</sub> = Oxygen concentration in gas stream, percent by volume (dry basis).

(4) For a cupola metal melting furnace, measure the combustion zone temperature of the combustion device with the CPMS required in § 63.7740(d) during each sampling run in 15-minute intervals. Determine and record the 15-minute average of the three runs.

(f) Follow the applicable procedures in paragraphs (f)(1) through (3) of this section to determine compliance with the VOHAP emissions limit in § 63.7690(a)(10) for automated pallet cooling lines or automated shakeout lines.

(1) Follow these procedures to demonstrate compliance by direct measurement of total hydrocarbons (a surrogate for VOHAP) using a volatile organic compound (VOC) CEMS.

(i) Using the VOC CEMS required in § 63.7740(g), measure and record the concentration of total hydrocarbons (as hexane) for 180 continuous operating minutes. You must measure emissions at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(ii) Reduce the monitoring data to hourly averages as specified in § 63.8(g)(2).

(iii) Compute and record the 3-hour average of the monitoring data.

(2) As an alternative to the procedures in paragraph (f)(1) of this section, you may demonstrate compliance with the VOHAP emissions limit in § 63.7690(a)(10) by establishing a site-specific TOC emissions limit that is correlated to the VOHAP emissions limit according to the procedures in paragraph (f)(2)(i) through (ix) of this section.

(i) Determine the VOHAP concentration for each test run according to the test methods in 40 CFR part 60, appendix A that are specified in paragraph (f)(2)(ii) through (vi) of this section.

(ii) Method 1 or 1A to select sampling port locations and the number of traverse points in each stack or duct. Sampling sites must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(iii) Method 2, 2A, 2C, 2D, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iv) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(v) Method 4 to determine the moisture content of the stack gas.

(vi) Method 18 to determine the VOHAP concentration. Alternatively, you may use Method 25 to determine the concentration of TGNMO using hexane as the calibration gas.

(vii) Using the CEMS required in § 63.7740(g), measure and record the concentration of total hydrocarbons (as hexane) during each of the Method 18 (or Method 25) sampling runs. You must measure emissions at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(viii) Calculate the average VOHAP (or TGNMO) concentration for the source test as the arithmetic average of the concentrations measured for the individual test runs, and determine the average concentration of total hydrocarbon (as hexane) as measured by the CEMS during all test runs.

(ix) Calculate the site-specific VOC emissions limit using Equation 2 of this section:

$$\text{VOC}_{\text{limit}} = 20 \times \frac{C_{\text{VOHAP, avg}}}{C_{\text{CEM}}} \quad (\text{Eq. 2})$$

Where:

$C_{\text{VOHAP, avg}}$  = Average concentration of VOHAP for the source test in ppmv as measured by Method 18 in 40 CFR part 60, appendix A or the average concentration of TGNMO for the source test in ppmv as hexane as measured by Method 25 in 40 CFR part 60, appendix A; and

$C_{\text{CEM}}$  = Average concentration of total hydrocarbons in ppmv as hexane as measured using the CEMS during the source test.

(3) For two or more exhaust streams from one or more automated conveyor and pallet cooling lines or automated shakeout lines, compute the flow-weighted average concentration of VOHAP emissions for each combination of exhaust streams using Equation 3 of this section:

$$C_w = \frac{\sum_{i=1}^n C_i Q_i}{\sum_{i=1}^n Q_i} \quad (\text{Eq. 3})$$

Where:

$C_w$  = Flow-weighted concentration of VOHAP or VOC, ppmv (as hexane);

$C_i$  = Concentration of VOHAP or VOC from exhaust stream "i", ppmv (as hexane);

$n$  = Number of exhaust streams sampled; and

$Q_i$  = Volumetric flow rate of effluent gas from exhaust stream "i," in dry

standard cubic feet per minute (dscfm).

(g) To determine compliance with the emissions limit or standard in § 63.7690(a)(11) for a TEA cold box mold or core making line, follow the test methods in 40 CFR part 60, appendix A, specified in paragraphs (g)(1) through (4) of this section.

(1) Determine the TEA concentration for each test run according to the test methods in 40 CFR part 60, appendix A that are specified in paragraphs (g)(1)(i) through (v) of this section.

(i) Method 1 or 1A to select sampling port locations and the number of traverse points in each stack or duct. If you elect to meet the 99 percent reduction standard, sampling sites must be located both at the inlet to the control device and at the outlet of the control device prior to any releases to the atmosphere. If you elect to meet the concentration limit, the sampling site must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(ii) Method 2, 2A, 2C, 2D, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 18 to determine the TEA concentration. The Method 18 sampling option and time must be sufficiently long such that either the TEA concentration in the field sample is at least 5 times the limit of detection for the analytical method or the test results calculated using the laboratory's reported analytical detection limit for the specific field samples are less than 1/5 of the applicable emissions limit. The adsorbent tube approach, as described in Method 18, may be required to achieve the necessary analytical detection limits. The sampling time must be at least 1 hour in all cases.

(2) Conduct the test as soon as practicable after adding fresh acid solution and the system has reached normal operating conditions.

(3) If you use a wet acid scrubber that is subject to the operating limit in § 63.7690(b)(5)(ii) for pH level, determine the pH of the scrubber blowdown using the procedures in paragraph (g)(3)(i) or (ii) of this section.

(i) Measure the pH of the scrubber blowdown with the CPMS required in § 63.7740(f)(2) during each TEA sampling run in intervals of no more than 15 minutes. Determine and record the 3-hour average; or

(ii) Measure and record the pH level using the probe and meter required in § 63.7740(f)(2) once each sampling run. Determine and record the average pH level for the three runs.

(4) If you are subject to the 99 percent reduction standard, calculate the mass emissions reduction using Equation 4 of this section:

$$\% \text{ reduction} = \frac{E_i - E_o}{E_i} \times 100\% \quad (\text{Eq. 4})$$

Where:

$E_i$  = Mass emissions rate of TEA at control device inlet, kg/hr; and

$E_o$  = Mass emissions rate of TEA at control device outlet, kg/hr.

(h) To determine compliance with the PM or total metal HAP emissions limits in § 63.7690(a)(1) through (6) when one or more regulated emissions sources are combined with either another regulated emissions source subject to a different emissions limit or other non-regulated emissions sources, you may

demonstrate compliance using one of the procedures in paragraphs (h)(1) through (3) of this section.

(1) Meet the most stringent applicable emissions limit for the regulated emissions sources included in the combined emissions stream for the combined emissions stream.

(2) Use the procedures in paragraphs (h)(2)(i) through (iii) of this section.

(i) Determine the volumetric flow rate of the individual regulated streams for which emissions limits apply.

(ii) Calculate the flow-weighted average emissions limit, considering only the regulated streams, using Equation 3 of this section, except  $C_w$  is the flow-weighted average emissions limit for PM or total metal HAP in the exhaust stream, gr/dscf; and  $C_i$  is the concentration of PM or total metal HAP in exhaust stream "i", gr/dscf.

(iii) Meet the calculated flow-weighted average emissions limit for the regulated emissions sources included in

the combined emissions stream for the combined emissions stream.

(3) Use the procedures in paragraphs (h)(3)(i) through (iii) of this section.

(i) Determine the PM or total metal HAP concentration of each of the regulated streams prior to the combination with other exhaust streams or control device.

(ii) Measure the flow rate and PM or total metal HAP concentration of the combined exhaust stream both before and after the control device and calculate the mass removal efficiency of the control device using Equation 4 of this section, except  $E_i$  is the mass emissions rate of PM or total metal HAP at the control device inlet, lb/hr and  $E_o$  is the mass emissions rate of PM or total metal HAP at the control device outlet, lb/hr

(iii) Meet the applicable emissions limit based on the calculated PM or total metal HAP concentration for the regulated emissions source using Equation 5 of this section:

$$C_{\text{released}} = C_i \times \left( 1 - \frac{\% \text{ reduction}}{100} \right) \quad (\text{Eq. 5})$$

Where:

$C_{\text{released}}$  = Calculated concentration of PM (or total metal HAP) predicted to be released to the atmosphere from the regulated emissions source, in gr/dscf; and

$C_i$  = Concentration of PM (or total metal HAP) in the uncontrolled regulated exhaust stream, in gr/dscf.

#### § 63.7733 What procedures must I use to establish operating limits?

(a) For each capture system subject to operating limits in § 63.7690(b)(1)(ii), you must establish site-specific operating limits in your operation and maintenance plan according to the procedures in paragraphs (a)(1) through (3) of this section.

(1) Concurrent with applicable emissions and opacity tests, measure and record values for each of the operating limit parameters in your capture system operation and maintenance plan according to the monitoring requirements in § 63.7740(a).

(2) For any dampers that are manually set and remain at the same position at all times the capture system is operating, the damper position must be visually checked and recorded at the beginning and end of each run.

(3) Review and record the monitoring data. Identify and explain any times the

capture system operated outside the applicable operating limits.

(b) For each wet scrubber subject to the operating limits in § 63.7690(b)(2) for pressure drop and scrubber water flow rate, you must establish site-specific operating limits according to the procedures specified in paragraphs (b)(1) and (2) of this section.

(1) Using the CPMS required in § 63.7740(c), measure and record the pressure drop and scrubber water flow rate in intervals of no more than 15 minutes during each PM test run.

(2) Compute and record the 3-hour average pressure drop and average scrubber water flow rate for each sampling run in which the applicable emissions limit is met.

(c) For each combustion device applied to emissions from a scrap preheater or TEA cold box mold or core making line subject to the operating limit in § 63.7690(b)(4) for combustion zone temperature, you must establish a site-specific operating limit according to the procedures specified in paragraphs (c)(1) and (2) of this section.

(1) Using the CPMS required in § 63.7740(e), measure and record the combustion zone temperature during each sampling run in intervals of no more than 15 minutes.

(2) Compute and record the 3-hour average combustion zone temperature

for each sampling run in which the applicable emissions limit is met.

(d) For each acid wet scrubber subject to the operating limit in § 63.7690(b)(5), you must establish a site-specific operating limit for scrubbing liquid flow rate according to the procedures specified in paragraphs (d)(1) and (2) of this section.

(1) Using the CPMS required in § 63.7740(f), measure and record the scrubbing liquid flow rate during each TEA sampling run in intervals of no more than 15 minutes.

(2) Compute and record the 3-hour average scrubbing liquid flow rate for each sampling run in which the applicable emissions limit is met.

(e) You may change the operating limits for a capture system, wet scrubber, acid wet scrubber, or combustion device if you meet the requirements in paragraphs (e)(1) through (3) of this section.

(1) Submit a written notification to the Administrator of your request to conduct a new performance test to revise the operating limit.

(2) Conduct a performance test to demonstrate compliance with the applicable emissions limitation in § 63.7690.

(3) Establish revised operating limits according to the applicable procedures in paragraphs (a) through (d) of this section.

(f) You may use a previous performance test (conducted since December 22, 2002) to establish an operating limit provided the test meets the requirements of this subpart.

**§ 63.7734 How do I demonstrate initial compliance with the emissions limitations that apply to me?**

(a) You have demonstrated initial compliance with the emissions limits in § 63.7690(a) if:

(1) For each electric arc metal melting furnace, electric induction metal melting furnace, or scrap preheater at an existing iron and steel foundry,

(i) The average PM concentration in the exhaust stream, determined according to the performance test procedures in § 63.7732(b), did not exceed 0.005 gr/dscf; or

(ii) The average total metal HAP concentration in the exhaust stream, determined according to the performance test procedures in § 63.7732(c), did not exceed 0.0004 gr/dscf.

(2) For each cupola metal melting furnace at an existing iron and steel foundry,

(i) The average PM concentration in the exhaust stream, determined according to the performance test procedures in § 63.7732(b), did not exceed 0.006 gr/dscf; or

(ii) The average total metal HAP concentration in the exhaust stream, determined according to the performance test procedures in § 63.7732(c), did not exceed 0.0005 gr/dscf.

(3) For each cupola metal melting furnace or electric arc metal melting furnace at a new iron and steel foundry,

(i) The average PM concentration in the exhaust stream, determined according to the performance test procedures in § 63.7732(b), did not exceed 0.002 gr/dscf; or

(ii) The average total metal HAP concentration in the exhaust stream, determined according to the performance test procedures in § 63.7732(c), did not exceed 0.0002 gr/dscf.

(4) For each electric induction metal melting furnace or scrap preheater at a new iron and steel foundry,

(i) The average PM concentration in the exhaust stream, determined according to the performance test procedures in § 63.7732(b), did not exceed 0.001 gr/dscf; or

(ii) The average total metal HAP concentration in the exhaust stream, determined according to the performance test procedures in § 63.7732(c), did not exceed 0.00008 gr/dscf.

(5) For each pouring station at an existing iron and steel foundry,

(i) The average PM concentration in the exhaust stream, measured according to the performance test procedures in § 63.7732(b), did not exceed 0.010 gr/dscf; or

(ii) The average total metal HAP concentration in the exhaust stream, determined according to the performance test procedures in § 63.7732(c), did not exceed 0.0008 gr/dscf.

(6) For each pouring area or pouring station at a new iron and steel foundry,

(i) The average PM concentration in the exhaust stream, measured according to the performance test procedures in § 63.7732(b), did not exceed 0.002 gr/dscf; or

(ii) The average total metal HAP concentration in the exhaust stream, determined according to the performance test procedures in § 63.7732(c), did not exceed 0.0002 gr/dscf.

(7) For each building or structure housing any emissions source at the iron and steel foundry, the opacity of fugitive emissions discharged to the atmosphere, determined according to the performance test procedures in § 63.7732(d), did not exceed 20 percent (6-minute average), except for one 6-minute average per hour that did not exceed 27 percent opacity.

(8) For each cupola metal melting furnace at a new or existing iron and steel foundry, the average VOHAP concentration, determined according to the performance test procedures in § 63.7732(e), did not exceed 20 ppmv corrected to 10 percent oxygen.

(9) For each scrap preheater at an existing iron and steel foundry that does not meet the work practice standards in § 63.7700(e)(1) or (2) and for each scrap preheater at a new iron and steel foundry that does not meet the work practice standard in § 63.7700(f), the average VOHAP concentration determined according to the performance test procedures in § 63.7732(e), did not exceed 20 ppmv.

(10) For one or more automated conveyor and pallet cooling lines that use a sand mold system or automated shakeout lines that use a sand mold system at a new foundry,

(i) You have reduced the data from the CEMS to 3-hour averages according to the performance test procedures in § 63.7732(f)(1) or (2); and

(ii) The 3-hour flow-weighted average VOHAP concentration, measured according to the performance test procedures in § 63.7732(f)(1) or (2), did not exceed 20 ppmv.

(11) For each TEA cold box mold or core making line in a new or existing iron and steel foundry, the average TEA concentration, determined according to the performance test procedures in § 63.7732(g) did not exceed 1 ppmv or was reduced by 99 percent.

(b) You have demonstrated initial compliance with the operating limits in § 63.7690(b) if:

(1) For each capture system subject to the operating limit in § 63.7690(b)(1)(ii),

(i) You have established appropriate site-specific operating limits in your operation and maintenance plan according to the requirements in § 63.7710(b); and

(ii) You have a record of the operating parameter data measured during the performance test in accordance with § 63.7733(a); and

(2) For each wet scrubber subject to the operating limits in § 63.7690(b)(2) for pressure drop and scrubber water flow rate, you have established appropriate site-specific operating limits and have a record of the pressure drop and scrubber water flow rate measured during the performance test in accordance with § 63.7733(b).

(3) For each combustion device subject to the operating limit in § 63.7690(b)(3) for combustion zone temperature, you have a record of the combustion zone temperature measured during the performance test in accordance with § 63.7732(e)(4).

(4) For each combustion device subject to the operating limit in § 63.7690(b)(4) for combustion zone temperature, you have established appropriate site-specific operating limits and have a record of the combustion zone temperature measured during the performance test in accordance with § 63.7733(c).

(5) For each acid wet scrubber subject to the operating limits in § 63.7690(b)(5) for scrubbing liquid flow rate and scrubber blowdown pH,

(i) You have established appropriate site-specific operating limits for the scrubbing liquid flow rate and have a record of the scrubbing liquid flow rate measured during the performance test in accordance with § 63.7733(d); and

(ii) You have a record of the pH of the scrubbing liquid blowdown measured during the performance test in accordance with § 63.7732(g)(3).

**§ 63.7735 How do I demonstrate initial compliance with the work practice standards that apply to me?**

(a) For each iron and steel foundry subject to the certification requirement in § 63.7700(b), you have demonstrated initial compliance if you have certified in your notification of compliance status

that: "At all times, your foundry will purchase and use only certified metal ingots, pig iron, slitter, or other materials that do not include post-consumer automotive body scrap, post-consumer engine blocks, oil filters, oily turnings, lead components, mercury switches, plastics, or organic liquids."

(b) For each iron and steel foundry subject to the requirements in § 63.7700(c) for a scrap inspection and selection plan, you have demonstrated initial compliance if you have certified in your notification of compliance status that:

(1) You have submitted a written plan to the Administrator for approval according to the requirements in § 63.7700(c); and

(2) You will operate at all times according to the plan requirements.

(c) For each furan warm box mold or core making line in a new or existing foundry subject to the work practice standard in § 63.7700(d), you have demonstrated initial compliance if you have certified in your notification of compliance status that:

(1) You will meet the no methanol requirement for the catalyst portion of each binder chemical formulation; and

(2) You have records documenting your certification of compliance, such as a material safety data sheet (provided that it contains appropriate information), a certified product data sheet, or a manufacturer's hazardous air pollutant data sheet, onsite and available for inspection.

(d) For each scrap preheater at an existing iron and steel foundry subject to the work practice standard in § 63.7700(e)(1) or (2), you have demonstrated initial compliance if you have certified in your notification of compliance status that:

(1) You have installed a gas-fired preheater where the flame directly contacts the scrap charged, you will operate and maintain each gas-fired scrap preheater such that the flame directly contacts the scrap charged, and you have records documenting your certification of compliance that are onsite and available for inspection; or

(2) You will charge only material that is subject to and in compliance with the scrap certification requirements in § 63.7700(b) and you have records documenting your certification of compliance that are onsite and available for inspection.

(e) For each scrap preheater at a new iron and steel foundry subject to the work practice standard in § 63.7700(f), you have demonstrated initial compliance if you have certified in your notification of compliance status that you will charge only material that is

subject to and in compliance with the scrap certification requirements in § 63.7700(b) and you have records documenting your certification of compliance that are onsite and available for inspection.

**§ 63.7736 How do I demonstrate initial compliance with the operation and maintenance requirements that apply to me?**

(a) For each capture system subject to an operating limit in § 63.7690(b), you have demonstrated initial compliance if you have met the conditions in paragraphs (a)(1) and (2) of this section.

(1) You have certified in your notification of compliance status that:

(i) You have submitted the capture system operation and maintenance plan to the Administrator for approval according to the requirements of § 63.7710(b); and

(ii) You will inspect, operate, and maintain each capture system according to the procedures in the plan.

(2) You have certified in your performance test report that the system operated during the test at the operating limits established in your operation and maintenance plan.

(b) For each control device subject to an operating limit in § 63.7690(b), you have demonstrated initial compliance if you have certified in your notification of compliance status that:

(1) You have submitted the control device operation and maintenance plan to the Administrator for approval according to the requirements of § 63.7710(b); and

(2) You will inspect, operate, and maintain each control device according to the procedures in the plan.

(c) For each bag leak detection system, you have demonstrated initial compliance if you have certified in your notification of compliance status that:

(1) You have submitted the bag leak detection system monitoring plan to the Administrator for approval according to the requirements of § 63.7710(b);

(2) You will inspect, operate, and maintain each bag leak detection system according to the procedures in the plan; and

(3) You will follow the corrective action procedures for bag leak detection system alarms according to the requirements in the plan.

(d) For each pouring area and pouring station in a new or existing foundry, you have demonstrated initial compliance if you have certified in your notification of compliance status report that:

(1) You have submitted the mold vent ignition plan to the Administrator for approval according to the requirements in § 63.7710(b); and

(2) You will follow the procedures for igniting mold vent gases according to the requirements in the plan.

**Continuous Compliance Requirements**

**§ 63.7740 What are my monitoring requirements?**

(a) For each capture system subject to an operating limit in § 63.7690(b)(1), you must install, operate, and maintain a CPMS according to the requirements in § 63.7741(a) and the requirements in paragraphs (a)(1) and (2) of this section.

(1) If you use a flow measurement device to monitor the operating limit parameter, you must at all times monitor the hourly average rate (e.g., the hourly average actual volumetric flow rate through each separately ducted hood or the average hourly total volumetric flow rate at the inlet to the control device).

(2) Dampers that are manually set and remain in the same position are exempt from the requirement to install and operate a CPMS. If dampers are not manually set and remain in the same position, you must make a visual check at least once every 24 hours to verify that each damper for the capture system is in the same position as during the initial performance test.

(b) For each negative pressure baghouse or positive pressure baghouse equipped with a stack that is applied to meet any PM or total metal HAP emissions limitation in this subpart, you must at all times monitor the relative change in PM loadings using a bag leak detection system according to the requirements in § 63.7741(b) and conduct inspections at their specified frequencies according to the requirements specified in paragraphs (b)(1) through (8) of this section.

(1) Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the manual.

(2) Confirm that dust is being removed from hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms.

(3) Check the compressed air supply for pulse-jet baghouses each day.

(4) Monitor cleaning cycles to ensure proper operation using an appropriate methodology.

(5) Check bag cleaning mechanisms for proper functioning through monthly visual inspection or equivalent means.

(6) Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (knead or bent) or lying on their sides. You do not have to make this

check for shaker-type baghouses using self-tensioning (spring-loaded) devices.

(7) Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks.

(8) Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means.

(c) For each wet scrubber subject to the operating limits in § 63.7690(b)(2), you must at all times monitor the 3-hour average pressure drop and scrubber water flow rate using CPMS according to the requirements in § 63.7741(c).

(d) For each combustion device subject to the operating limit in § 63.7690(b)(3), you must at all times monitor the 15-minute average combustion zone temperature using a CPMS according to the requirements of § 63.7741(d).

(e) For each combustion device subject to the operating limit in § 63.7690(b)(4), you must at all times monitor the 3-hour average combustion zone temperature using CPMS according to the requirements in § 63.7741(d).

(f) For each wet acid scrubber subject to the operating limits in § 63.7690(b)(5),

(1) You must at all times monitor the 3-hour average scrubbing liquid flow rate using CPMS according to the requirements of § 63.7741(e)(1); and

(2) You must at all times monitor the 3-hour average pH of the scrubber blowdown using CPMS according to the requirements in § 63.7741(e)(2) or measure and record the pH of the scrubber blowdown once per production cycle using a pH probe and meter according to the requirements in § 63.7741(e)(3).

(g) For one or more automated conveyor and pallet cooling lines and automated shakeout lines at a new iron and steel foundry subject to the VOHAP emissions limit in § 63.7690(a)(10), you must at all times monitor the 3-hour average VOHAP concentration using a CEMS according to the requirements of § 63.7741(g).

**§ 63.7741 What are the installation, operation, and maintenance requirements for my monitors?**

(a) For each capture system subject to an operating limit in § 63.7690(b)(1), you must install, operate, and maintain each CPMS according to the requirements in paragraphs (a)(1) through (3) of this section.

(1) If you use a flow measurement device to monitor an operating limit parameter for a capture system, you must meet the requirements in paragraphs (a)(1)(i) through (iv) of this section.

(i) Locate the flow sensor and other necessary equipment such as straightening vanes in a position that provides a representative flow and that reduces swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(ii) Use a flow sensor with a minimum measurement sensitivity of 2 percent of the flow rate.

(iii) Conduct a flow sensor calibration check at least semiannually.

(iv) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(2) If you use a pressure measurement device to monitor the operating limit parameter for a capture system, you must meet the requirements in paragraphs (a)(2)(i) through (vi) of this section.

(i) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure and that minimizes or eliminates pulsating pressure, vibration, and internal and external corrosion.

(ii) Use a gauge with a minimum measurement sensitivity of 0.5 inch of water or a transducer with a minimum measurement sensitivity of 1 percent of the pressure range.

(iii) Check the pressure tap for pluggage daily.

(iv) Using a manometer, check gauge calibration quarterly and transducer calibration monthly.

(v) Conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range, or install a new pressure sensor.

(vi) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(3) Record the results of each inspection, calibration, and validation check.

(b) You must install, operate, and maintain a bag leak detection system according to the requirements in paragraphs (b)(1) through (7) of this section.

(1) The system must be certified by the manufacturer to be capable of detecting emissions of particulate matter at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.

(2) The bag leak detection system sensor must provide output of relative particulate matter loadings and the owner or operator shall continuously record the output from the bag leak detection system using electronic or other means (e.g., using a strip chart recorder or a data logger).

(3) The system must be equipped with an alarm that will sound when an increase in relative particulate loadings is detected over the alarm set point established in the operation and maintenance plan, and the alarm must be located such that it can be heard by the appropriate plant personnel.

(4) The initial adjustment of the system must, at minimum, consist of establishing the baseline output by adjusting the sensitivity (range) and the averaging period of the device, and establishing the alarm set points and the alarm delay time (if applicable).

(5) Following the initial adjustment, do not adjust the sensitivity or range, averaging period, alarm set point, or alarm delay time without approval from the Administrator. Except, once per quarter, you may adjust the sensitivity of the bag leak detection system to account for seasonable effects including temperature and humidity according to the procedures in the operation and maintenance plan required by § 63.7710(b).

(6) For negative pressure, induced air baghouses, and positive pressure baghouses that are discharged to the atmosphere through a stack, the bag leak detector sensor must be installed downstream of the baghouse and upstream of any wet scrubber.

(7) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(c) For each wet scrubber subject to the operating limits in § 63.7690(b)(2), you must install and maintain CPMS to measure and record the pressure drop and scrubber water flow rate according to the requirements in paragraphs (c)(1) and (2) of this section.

(1) For each CPMS for pressure drop you must:

(i) Locate the pressure sensor in or as close as possible to a position that provides a representative measurement of the pressure drop and that minimizes or eliminates pulsating pressure, vibration, and internal and external corrosion.

(ii) Use a gauge with a minimum measurement sensitivity of 0.5 inch of water or a transducer with a minimum measurement sensitivity of 1 percent of the pressure range.

(iii) Check the pressure tap for pluggage daily.

(iv) Using a manometer, check gauge calibration quarterly and transducer calibration monthly.

(v) Conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range, or install a new pressure sensor.

(vi) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(2) For each CPMS for scrubber liquid flow rate, you must:

(i) Locate the flow sensor and other necessary equipment in a position that provides a representative flow and that reduces swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(ii) Use a flow sensor with a minimum measurement sensitivity of 2 percent of the flow rate.

(iii) Conduct a flow sensor calibration check at least semiannually according to the manufacturer's instructions.

(iv) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(d) For each combustion device subject to the operating limit in § 63.7690(b)(3) or (4), you must install and maintain a CPMS to measure and record the combustion zone temperature according to the requirements in paragraphs (d)(1) through (8) of this section.

(1) Locate the temperature sensor in a position that provides a representative temperature.

(2) For a noncryogenic temperature range, use a temperature sensor with a minimum tolerance of 2.2°C or 0.75 percent of the temperature value, whichever is larger.

(3) For a cryogenic temperature range, use a temperature sensor with a minimum tolerance of 2.2°C or 2 percent of the temperature value, whichever is larger.

(4) Shield the temperature sensor system from electromagnetic interference and chemical contaminants.

(5) If you use a chart recorder, it must have a sensitivity in the minor division of at least 20°F.

(6) Perform an electronic calibration at least semiannually according to the procedures in the manufacturer's owners manual. Following the electronic calibration, conduct a temperature sensor validation check, in which a second or redundant temperature sensor placed nearby the process temperature sensor must yield a reading within 16.7°C of the process temperature sensor's reading.

(7) Conduct calibration and validation checks any time the sensor exceeds the manufacturer's specified maximum operating temperature range, or install a new temperature sensor.

(8) At least monthly, inspect all components for integrity and all

electrical connections for continuity, oxidation, and galvanic corrosion.

(e) For each wet acid scrubber subject to the operating limits in § 63.7690(b)(5), you must:

(1) Install and maintain CPMS to measure and record the scrubbing liquid flow rate according to the requirements in paragraph (c)(2) of this section; and

(2) Install and maintain CPMS to measure and record the pH of the scrubber blowdown according to the requirements in paragraph (e)(2)(i) through (iv) of this section.

(i) Locate the pH sensor in a position that provides a representative measurement of the pH and that minimizes or eliminates internal and external corrosion.

(ii) Use a gauge with a minimum measurement sensitivity of 0.1 pH or a transducer with a minimum measurement sensitivity of 5 percent of the pH range.

(iii) Check gauge calibration quarterly and transducer calibration monthly using a manual pH gauge.

(iv) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(3) As an alternative to the CPMS required in paragraph (e)(2) of this section, you may use a pH probe to extract a sample for analysis by a pH meter that meets the requirements in paragraphs (e)(3)(i) through (iii) of this section.

(i) The pH meter must have a range of at least 1 to 5 or more;

(ii) The pH meter must have a accuracy of  $\pm 0.1$ ; and

(iii) The pH meter must have a resolution of at least 0.1 pH.

(f) You must operate each CPMS used to meet the requirements of this subpart according to the requirements specified in paragraphs (f)(1) through (3) of this section.

(1) Each CPMS must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of three of the required four data points to constitute a valid hour of data.

(2) Each CPMS must have valid hourly data for 100 percent of every averaging period.

(3) Each CPMS must determine and record the hourly average of all recorded readings and the 3-hour average of all recorded readings.

(g) For each automated conveyor and pallet cooling line and automated shakeout line at a new iron and steel foundry subject to the VOHAP emissions limit in § 63.7690(a)(10), you must install, operate, and maintain a CEMS to measure and record the

concentration of VOHAP emissions according to the requirements in paragraphs (g)(1) through (3) of this section.

(1) You must install, operate, and maintain each CEMS according to Performance Specification 8 in 40 CFR part 60, appendix B.

(2) You must conduct a performance evaluation of each CEMS according to the requirements of § 63.8 and Performance Specification 8 in 40 CFR part 60, appendix B.

(3) You must operate each CEMS according to the requirements specified in paragraph (g)(3)(i) through (iv) of this section.

(i) As specified in § 63.8(c)(4)(ii), each CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

(ii) You must reduce CEMS data as specified in § 63.8(g)(2).

(iii) Each CEMS must determine and record the 3-hour average emissions using all the hourly averages collected for periods during which the CEMS is not out-of-control.

(iv) Record the results of each inspection, calibration, and validation check.

**§ 63.7742 How do I monitor and collect data to demonstrate continuous compliance?**

(a) Except for monitoring malfunctions, associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) any time a source of emissions is operating.

(b) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emissions or operating levels or to fulfill a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing compliance.

(c) A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

**§ 63.7743 How do I demonstrate continuous compliance with the emissions limitations that apply to me?**

(a) You must demonstrate continuous compliance by meeting the applicable conditions in paragraphs (a)(1) through (12) of this section:

(1) For each electric arc metal melting furnace, electric induction metal melting furnace, or scrap preheater at an existing iron and steel foundry,

(i) Maintaining the average PM concentration in the exhaust stream at or below 0.005 gr/dscf; or

(ii) Maintaining the average total metal HAP concentration in the exhaust stream at or below 0.0004 gr/dscf.

(2) For each cupola metal melting furnace at an existing iron and steel foundry,

(i) Maintaining the average PM concentration in the exhaust stream at or below 0.006 gr/dscf; or

(ii) Maintaining the average total metal HAP concentration in the exhaust stream at or below 0.0005 gr/dscf.

(3) For each cupola metal melting furnace or electric arc metal melting furnace at new iron and steel foundry,

(i) Maintaining the average PM concentration in the exhaust stream at or below 0.002 gr/dscf; or

(ii) Maintaining the average total metal HAP concentration in the exhaust stream at or below 0.0002 gr/dscf.

(4) For each electric induction metal melting furnace or scrap preheater at a new iron and steel foundry,

(i) Maintaining the average PM concentration in the exhaust stream at or below 0.001 gr/dscf; or

(ii) Maintaining the average total metal HAP concentration in the exhaust stream at or below 0.00008 gr/dscf.

(5) For each pouring station at an existing iron and steel foundry,

(i) Maintaining the average PM concentration in the exhaust stream at or below 0.010 gr/dscf; or

(ii) Maintaining the average total metal HAP concentration in the exhaust stream at or below 0.0008 gr/dscf.

(6) For each pouring area or pouring station at a new iron and steel foundry,

(i) Maintaining the average PM concentration in the exhaust stream at or below 0.002 gr/dscf; or

(ii) Maintaining the average total metal HAP concentration in the exhaust stream at or below 0.0002 gr/dscf.

(7) For each building or structure housing any emissions source at the iron and steel foundry, maintaining the opacity of any fugitive emissions discharged to the atmosphere at or below 20 percent opacity (6-minute average), except for one 6-minute average per hour that does not exceed 27 percent opacity.

(8) For each cupola metal melting furnace at a new or existing iron and steel foundry, maintaining the average VOHAP concentration in the exhaust stream at or below 20 ppmv corrected to 10 percent oxygen.

(9) For each scrap preheater at an existing new iron and steel foundry that

does not comply with the work practice standard in § 63.7700(e)(1) or (2) and for each scrap preheater at a new iron and steel foundry that does not comply with the work practice standard in § 63.7700(f), maintaining the average VOHAP concentration in the exhaust stream at or below 20 ppmv.

(10) For one or more automated conveyor and pallet cooling lines or automated shakeout lines that use a sand mold system at a new iron and steel foundry,

(i) Maintaining the 3-hour flow-weighted average VOHAP concentration in the exhaust stream at or below 20 ppmv;

(ii) Inspecting and maintaining each CEMS according to the requirements of § 63.7741(g) and recording all information needed to document conformance with these requirements; and

(iii) Collecting and reducing monitoring data for according to the requirements of § 63.7741(g) and recording all information needed to document conformance with these requirements.

(11) For each TEA cold box mold or core making line at a new or existing iron and steel foundry, maintaining a 99 percent reduction in the VOHAP concentration in the exhaust stream or maintaining the average VOHAP concentration in the exhaust stream at or below 1 ppmv.

(12) Conducting subsequent performance tests at least every 5 years for each emissions source subject to an emissions limit for PM, total metal HAP, VOHAP, or TEA in § 63.7690(a) and subsequent performance tests at least every 6 months for each building or structure subject to the opacity limit in § 63.7690(a)(7).

(b) You must demonstrate continuous compliance for each capture system subject to an operating limit in § 63.7690(b)(1) by meeting the requirements in paragraphs (b)(1) and (2) of this section.

(1) Operating the capture system at or above the lowest values or settings established for the operating limits in your operation and maintenance plan; and

(2) Monitoring the capture system according to the requirements in § 63.7740(a) and collecting, reducing, and recording the monitoring data for each of the operating limit parameters according to the applicable requirements in this subpart.

(c) For each baghouse equipped with a bag leak detection system,

(1) Maintaining records of the times the bag leak detection system alarm sounded, and for each valid alarm, the

time you initiated corrective action, the corrective action taken, and the date on which corrective action was completed; and

(2) Inspecting and maintaining each baghouse according to the requirements of § 63.7740(b)(1) through (8) and recording all information needed to document conformance with these requirements.

(d) For each wet scrubber that is subject to the operating limits in § 63.7690(b)(2), you must demonstrate continuous compliance by:

(1) Maintaining the 3-hour average pressure drop and 3-hour average scrubber water flow rate at levels no lower than those established during the initial or subsequent performance test;

(2) Inspecting and maintaining each CPMS according to the requirements of § 63.7741(c) and recording all information needed to document conformance with these requirements; and

(3) Collecting and reducing monitoring data for pressure drop and scrubber water flow rate according to the requirements of § 63.7741(f) and recording all information needed to document conformance with these requirements.

(e) For each combustion device that is subject to the operating limit in § 63.7690(b)(3), you must demonstrate continuous compliance by:

(1) Maintaining the 15-minute average combustion zone temperature at a level no lower than 1,300°F;

(2) Inspecting and maintaining each CPMS according to the requirements of § 63.7741(d) and recording all information needed to document conformance with these requirements; and

(3) Collecting and reducing monitoring data for combustion zone temperature according to the requirements of § 63.7741(f) and recording all information needed to document conformance with these requirements.

(f) For each combustion device that is subject to the operating limit in § 63.7690(b)(4), you must demonstrate continuous compliance by:

(1) Maintaining the 3-hour average combustion zone temperature at a level no lower than that established during the initial or subsequent performance test;

(2) Inspecting and maintaining each CPMS according to the requirements of § 63.7741(d) and recording all information needed to document conformance with these requirements; and

(3) Collecting and reducing monitoring data for combustion zone temperature according to the

requirements of § 63.7741(f) and recording all information needed to document conformance with these requirements.

(g) For each acid wet scrubber subject to the operating limits in § 63.7690(b)(5), you must demonstrate continuous compliance by:

(1) Maintaining the 3-hour average scrubbing liquid flow rate at a level no lower than the level established during the initial or subsequent performance test;

(2) Maintaining the 3-hour average pH of the scrubber blowdown at a level no higher than 4.5 (if measured by a CPMS) or maintaining the pH level of the scrubber blowdown during each production shift no higher than 4.5;

(3) Inspecting and maintaining each CPMS according to the requirements of § 63.7741(e) and recording all information needed to document conformance with these requirements; and

(4) Collecting and reducing monitoring data for scrubbing liquid flow rate and scrubber blowdown pH according to the requirements of § 63.7741(f) and recording all information needed to document conformance with these requirements. If the pH level of the scrubber blowdown is measured by a probe and meter, you must demonstrate continuous compliance by maintaining records that document the date, time, and results of each sample taken for each production shift.

**§ 63.7744 How do I demonstrate continuous compliance with the work practice standards that apply to me?**

(a) You must maintain records that document continuous compliance with the certification requirements in § 63.7700(b) or with the procedures in your scrap selection and inspection plan required in § 63.7700(c). Your records documenting compliance with the scrap selection and inspection plan must include a copy (kept onsite) of the procedures used by the scrap supplier for either removing accessible mercury switches or for purchasing automobile bodies that have had mercury switches removed, as applicable.

(b) You must keep records of the chemical composition of all catalyst binder formulations applied in each furan warm box mold or core making line at a new or existing iron and steel foundry to demonstrate continuous compliance with the requirements in § 63.7700(d).

(c) For a scrap preheater at an existing iron and steel foundry, you must operate and maintain each gas-fired preheater such that the flame directly

contacts the scrap charged to demonstrate continuous compliance with the requirement § 63.7700(e)(1). If you choose to meet the work practice standard in § 63.7700(e)(2), you must keep records to document that the scrap preheater charges only material that is subject to and in compliance with the scrap certification requirements in § 63.7700(b).

(d) For a scrap preheater at a new iron and steel foundry, you must keep records to document that each scrap preheater charges only material that is subject to and in compliance with the scrap certification requirements in § 63.7700(b) to demonstrate continuous compliance with the requirement in § 63.7700(f).

**§ 63.7745 How do I demonstrate continuous compliance with the operation and maintenance requirements that apply to me?**

(a) For each capture system and control device for an emissions source subject to an emissions limit in § 63.7690(a), you must demonstrate continuous compliance with the operation and maintenance requirements of § 63.7710 by:

(1) Making monthly inspections of capture systems and initiating corrective action according to § 63.7710(b)(1) and recording all information needed to document conformance with these requirements;

(2) Performing preventative maintenance for each control device according to the preventive maintenance plan required by § 63.7710(b)(3) and recording all information needed to document conformance with these requirements;

(3) Operating and maintaining each bag leak detection system according to the site-specific monitoring plan required by § 63.7710(b)(4) and recording all information needed to demonstrate conformance with these requirements;

(4) Initiating and completing corrective action for a bag leak detection system alarm according to the corrective action plan required by § 63.7710(b)(5) and recording all information needed to document conformance with these requirements; and

(5) Igniting gases from mold vents according to the procedures in the plan required by § 63.7710(b)(6). (Any instance where you fail to follow the procedures is a deviation that must be included in your semiannual compliance report.)

(b) You must maintain a current copy of the operation and maintenance plans required by § 63.7710(b) onsite and available for inspection upon request.

You must keep the plans for the life of the iron and steel foundry or until the iron and steel foundry is no longer subject to the requirements of this subpart.

**§ 63.7746 What other requirements must I meet to demonstrate continuous compliance?**

(a) Deviations. You must report each instance in which you did not meet each emissions limitation in § 63.7690 (including each operating limit) that applies to you. This requirement includes periods of startup, shutdown, and malfunction. You also must report each instance in which you did not meet each work practice standard in § 63.7700 and each operation and maintenance requirement of § 63.7710 that applies to you. These instances are deviations from the emissions limitations, work practice standards, and operation and maintenance requirements in this subpart. These deviations must be reported according to the requirements of § 63.7751.

(b) Startups, shutdowns, and malfunctions. During periods of startup, shutdown, and malfunction, you must operate in accordance with your startup, shutdown, and malfunction plan.

(1) Consistent with the requirements of §§ 63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with the startup, shutdown, and malfunction plan.

(2) The Administrator will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations according to the provisions in § 63.6(e).

**§ 63.7747 How do I apply for alternative monitoring requirements for a continuous emissions monitoring system?**

(a) You may request an alternative monitoring method to demonstrate compliance with the VOHAP emissions limits in § 63.7690(a)(10) for automated pallet cooling lines or automated shakeout lines at a new iron and steel foundry according to the procedures in this section.

(b) You can request approval to use an alternative monitoring method in the notification of construction or reconstruction for new sources, or at any time.

(c) You must submit a monitoring plan that includes a description of the control technique or pollution prevention technique, a description of the continuous monitoring system or method including appropriate operating

parameters that will be monitored, test results demonstrating compliance with the emissions limit, operating limit(s) (if applicable) determined according to the test results, and the frequency of measuring and recording to establish continuous compliance. If applicable, you must also include operation and maintenance requirements for the monitors.

(d) The monitoring plan is subject to approval by the Administrator. Use of the alternative monitoring method must not begin until approval is granted by the Administrator.

### Notifications, Reports, and Records

#### § 63.7750 What notifications must I submit and when?

(a) You must submit all of the notifications required by §§ 63.6(h)(4) and (5), 63.7(b) and (c); 63.8(e); 63.8(f)(4) and (6); 63.9(b) through (h) that apply to you by the specified dates.

(b) As specified in § 63.9(b)(2), if you start up your iron and steel foundry before April 22, 2004, you must submit your initial notification no later than August 20, 2004.

(c) If you start up your new iron and steel foundry on or after April 22, 2004, you must submit your initial notification no later than 120 calendar days after you become subject to this subpart.

(d) If you are required to conduct a performance test, you must submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin as required by § 63.7(b)(1).

(e) If you are required to conduct a performance test or other initial compliance demonstration, you must submit a notification of compliance status according to the requirements of § 63.9(h)(2)(ii).

(1) For each initial compliance demonstration that does not include a performance test, you must submit the notification of compliance status before the close of business on the 30th calendar day following completion of the initial compliance demonstration.

(2) For each initial compliance demonstration that does include a performance test, you must submit the notification of compliance status, including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test according to the requirement specified in § 63.10(d)(2).

#### § 63.7751 What reports must I submit and when?

(a) Compliance report due dates. Unless the Administrator has approved

a different schedule, you must submit a semiannual compliance report to your permitting authority according to the requirements specified in paragraphs (a)(1) through (5) of this section.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your iron and steel foundry by § 63.7683 and ending on June 30 or December 31, whichever date comes first after the compliance date that is specified for your iron and steel foundry.

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after your first compliance report is due.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after the end of the semiannual reporting period.

(5) For each iron and steel foundry that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of the dates specified in paragraphs (a)(1) through (4) of this section.

(b) Compliance report contents. Each compliance report must include the information specified in paragraphs (b)(1) through (3) of this section and, as applicable, paragraphs (b)(4) through (8) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a startup, shutdown, or malfunction during the reporting period and you took action consistent with your startup, shutdown, and malfunction plan, the compliance report must include the information in § 63.10(d)(5)(i).

(5) If there were no deviations from any emissions limitations (including operating limit), work practice standards, or operation and maintenance requirements, a statement that there were no deviations from the

emissions limitations, work practice standards, or operation and maintenance requirements during the reporting period.

(6) If there were no periods during which a continuous monitoring system (including a CPMS or CEMS) was out-of-control as specified by § 63.8(c)(7), a statement that there were no periods during which the CPMS was out-of-control during the reporting period.

(7) For each deviation from an emissions limitation (including an operating limit) that occurs at an iron and steel foundry for which you are not using a continuous monitoring system (including a CPMS or CEMS) to comply with an emissions limitation or work practice standard required in this subpart, the compliance report must contain the information specified in paragraphs (b)(1) through (4) and (b)(7)(i) and (ii) of this section. This requirement includes periods of startup, shutdown, and malfunction.

(i) The total operating time of each emissions source during the reporting period.

(ii) Information on the number, duration, and cause of deviations (including unknown cause) as applicable and the corrective action taken.

(8) For each deviation from an emissions limitation (including an operating limit) or work practice standard occurring at an iron and steel foundry where you are using a continuous monitoring system (including a CPMS or CEMS) to comply with the emissions limitation or work practice standard in this subpart, you must include the information specified in paragraphs (b)(1) through (4) and (b)(8)(i) through (xi) of this section. This requirement includes periods of startup, shutdown, and malfunction.

(i) The date and time that each malfunction started and stopped.

(ii) The date and time that each continuous monitoring system was inoperative, except for zero (low-level) and high-level checks.

(iii) The date, time, and duration that each continuous monitoring system was out-of-control, including the information in § 63.8(c)(8).

(iv) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(v) A summary of the total duration of the deviations during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

(vi) A breakdown of the total duration of the deviations during the reporting

period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and unknown causes.

(vii) A summary of the total duration of continuous monitoring system downtime during the reporting period and the total duration of continuous monitoring system downtime as a percent of the total source operating time during the reporting period.

(viii) A brief description of the process units.

(ix) A brief description of the continuous monitoring system.

(x) The date of the latest continuous monitoring system certification or audit.

(xi) A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.

(c) Immediate startup, shutdown, and malfunction report. If you had a startup, shutdown, or malfunction during the semiannual reporting period that was not consistent with your startup, shutdown, and malfunction plan, you must submit an immediate startup, shutdown, and malfunction report according to the requirements of § 63.10(d)(5)(ii).

(d) Part 70 monitoring report. If you have obtained a title V operating permit for an iron and steel foundry pursuant to 40 CFR part 70 or 40 CFR part 71, you must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If you submit a compliance report for an iron and steel foundry along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the compliance report includes all the required information concerning deviations from any emissions limitation or operation and maintenance requirement in this subpart, submission of the compliance report satisfies any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report does not otherwise affect any obligation you may have to report deviations from permit requirements for an iron and steel foundry to your permitting authority.

#### **§ 63.7752 What records must I keep?**

(a) You must keep the records specified in paragraphs (a)(1) through (4) of this section:

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any initial notification or notification of compliance status that you submitted,

according to the requirements of § 63.10(b)(2)(xiv).

(2) The records specified in § 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(3) Records of performance tests and performance evaluations as required by § 63.10(b)(2)(viii).

(4) Records of the annual quantity of each chemical binder or coating material used to make molds and cores, the Material Data Safety Sheet or other documentation that provides the chemical composition of each component, and the annual quantity of HAP used at the foundry.

(b) You must keep the following records for each CEMS.

(1) Records described in § 63.10(b)(2)(vi) through (xi).

(2) Previous (*i.e.*, superseded) versions of the performance evaluation plan as required in § 63.8(d)(3).

(3) Request for alternatives to relative accuracy tests for CEMS as required in § 63.8(f)(6)(i).

(4) Records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(c) You must keep the records required by §§ 63.7743, 63.7744, and 63.7745 to show continuous compliance with each emissions limitation, work practice standard, and operation and maintenance requirement that applies to you.

#### **§ 63.7753 In what form and for how long must I keep my records?**

(a) You must keep your records in a form suitable and readily available for expeditious review, according to the requirements of § 63.10(b)(1).

(b) As specified in § 63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record onsite for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record according to the requirements in § 63.10(b)(1). You can keep the records for the previous 3 years offsite.

#### **Other Requirements and Information**

#### **§ 63.7760 What parts of the General Provisions apply to me?**

Table 1 to this subpart shows which parts of the General Provisions in §§ 63.1 through 63.15 apply to you.

#### **§ 63.7761 Who implements and enforces this subpart?**

(a) This subpart can be implemented and enforced by us, the U.S.

Environmental Protection Agency (EPA), or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that cannot be delegated to State, local, or tribal agencies are specified in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to non-opacity emissions limitations in § 63.7690 and work practice standards in § 63.7700 under § 63.6(g).

(2) Approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f) and as defined in § 63.90.

(3) Approval of major alternatives to monitoring under § 63.8(f) and as defined in § 63.90.

(4) Approval of major alternatives to recordkeeping and reporting under § 63.10(f) and as defined in § 63.90.

#### **Definitions**

#### **§ 63.7765 What definitions apply to this subpart?**

Terms used in this subpart are defined in the Clean Air Act (CAA), in § 63.2, and in this section.

*Automated conveyor and pallet cooling line* means any dedicated conveyor line or area used for cooling molds received from pouring stations.

*Automated shakeout line* means any mechanical process unit designed for and dedicated to separating a casting from a mold. These mechanical processes include, but are not limited to, shaker decks, rotary separators, and high-frequency vibration units.

Automated shakeout lines do not include manual processes for separating a casting from a mold, such as personnel using a hammer, chisel, pick ax, sledge hammer, or jackhammer.

*Bag leak detection system* means a system that is capable of continuously monitoring relative particulate matter (dust) loadings in the exhaust of a baghouse to detect bag leaks and other upset conditions. A bag leak detection

system includes, but is not limited to, an instrument that operates on triboelectric, electrodynamic, light scattering, light transmittance, or other effect to continuously monitor relative particulate matter loadings.

*Binder chemical* means a component of a system of chemicals used to bind sand together into molds, mold sections, and cores through chemical reaction as opposed to pressure.

*Capture system* means the collection of components used to capture gases and fumes released from one or more emissions points and then convey the captured gas stream to a control device or to the atmosphere. A capture system may include, but is not limited to, the following components as applicable to a given capture system design: duct intake devices, hoods, enclosures, ductwork, dampers, manifolds, plenums, and fans.

*Cold box mold or core making line* means a mold or core making line in which the formed aggregate is hardened by catalysis with a gas.

*Combustion device* means an afterburner, thermal incinerator, or scrap preheater.

*Conveyance* means the system of equipment that is designed to capture pollutants at the source, convey them through ductwork, and exhaust them using forced ventilation. A conveyance may, but does not necessarily include, control equipment designed to reduce emissions of the pollutants. Emissions that are released through windows, vents, or other general building ventilation or exhaust systems are not considered to be discharged through a conveyance.

*Cooling* means the process of molten metal solidification within the mold and subsequent temperature reduction prior to shakeout.

*Cupola* means a vertical cylindrical shaft furnace that uses coke and forms of iron and steel such as scrap and foundry returns as the primary charge components and melts the iron and steel through combustion of the coke by a forced upward flow of heated air.

*Deviation* means any instance in which an affected source or an owner or operator of such an affected source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emissions limitation (including operating limits), work practice standard, or operation and maintenance requirement;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any iron and steel foundry required to obtain such a permit; or

(3) Fails to meet any emissions limitation (including operating limits) or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

*Electric arc furnace* means a vessel in which forms of iron and steel such as scrap and foundry returns are melted through resistance heating by an electric current flowing through the arcs formed between the electrodes and the surface of the metal and also flowing through the metal between the arc paths.

*Electric induction furnace* means a vessel in which forms of iron and steel such as scrap and foundry returns are melted through resistance heating by an electric current that is induced in the metal by passing an alternating current through a coil surrounding the metal charge or surrounding a pool of molten metal at the bottom of the vessel.

*Emissions limitation* means any emissions limit or operating limit.

*Exhaust stream* means gases emitted from a process through a conveyance as defined in this subpart.

*Fresh acid solution* means a sulfuric acid solution used for the control of triethylamine emissions that has a pH of 2.0 or less.

*Fugitive emissions* means any pollutant released to the atmosphere that is not discharged through a conveyance as defined in this subpart.

*Furan warm box mold or core making line* means a mold or core making line in which the binder chemical system used is that system commonly designated as a furan warm box system by the foundry industry.

*Hazardous air pollutant* means any substance on the list originally established in 112(b)(1) of the CAA and subsequently amended as published in the *Code of Federal Regulations*.

*Iron and steel foundry* means a facility or portion of a facility that melts scrap, ingot, and/or other forms of iron and/or steel and pours the resulting molten metal into molds to produce final or near final shape products for introduction into commerce. Research and development facilities and operations that only produce non-

commercial castings are not included in this definition.

*Metal melting furnace* means a cupola, electric arc furnace, or electric induction furnace that converts scrap, foundry returns, and/or other solid forms of iron and/or steel to a liquid state. This definition does not include a holding furnace, an argon oxygen decarburization vessel, or ladle that receives molten metal from a metal melting furnace, to which metal ingots or other material may be added to adjust the metal chemistry.

*Mold or core making line* means the collection of equipment that is used to mix an aggregate of sand and binder chemicals, form the aggregate into final shape, and harden the formed aggregate. This definition does not include a line for making green sand molds or cores.

*Mold vent* means an intentional opening in a mold through which gases containing pyrolysis products of organic mold and core constituents produced by contact with or proximity to molten metal normally escape the mold during and after metal pouring.

*Pouring area* means an area, generally associated with floor and pit molding operations, in which molten metal is brought to each individual mold. Pouring areas include all pouring operations that do not meet the definition of a pouring station.

*Pouring station* means the fixed location to which molds are brought in a continuous or semicontinuous manner to receive molten metal, after which the molds are moved to a cooling area.

*Responsible official* means responsible official as defined in § 63.2.

*Scrap preheater* means a vessel or other piece of equipment in which metal scrap that is to be used as melting furnace feed is heated to a temperature high enough to eliminate moisture and other volatile impurities or tramp materials by direct flame heating or similar means of heating.

*Scrubber blowdown* means liquor or slurry discharged from a wet scrubber that is either removed as a waste stream or processed to remove impurities or adjust its composition or pH before being returned to the scrubber.

*Work practice standard* means any design, equipment, work practice, or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the CAA.

TABLE 1 TO SUBPART EEEEE OF PART 63.—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART EEEEE  
 [As stated in § 63.7760, you must meet each requirement in the following table that applies to you.]

Citation	Subject	Applies to Subpart EEEEE?	Explanation
63.1	Applicability	Yes.	
63.2	Definitions	Yes.	
63.3	Units and abbreviations	Yes.	
63.4	Prohibited activities	Yes.	
63.5	Construction/reconstruction	Yes.	
63.6(a)–(g)	Compliance with standards and maintenance requirements.	Yes.	
63.6(h)	Opacity and visible emissions standards.	Yes.	
63.6(i)–(j)	Compliance extension and Presidential compliance exemption.	Yes.	
63.7(a)(1)–(a)(2)	Applicability and performance test dates.	No	Subpart EEEEE specifies applicability and performance test dates.
63.7(a)(3), (b)–(h)	Performance testing requirements	Yes.	
63.8(a)(1)–(a)(3), (b), (c)(1)–(c)(3), (c)(6)–(c)(8), (d), (e), (f)(1)–(f)(6), (g)(1)–(g)(4).	Monitoring requirements	Yes	Subpart EEEEE specifies requirements for alternative monitoring systems.
63.8(a)(4)	Additional monitoring requirements for control devices in § 63.11.	No	Subpart EEEEE does not require flares.
63.8(c)(4)	Continuous monitoring system (CMS) requirements.	No	Subpart EEEEE specifies requirements for operation of CMS and CEMS.
63.8(c)(5)	Continuous opacity monitoring system (COMS) Minimum Procedures.	No	Subpart EEEEE does not require COMS.
63.8(g)(5)	Data reduction	No	Subpart EEEEE specifies data reduction requirements.
63.9	Notification requirements	Yes.	
63.10(a)–(b), (c)(1)–(6), (c)(9)–(15), (d)(1)–(2), (e)(1)–(2), (f).	Recordkeeping and reporting requirements.	Yes	Additional records for CMS in § 63.10(c)(1)–(6), (9)–(15) apply only to CEMS.
63.10(c)(7)–(8)	Records of excess emissions and parameter monitoring exceedances for CMS.	No	Subpart EEEEE specifies records requirements.
63.10(d)(3)	Reporting opacity or visible emissions observations.	Yes.	
63.10(e)(3)	Excess emissions reports	No	Subpart EEEEE specifies reporting requirements.
63.10(e)(4)	Reporting COMS data	No	Subpart EEEEE data does not require COMS.
63.11	Control device requirements	No	Subpart EEEEE does not require flares.
63.12	State authority and delegations	Yes.	
63.13–63.15	Addresses of State air pollution control agencies and EPA regional offices. Incorporation by reference. Availability of information and confidentiality.	Yes.	

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