ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[OAR–2002–0034; FRL–7416–4]

RIN 2060–AE43

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

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: This action proposes 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 proposed standards will 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. The proposed NESHAP would reduce nationwide HAP emissions from iron and steel foundries by over 900 tons per year (tpy).

DATES: *Comments.* Submit comments on or before February 21, 2003.

Public Hearing. If anyone contacts the EPA requesting to speak at a public hearing by January 13, 2003, a public hearing will be held on January 22, 2003.

ADDRESSES: *Comments.* Comments may be submitted electronically, by mail, by facsimile, or through hand delivery/courier. Follow the detailed instructions as provided in the **SUPPLEMENTARY INFORMATION** section.

Public Hearing. If a public hearing is held, it will be held at the new EPA facility complex in Research Triangle Park, NC at 10 a.m. Persons interested in attending the hearing or wishing to present oral testimony should notify Cassie Posey, Metals Group (MD–C439–02), U.S. EPA, Research Triangle Park, NC 27711, telephone (919) 541–0069, at least 2 days in advance of the hearing.

FOR FURTHER INFORMATION CONTACT: Kevin Cavender, Metals Group, (MD–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*	Examples of regulated entities
Industry	331511	Iron foundries. Iron and steel plants. Automotive and large equipment manufacturers.
	331512	Steel Investment Foundries
	331513	Steel foundries (except investment).
Federal government	....	Not affected.
State/local/tribal government	....	Not affected.

*North American Information 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 proposed 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 under Docket ID No. OAR–2002–0034. The official public docket is the collection of materials that is available for public viewing in the Iron and Steel Foundries NESHAP Docket at the EPA Docket Center (Air Docket), EPA West, Room B–108, 1301 Constitution Avenue, NW., Washington, DC 20004. The Docket Center 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 Access. 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 submit or view public comments, access the index of the contents of the official public docket, and access those documents in the public docket that are available electronically. Once in the system, select ''search'' and key in the appropriate docket identification number.

Certain types of information will not be placed in the EPA dockets. Information claimed as confidential business information (CBI) and other information whose disclosure is restricted by statute, which is not included in the official public docket, will not be available for public viewing in EPA's electronic public docket. The EPA's policy is that copyrighted material will not be placed in EPA's electronic public docket but will be available only in printed, paper form in the official public docket. Although not all docket materials may be available electronically, you may still access any of the publicly available docket materials through the EPA Docket Center.

For public commenters, it is important to note that EPA's policy is that public comments, whether submitted electronically or in paper, will be made available for public viewing in EPA's electronic public docket as EPA receives them and without change unless the comment contains copyrighted material, CBI, or other information whose disclosure is restricted by statute. When EPA identifies a comment containing copyrighted material, EPA will provide a reference to that material in the version of the comment that is placed in EPA's electronic public docket. The entire printed comment, including the copyrighted material, will be available in the public docket.

Public comments submitted on computer disks that are mailed or delivered to the docket will be transferred to EPA's electronic public docket. Public comments that are mailed or delivered to the docket will be scanned and placed in EPA's electronic public docket. Where practical, physical objects will be photographed, and the photograph will be placed in EPA's electronic public docket along with a brief description written by the docket staff.

Comments. You may submit comments electronically, by mail, by facsimile, or through hand delivery/courier. To ensure proper receipt by EPA, identify the appropriate docket identification number in the subject line on the first page of your comment. Please ensure that your comments are submitted within the specified comment period. Comments submitted after the close of the comment period will be marked ''late.'' The EPA is not required to consider these late comments.

Electronically. If you submit an electronic comment as prescribed below, EPA recommends that you include your name, mailing address, and an e-mail address or other contact information in the body of your comment. Also include this contact information on the outside of any disk or CD ROM you submit and in any cover letter accompanying the disk or CD ROM. This ensures that you can be identified as the submitter of the comment and allows EPA to contact you in case EPA cannot read your comment due to technical difficulties or needs further information on the substance of your comment. The EPA's policy is that EPA will not edit your comment and any identifying or contact information provided in the body of a comment will be included as part of the comment that is placed in the official public docket and made available in EPA's electronic public docket. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment.

Your use of EPA's electronic public docket to submit comments to EPA electronically is EPA's preferred method for receiving comments. Go directly to EPA Dockets at *http://www.epa.gov/edocket,* and follow the online instructions for submitting comments. Once in the system, select ''search'' and key in Docket ID No. OAR–2002–0034. The system is an ''anonymous access'' system, which means EPA will not know your identity, e-mail address, or other contact information unless you provide it in the body of your comment.

Comments may be sent by electronic mail (e-mail) to *air-and-r-docket@epa.gov,* Attention Docket ID No. OAR–2002–0034. In contrast to EPA's electronic public docket, EPA's e-mail system is not an ''anonymous access'' system. If you send an e-mail comment directly to the docket without going through EPA's electronic public docket, EPA's e-mail system automatically captures your e-mail address. E-mail addresses that are automatically captured by EPA's e-mail system are included as part of the comment that is placed in the official public docket, and made available in EPA's electronic public docket.

You may submit comments on a disk or CD ROM that you mail to the mailing address identified in this document. These electronic submissions will be accepted in WordPerfect or ASCII file format. Avoid the use of special characters and any form of encryption.

By Mail. Send your comments (in duplicate, if possible) to: Iron and Steel Foundries NESHAP Docket, EPA Docket Center (Air Docket), U.S. EPA West, (MD–6102T), Room B–108, 1200 Pennsylvania Avenue, NW., Washington, DC 20460, Attention Docket ID No. OAR–2002–0034.

By Hand Delivery or Courier. Deliver your comments (in duplicate, if possible) to: EPA Docket Center, Room B–108, U.S. EPA West, 1301 Constitution Avenue, NW., Washington, DC 20004, Attention Docket ID No. OAR–2002–0034. Such deliveries are only accepted during the Docket Center's normal hours of operation.

By Facsimile. Fax your comments to: (202) 566–1741, Attention Iron and Steel Foundries NESHAP Docket, Docket ID No. OAR–2002–0034.

CBI. Do not submit information that you consider to be CBI through EPA's electronic public docket or by e-mail. Send or deliver information identified as CBI only to the following address: Roberto Morales, OAQPS Document Control Officer (C404–02), U.S. EPA, 109 TW Alexander Drive, Research Triangle Park, NC 27709, Attention Docket ID No. OAR–2002–0034. You may claim information that you submit to EPA as CBI by marking any part or all of that information as CBI (if you submit CBI on disk or CD ROM, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is CBI). Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

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

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

I. Background

A. What Is the Statutory Authority for NESHAP?

Section 112 of the CAA requires the EPA to establish technology-based regulations for all categories and subcategories of major sources emitting one or more of the HAP listed in section 112(b). 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. The EPA may later develop additional standards under section 112(f) to address residual risk that may remain even after application of the technology-based controls.

Area sources are stationary sources of HAP that are not major sources. The regulation of area sources is discretionary. If there is a finding of a threat of adverse effects on human health or the environment, then the source category can be added to the list of area sources to be regulated.

Section 112(c) of the CAA requires us to list all categories of major and area sources of HAP for which we would develop national emissions standards. We published the initial list of source categories on July 16, 1992 (57 FR 31576). ''Iron Foundries'' and ''Steel Foundries'' were two of the source categories on the initial list. The 1992 listing of these source category is based on our determination that iron foundries and steel foundries may reasonably be anticipated to emit one or more HAP listed in section 112(b) in quantities sufficient to be major sources. We combined these two categories into one category, ''Iron and Steel Foundries.'' We believe this is reasonable because of the similarities in processes, emissions, and controls. Also, several foundries pour both iron and steel. This proposed rule will apply to each new and existing iron and steel foundry.

Approximately 650 iron and steel foundries exist in the U.S. Of these, about 100 iron and steel foundries are anticipated to be major sources of HAP. Most of these major sources are foundries that are operated by manufacturers of automobiles and large industrial equipment and by suppliers of these manufacturers.

B. What Criteria Are Used in the Development of NESHAP?

Section 112 of the CAA requires that we establish NESHAP for the control of HAP from both new and existing major sources. The CAA requires the NESHAP to reflect the maximum degree of reduction in emissions of HAP that is achievable. This level of control is commonly referred to as the maximum achievable control technology (MACT).

The MACT floor is the minimum control level allowed for NESHAP and is defined under section 112(d)(3) of the CAA. In essence, the MACT floor ensures that the standard is set at a level that assures that all major sources achieve the level of control at least as stringent as that already achieved by the better-controlled and lower-emitting sources in each source category or subcategory. For new sources, the MACT floor cannot be less stringent than the emissions control that is achieved in practice by the best controlled similar source. The MACT standards for existing sources can be less stringent than standards for new sources, but they cannot be less stringent than the average emissions limitation achieved by the best-performing 12 percent of existing sources in the category of subcategory (or the best performing 5 sources for categories or subcategories with fewer than 30 sources).

In developing MACT, we also consider control options that are more stringent than the floor. We may establish standards more stringent than the floor based on the consideration of cost of achieving the emissions reductions, any health and environmental impacts, and energy requirements.

C. What Processes Are Used at Iron and Steel Foundries?

Iron and steel foundries manufacture castings by pouring molten iron or steel melted in a furnace into a mold of a desired shape. The primary processing units of interest at iron and steel foundries because of their potential to generate HAP emissions are: metal melting furnaces; scrap preheaters; pouring areas; pouring, cooling, and shakeout lines; mold and core making lines; and mold and core coating lines.

Metal Melting Furnaces

There are three types of furnaces used to melt scrap metal at iron and steel foundries: cupolas, electric arc furnaces, and electric induction furnaces. Cupolas are used exclusively to produce molten iron; electric arc furnaces and electric induction furnaces are used to produce either molten iron or molten steel.

Cupolas. A cupola is vertical cylindrical shaft furnace that uses coke and forms of iron and steel, such as scrap and foundry returns, as the primary charge components. The iron and steel are melted through combustion of the coke by a forced upward flow of heated air. Cupolas are equipped with afterburners downstream from the charge to incinerate carbon monoxide (CO), which is a major byproduct of coke combustion. Some of the coke used to fuel the cupola also becomes part of the molten metal, thereby raising the carbon content of the molten metal. Consequently, cupolas are used to produce iron castings; steel castings must have carbon content of less than 1 percent, which cannot be achieved in a cupola.

There are, generally, two distinct cupola design configurations. The differences between the two designs relate to the method of charging. In one configuration, termed above charge gas takeoff, charging is done through a door in the shaft above the level of the charge. Alternatively, in the below charge gas takeoff configuration, the flow of gas is taken from an opening in the side of the shaft below the level of the charge. The latter configuration is more typical of modern cupolas. In either case, the offgas may be directed through a heat exchanger to transfer heat to the inlet air for energy conservation.

Molten metal, along with slag, is tapped from an opening in the bottom of the furnace shaft much like a blast furnace. Tapping is essentially a continuous process, whereas charging is done in batches.

Electric induction furnaces and scrap preheaters. An electric induction furnace is 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. An electric induction furnace operates in batch mode, an operating cycle consisting of charging, melting the charge, adding an additional charge (backcharging) in some cases and melting that charge, and tapping the molten metal.

Scrap feed for an electric induction furnace is commonly preheated, usually by direct exposure to a gas flame, prior to charging to the furnace. Preheating is done primarily to eliminate volatile substances such as water and residual oil and grease that may vaporize suddenly and cause an explosion if added to a molten charge or heel in the furnace. When preheating is done, the scrap is commonly heated to 800§ F or higher because the cost of initial heating with gas is less costly than heating with electricity. A scrap preheater, where used, is considered to be an integral part of the electric induction furnace melting operation.

Electric arc furnaces. An electric arc furnace is 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 flows through the arcs formed between electrodes and the surface of the metal and also through the metal between the arc paths. Typically, the electric arc furnace is equipped with a removable cover and charged from the top. Molten metal is tapped from the electric arc furnace by removing the cover and tilting the furnace. An electric arc furnace operates in batch mode as does an electric induction furnace, an operating cycle consisting of charging, melting, backcharging in some cases and melting that charge, and tapping.

Pouring, Cooling, and Shakeout Lines

A pouring, cooling, and shakeout line includes three major operations: pouring molten metal into molds, allowing the metal to cool and solidify, and removing the castings from the molds. The most common type of pouring, cooling, and shakeout line is the conveyor or pallet line, in which the pouring ladle is stationary and molds are moved to the ladle by conveyor or rail. After pouring is complete, the molds move along the conveyor or rail through a cooling area, which is often an enclosed tunnel. A less common type of pouring, cooling, and shakeout line is floor or pit pouring, which is used by small to medium sized foundries that do not have sufficient capital to finance mechanization and also by foundries that produce castings too large to be transported by conveyor. In this type of line, molds are placed on an open floor or in a pit, and the pouring ladle is transported to the molds, generally by overhead pulley. After pouring, the casting is cooled in place.

After castings have solidified, they are removed from the sand molds in a process called shakeout. At most foundries, shakeout is a mechanized process where molds are placed on vibrating grids or conveyors to shake the sand loose from the casting. In some foundries, the castings and molds are separated manually.

Mold and Core Making Lines

Most iron and steel foundries pour metal into molds that are made primarily of sand. Molds may also be made of tempered metal (iron or steel) that are filled by gravity (permanent molds) or by centrifugal force (centrifugal casting). Some systems use polystyrene or other low density plastic (foam) patterns and pack sand around the patterns. This type of casting operation is referred to as expendable pattern casting, or the lost foam process since the plastic pattern is volatilized (and/or pyrolyzed) by the molten metal as the castings are poured.

The outer shape of a casting is determined by the shape of the molds. Molds are typically made in two halves that are subsequently joined together. The inner shapes of the casting that cannot be directly configured into the mold halves are created by inserting separately made components called cores, which are almost universally made of sand. Sand cores are often required in sand molds as well as in many permanent mold and centrifugal casting operations.

Most sand molds are made from green sand, which is a mixture of approximately 85 to 95 percent sand, 4 to 10 percent bentonite clay, 2 to 5 percent water, and 2 to 10 percent carbonaceous materials such as powdered coal (commonly called sea coal), petroleum products, cereals, and starches. The composition of green sand is chosen so that the sand will form a stable shape when compacted under pressure, maintain that shape when heated by the molten metal poured, and separate easily from the solidified metal casting. The clay and water bind the sand together. The carbonaceous materials partially volatilize when molten metal is poured into the mold, creating a reducing atmosphere that prevents the surface of the casting from oxidizing while it solidifies.

Some sand molds and most sand cores are bound into shape by plastic- or resin-like chemical substances. Chemical binder systems are used when the shape of the mold or core cannot be made from green sand or when strength and dimensional stability requirements are too stringent for green sand to provide. Chemically bonded molds and cores are made by first blending the sand and chemicals (mixing), then forming the sand into the desired shape and hardening (curing) the chemical binder to fix the shape. Chemical binder systems are of three types depending on the curing process required:

- Chemicals that cure upon heating (thermosetting),
- Combinations of chemicals that cure by reacting with each other at ambient temperature (self-setting or nobake), and
- Chemicals that react by catalysis upon exposure to a gas at ambient temperature (gas-cured or cold box).

Several systems of each type are available, with the choice of system depending on such features as strength of the mold or core, speed of curing, and shelf life.

Mold and Core Coating Lines

Molds and cores are often coated with a finely ground refractory material to provide a smoother surface finish on the casting. We refer to these processes as ‘‘coating’’ operations. The refractory material is applied as a slurry. After coating, the liquid component of the slurry is either allowed to evaporate or, if it is a flammable substance such as alcohol, eliminated by ignition (the light-off process).

D. What HAP Are Emitted and How Are They Controlled?

Metal Melting Furnace Emissions

Almost all emissions from a cupola are contained in the flow of air exiting the stack of the furnace, which contains particulate matter (PM) and organic compounds in addition to CO. The HAP in PM emissions from cupolas are primarily lead and manganese, with other HAP such as cadmium, chromium, and nickel present in lesser amounts. These HAP originate as impurities or trace elements in the scrap metal fed to the furnace. Organic HAP arise as by-products from combustion of coke and also from incomplete combustion of residual oil and grease on the scrap. Cupola exhaust gases contain acetophenone, polychlorinated dibenzo-p-dioxins, polychlorinated dibenzofurans, and pyrene. Most cupolas control PM emissions by dedicated baghouses or wet scrubbers. Also, most cupolas employ afterburners, which effectively destroy organic HAP. Another potential source of emissions is the charging door of a cupola in which the gas takeoff is above the charge. However, the cupola is generally operated with enough vacuum in the shaft to prevent gases from exiting the door during normal operations.

Emissions of PM from electric induction furnaces contain HAP metals such as manganese and lead, but may also contain significant amounts of chromium or nickel if stainless steel or nickel alloy castings are produced. Emissions from scrap preheaters contain PM and organic species that have not been characterized. Emissions from electric induction furnaces and scrap preheaters are controlled by baghouses, cyclones, and wet scrubbers, with emissions from both types of units often controlled by the same device. Organic emissions from scrap preheaters are typically controlled by direct flame heating of the scrap and, at one source, by afterburning the preheater emissions.

Emissions of PM from electric arc furnaces contain HAP metals such as lead and manganese, but may also contain significant amounts of chromium or nickel if stainless steel or nickel alloy castings are produced. Emissions may also include trace levels of organic substances that have not been characterized. Emissions of PM are typically controlled by baghouses. Organic emissions are controlled by natural incineration within the furnace.

Pouring, Cooling, and Shakeout Line Emissions

The majority of HAP emissions from pouring, cooling, and shakeout lines are organic HAP created by incomplete combustion of organic material in the mold and core sand. When molten metal comes into contact with organic materials in the sand such as binder chemicals and sea coal, these materials are partially volatilized and incinerated. Due to the limited availability of oxygen in the poured molds, combustion is incomplete, and the mold offgas can contain a wide variety of organic substances. The primary HAP emitted are benzene, formaldehyde, and toluene. The offgases from most molds ignite spontaneously. For floor and pit pouring, the offgas does not always spontaneously flare but is ignited by applying a flame to the mold's vent locations. Aside from lighting-off mold vents, three foundries use add-on controls to further reduce organic emissions from pouring, cooling, and shakeout lines. In addition to organic emissions, pouring lines are a source of metal HAP emissions. Metal HAP contained in the molten metal is emitted as metal fumes when the metal is poured into the molds. Baghouses and scrubbers are used to control metal HAP emissions at several pouring lines.

Mold and Core Making and Mold and Core Coating Line Emissions

Mold making using green sand produces virtually no emissions. The use of chemical binder systems, by contrast, can produce significant HAP emissions. In the process of mixing, forming, and curing, volatile constituents of these chemicals evaporate to some extent. Many binder system components contain HAP as polymerization reactants, solvents, or catalysts. Although some information on the composition of binder system components is proprietary, much is known about their HAP content. The HAP used in these chemicals and emitted in the mold and core making process include cumene, formaldehyde, methanol, naphthalene, phenol, and xylene. Also, triethylamine is commonly used as a catalyst gas in the cold box process. Most foundries capture and control triethylamine emissions with wet scrubbers that use acid solution as the collection medium. No other organic emissions from mold and core making lines are controlled. Emissions of HAP can also arise in the process of coating the molds and cores. The liquid component of the slurry may contain a HAP such as methanol. Coating emissions are controlled only where the light-off process is used to eliminate flammable constituents.

E. What are the Health Effects Associated With Emissions From Iron and Steel Foundries?

The metal HAP emitted from melting furnaces includes cadmium, chromium, lead, manganese, and nickel. Aromatic organic HAP produced by mold and core making lines; melting furnaces; and pouring, cooling, and shakeout lines contain acetophenone, benzene, cumene, dibenzofurans, dioxins, naphthalene, phenol, pyrene, toluene, and xylene. The non-aromatic organic HAP emitted are formaldehyde, methanol, and triethylamine. The known health effects of these substances are described in the ''EPA Health Effects Notebook for Hazardous Air Pollutants-Draft,'' EPA–452/D–95–00, PB95–503579 (December 1994), which is available on-line at: *http://www.epa.gov/ttn/uatw/hapindex.html.*

Although numerous HAP may be emitted from iron and steel foundries, only a few account for essentially all of the mass of HAP emissions from these foundries. These HAP are: formaldehyde, methanol, napthalene, triethylamine, manganese, and lead.

Of the HAP listed above, benzene is a known human carcinogen of moderate carcinogenic hazard. Cadmium, 2,3,7,8–TCDD (dioxin), formaldehyde, lead, and nickel are classified as probable carcinogens. Chromium can exist in two valence states. Chromium VI is a known human carcinogen of high carcinogenic hazard by inhalation. (*Note:* Chromium III and Chromium VI by oral pathways are classified as Group D ''not classifiable as to carcinogenicity in humans.'') Acute effects of some of the HAP listed above include irritation to the eyes, nose, and throat, nausea, vomiting, drowsiness, dizziness, central nervous system depression, and unconsciousness. Chronic effects include respiratory effects (such as coughing, asthma, chronic bronchitis, chest wheezing, respiratory distress, altered pulmonary function, and pulmonary lesions), gastrointestinal irritation, liver injury, and muscular effects. Reproductive effects include menstrual disorders, reduced incidence of pregnancy, decreased fertility, impotence, sterility, reduced fetal body weights, growth retardation, slowed postnatal neurobehavioral development, and spontaneous abortions.

The proposed rule would reduce emissions of many of these HAP and would also reduce PM emissions, which are regulated under national ambient air quality standards. Emissions of PM have been associated with aggravation of existing respiratory and cardiovascular disease and increased risk of premature death.

We have no data to assess to what extent iron and steel foundries emissions are causing health effects. We recognize that the degree of adverse effects to health experienced by exposed individuals can range from mild to severe. The extent and degree to which the health effects may be experienced depends on:

- Pollutant-specific characteristics (*e.g.*, toxicity, half-life in the environment, bioaccumulation, and persistence);
- The ambient concentrations observed in the area (*e.g.*, as influenced by emissions rates, meteorological conditions, and terrain);
- The frequency and duration of exposures; and
- Characteristics of exposed individuals (*e.g.*, genetics, age, pre-existing health conditions, and lifestyle), which vary significantly with the population.

II. Summary of the Proposed Rule

A. What Are the Affected Sources?

The affected sources are each new or existing metal casting department, and each new or existing mold and core making department, at an iron and steel foundry that is a major source of HAP emissions. A new affected source is one for which construction or reconstruction begins after December 23, 2002. An existing affected source is one for which construction or reconstruction began on or before December 23, 2002. The emissions sources in a metal casting department covered by the proposed rule include metal melting furnaces, scrap preheaters, pouring stations at an existing metal casting department, pouring areas and pouring stations at a new metal casting department, and pouring, cooling, and shakeout lines. The emissions sources in a mold and core making department covered by the proposed rule include each mold and core making and mold and core coating line.

B. What Are the Proposed Emissions Limitations?

The proposed rule includes emissions limits for metal and organic HAP as well as operating limits for capture systems and control devices. Particulate matter, CO, and volatile organic compounds (VOC) serve as surrogate measures of HAP emissions. Today's proposed rule includes the following emissions standards:

- Each melting furnace and scrap preheater at an existing metal casting department must control emissions of PM to 0.005 grains per dry standard cubic foot (gr/dscf), and each melting furnace and scrap preheater at a new metal casting department must control emissions of PM to 0.001 gr/dscf.
- Each cupola at a new or existing metal casting department must control CO emissions to 200 parts per million by volume (ppmv).
- Each scrap preheater at a new or existing metal casting department must achieve a 98 percent reduction, by weight, in VOC emissions or an outlet concentration of no more than 20 ppmv of VOC (as propane).
- Each pouring station at an existing metal casting department must control emissions of PM to 0.010 gr/dscf, and each pouring station or pouring area at a new metal casting department must control emissions of PM to 0.002 gr/dscf.
- Each new metal casting department must achieve a 98 percent reduction, by weight, in VOC emissions or an outlet concentration of no more than 20 ppmv of VOC (as propane). This limit would be a flow-weighted average.
- Each triethylamine cold box mold and core making line at a new or existing mold and core making department must control triethylamine emissions to 1 ppmv.

The owner or operator of an affected source would be required to install a capture and collection system for each emissions source subject to an emissions limit. The capture and collection system would be required to maintain a 200 foot per minute (fpm) face velocity when all access doors (if present) are in the open position. In addition, for each capture and collection system installed on an affected source, the owner and operator would be required to establish operating limits for capture systems parameter (or parameters) appropriate for assessing capture system performance. At minimum, the limits must indicate the level of the ventilation draft and damper position settings. The proposed rule would require the owner or operator to operate each capture system at or above the lowest value or settings established in the operation and maintenance (O&M) plan. Proposed operating limits for control devices are:

- If a baghouse is applied to PM emissions from a metal melting furnace, scrap preheater, or shakeout station, the alarm on the bag leak detection system must not sound for more than 5 percent of the total operating time in a semiannual reporting period.
- If a wet scrubber is applied to PM emissions from a pouring station, the 3-hour average pressure drop and scrubber water flowrate must remain at or above the minimum levels established during the initial performance test.
- If a wet acid scrubber is applied to triethylamine emissions from a cold box mold and core making line, the 3-hour average scrubbing liquid flowrate must remain at or above the minimum level established during the initial performance test, and the 3-hour average pH of the scrubber blowdown must remain at or below the maximum level so established. If a combustion device is applied to triethylamine emissions from a cold box mold and core making line, the 3-hour average combustion zone temperature must remain at or above the minimum level established during the initial performance test.

The proposed operating limits would not apply to a combustion device applied to organic HAP emissions from a cupola, scrap preheater, or pouring, cooling, and shakeout line because continuous emissions monitoring systems (CEMS) would be required to directly measure CO and VOC emissions.

C. What Are the Proposed Work Practice Standards?

To reduce HAP emissions from metal casting departments, facilities would be required to develop and operate according to written specifications and procedures for the selection and inspection of the scrap iron or steel that limit the amount of organics and HAP metals in the scrap used as furnace charge. For a pouring, cooling, and shakeout line in an existing metal casting department and a pouring area in a new or existing metal casting department, foundries would be required to manually ignite gases from mold vents that do not automatically ignite.

Four work practice standards are proposed for coating and binder chemicalformulations used at new or existing mold and core making departments:

- All mold and core making lines would be required to use non-HAP coating formulations.
- All furan warm box mold and core making lines would be required to use methanol-free binder chemical formulations.
- All phenolic urethane cold box or phenolic urethane nobake mold and core making lines would be required to use naphthalene-depleted solvents. Depletion of naphthalene can not be accomplished by substituting other HAP for the naphthalene.
- All other types of mold and core making lines (not furan warm box, phenolic urethane cold box, or phenolic urethane nobake) would be required to use reduced-HAP binder formulations unless it is technically and/or economically infeasible. Foundries would conduct an initial study to evaluate and identify alternatives. A foundry that does not adopt reduced-HAP binder formulations must repeat the study and submit a report every 5 years to demonstrate that all applicable alternatives remain technically or economically infeasible.

D. What Are the Proposed Operation and Maintenance Requirements?

The proposed rule would ensure good O&M of control equipment by requiring all foundries to prepare and follow a written O&M plan for capture systems and control devices. The O&M plan must include capture system operating limits, requirements for capture system inspections and repairs, procedures and schedules for preventative maintenance of control devices, and corrective action steps to be taken in the event of a bag leak detection system alarm. The proposed rule also includes requirements for a startup, shutdown, and malfunction plan similar to those required for other MACT rules. See § 63.6(e)(3) of the NESHAP General Provisions (40 CFR part 63, subpart A) for more information on these requirements.

E. What Are the Proposed Requirements for Demonstrating Initial and Continuous Compliance?

Emissions Limitations

The proposed rule includes requirements for foundries to conduct performance tests for all emissions sources subject to an emissions limit to show they meet the applicable limit. The proposal would require foundries to measure the concentration of PM using EPA Methods 1 through 4, and either Method 5, 5B, 5D, 5F, or 5I, as applicable, in 40 CFR part 60, appendix A. The proposed rule would require foundries to use Method 18 in 40 CFR part 60, appendix A, to determine the concentration of triethylamine. The proposed rule would also require foundries using CO or VOC CEMS to demonstrate compliance by conducting CEMS performance evaluations and measuring emissions for 3 consecutive operating hours. The proposed rule also includes procedures for establishing operating limits for capture systems and control devices, and revising the limits, if necessary or desired, after the initial performance test.

To demonstrate continuous compliance, the proposed rule would require a CO CEMS for cupolas, a VOC CEMS for scrap preheaters, and a VOC CEMS for pouring, cooling, and shakeout lines at a new metal casting department. The proposed rule would require performance tests every 5 years to demonstrate continuous compliance with the emissions limits. The proposed rule would require emissions sources not equipped with a CEMS to conduct repeat performance tests every 5 years. Monitoring of capture system and control device operating parameters would demonstrate continuous compliance with the operating limits between emissions tests. These proposed monitoring requirements include bag leak detection systems for baghouses and continuous parameter monitoring systems (CPMS) for capture systems (unless damper positions are fixed), wet scrubbers, combustion devices, and wet acid scrubbers. Technical specifications, along with requirements for installation, operation, and maintenance of these monitoring systems, are included in the proposed rule. Records would be required to document any bag leak detection system alarms and to show conformance with inspection and maintenance requirements for baghouses, CPMS, and CEMS.

Work Practice Standards

No performance test would be required to demonstrate initial compliance with the work practice standards. Foundries would certify in their notification of compliance status that they have installed any required capture systems, submitted the required written plans, and that they will meet each of the applicable work practice requirements in the plan or rule as proposed.

Records for visual inspections of all incoming shipments are required to show continuous compliance with the work practice standards for scrap selection and inspection plans. Daily visual inspections are required to show continuous compliance with the work practice standard for mold vent ignition. A record must be kept of each inspection. To demonstrate continuous compliance with the work practice standards for coatings and binder chemicals, foundries would keep records of the chemical composition of the formulations. A new compliance certification would be required each time they change the formulation.

F. What Are the Proposed 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 proposed rule) shows each of the requirements in the General Provisions (§§ 63.2 through 63.15) and whether they apply.

The major notifications include one-time notifications of applicability (due within 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 within 60 days of the compliance demonstration if a performance test is required or within 30 days if no performance test is required.

Foundries would be 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. 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 would 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 proposed rule requirements.)

All foundries would 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 would be required. More detailed information is required in the report if a deviation did occur. An immediate report would be required if actions taken during a startup, shutdown, or malfunction were not consistent with the startup, shutdown, and malfunction plan.

G. What Are the Proposed Compliance Deadlines?

Foundries with existing affected sources would be required to comply within 3 years of publication of the final rule. New or reconstructed sources that start up on or before the promulgation date for the final rule would have to comply by the promulgation date. New or reconstructed sources that start up after the promulgation date must comply upon initial startup.

III. Rationale for Selecting the Proposed Standards

A. How Did We Select the Affected Sources?

Affected source means the collection of equipment, activities, or both within a single contiguous area and under common control that is included in the source category or subcategory to which the emissions limitations, work practice standards, and other regulatory requirements apply. The affected source may be the entire collection of equipment and processes in the source category or it may be a subset of equipment and processes. For each rule, we must decide which individual pieces of equipment and processes warrant separate standards in the context of the CAA section 112 requirements and the industry operating practices.

We considered three different approaches for designating the affected source: the entire iron and steel foundry, groups of emissions points, and individual emissions points. We did not designate the entire foundry as the affected source because this broad approach would require us to establish a facilitywide MACT floor based on the total HAP emissions indicative of best-performing foundries. Applying a single

MACT floor to groups of process and fugitive emissions points would be impracticable given the diversity of processes used at individual foundries, especially considering the variety of mold and core making processes used.

One significant group of emissions points in an iron and steel foundry is the metal casting department, which includes emissions from metal melting furnaces (cupolas, electric induction furnaces, scrap preheaters, and electric arc furnaces) and pouring, cooling, and shakeout lines (where molten metal is poured into molds, molds are cooled, and castings are separated from molds). Although some variation exists in these operations at different foundries, these variations do not significantly alter the nature or amount of the HAP emissions from the individual emissions sources, the types of HAP emitted, or the control technology typically used to reduce HAP emissions. We, therefore, concluded that identifying the group of major processes in the metal casting department at an iron and steel foundry as an affected source is appropriate.

The other significant group of emissions points at iron and steel foundries is associated with mold and core making operations. The primary source of HAP emissions from these processes is HAP constituents in binder and coating chemicals. All major source foundries make extensive use of chemical systems to bind the mold and core sand, and certain types of binder systems have much higher volatile HAP content than other systems, so that the amounts of HAP and the specific HAP constituents emitted from mold and core making operations vary substantially between foundries processing the same amount of sand and having similar metal production rates. The use and formulations of mold and core coatings also varies significantly between foundries. Because of the extreme variation in potential to produce HAP emissions, it is necessary to consider mold and core making and coating operations separately from other foundry processes in determining emissions standards. This subset of equipment and processes is termed the mold and core making department.

In selecting the affected sources for regulation, we identified the HAP-emitting operations, the HAP emitted, and the quantity of HAP emissions from the individual or groups of emissions points. The proposed rule includes emissions limits or standards for the control of emissions from melting furnaces and pouring, cooling, and shakeout lines at metal casting departments, and mold and core making lines at mold and core making departments. Selection of these units as the emissions sources represents the most effective means for EPA to regulate emissions from this source category and addresses all of the principal emissions points from units in this source category.

B. What Other Emissions Sources Did We Consider?

As described in the background information document, there are numerous other ancillary emissions sources that may contain trace quantities of HAP. The emissions sources that would be regulated under this proposed rule generally contribute over 99 percent of a foundry's HAP emissions. Coatings applied to the cast parts may also significantly contribute to a foundry's total HAP emissions. The HAP emissions from these emissions sources will be regulated under the proposed NESHAP for Coating of Miscellaneous Metal Parts and Products (67 FR 52779).

Sand handling systems are used to recover sand from the shakeout system, avoid buildup at facility work stations, and to reuse sand for making new molds. This sand may include trace organic chemicals such as pyrolysis products formed during pouring and cooling that condensed on the cooler sand at the outer circumference of the mold. Due to the large diameter of the PM emissions generated during sand handling and the fact that these sources are located inside facility buildings, we do not expect that these emissions are released from the foundry building or property line as ambient emissions. Therefore, we have not proposed standards regulating sand handling systems.

Mechanical finishing operations, such as cut-off, grinding, and shot blasting, also produce PM emissions. These PM emissions may contain significant concentrations of metal HAP. However, as with sand handling systems, we do not expect that the large diameter particles generated during these operations are released as ambient emissions. Therefore, we have not proposed standards regulating mechanical finishing operations.

Metal treatment is generally used to achieve the final chemistry needed in the cast part. It is also used to produce ductile iron by adding magnesium to the molten iron (commonly referred to as inoculation). Metal treatment generally occurs in holding furnaces or transfer ladles, but may occur in an electric induction furnace or electric arc furnace. The emissions from metal treatment operations consist primarily of magnesium, but may include trace amounts of metal HAP. It is unclear to what extent these emissions may be released from the building, but emissions estimates from the available data suggest that these emissions do not contribute appreciably to the emissions from the foundry. As such, we believe regulating metal treatment would not achieve any measurable reduction in metal HAP emissions. Therefore, we have not proposed standards regulating metal treatment at this time.

Holding furnaces are often used to store the molten metal until it is needed by the foundry's pouring stations. These furnaces are almost completely enclosed and, consequently, they are not a source of ambient HAP emissions from foundries. Again, no measurable reduction in metal HAP emissions can be achieved by regulating holding furnaces. Therefore, we have not proposed emissions standards regulating holding furnaces.

In addition to the operations listed above, we have not proposed emissions standards regulating metal HAP emissions from cooling lines and shakeout stations. Although these are significant sources of organic HAP emissions, they do not contribute to ambient emissions of metal HAP from iron and steel foundries. Cooling lines do not generate PM emissions and the molten metal is not exposed to the atmosphere where metal fumes might be released. Shakeout stations are a significant source of PM emissions, however, these emissions are almost entirely comprised of sand. As with sand handling systems, the PM (sand) emissions may include trace organic chemicals such as pyrolysis products formed during pouring and cooling that condensed on the cooler sand at the outer circumference of the mold. It may also include small chunks of metal. However, due to the large diameter of the PM emissions generated during shakeout, we do not expect that these emissions are released as ambient emissions from the foundry. Therefore, we are not proposing standards for metal HAP from cooling lines and shakeout stations.

We are specifically considering whether to adopt a fugitive emissions standard in the form of a shop opacity limitation or a roof vent emissions limitation. Such a requirement would provide additional assurance that any fugitive emissions sources within the physical strictures at iron and steel foundries would not contribute significantly to ambient emissions from such facilities. Such a standard might include an opacity limit of 5 percent or a no visible emissions limit for all foundry building releases (roof vents, doors, or other openings) that are not otherwise covered by a specific emissions limit. If we were to establish such a requirement, we would establish the level for the limit by evaluating existing state and permit limits and any available emissions information consistent with the procedures described later in this document that was used to establish MACT for other emissions sources at iron and steel foundries.

However, we have not proposed an opacity or visible emissions limit because our emissions estimates indicated that the emissions sources for which we have not proposed standards are unlikely to contribute to ambient HAP emissions from the iron and steel foundries. Thus, while we do not have conclusive data regarding the potential for fugitive emissions to contribute to ambient HAP emissions from foundries, it appears that the inclusion of an opacity or visible emissions limit for the foundry building might not function to control HAP emissions from the foundry.

We specifically request comment on the regulatory options that we are considering for control of potential fugitive emissions from these miscellaneous sources. We request additional data on the potential for the miscellaneous sources discussed above to contribute to ambient HAP emissions from iron and steel foundries, including comments and supporting data that either demonstrates the need to regulate one or several of these currently unregulated emissions sources or that supports our position that these emissions sources do not release HAP to the atmosphere in quantities sufficient to require additional regulation. We also request comment on the appropriateness of the possible levels for the fugitive emissions limits discussed above, and the methodology for calculating such limits for this source category.

C. How Did We Select the Pollutants?

There are three types of melting furnaces used at major source iron and steel foundries: Cupolas, electric induction furnaces, and electric arc furnaces. All three furnace types emit PM that is known to contain HAP metals, predominately manganese and lead. We, therefore, decided to establish standards for metal HAP emissions. Source tests on cupolas have shown the presence of small amounts of organic HAP including acetophenone, polychlorinated dibenzofurans, polychlorinated dibenzo-p-dioxins, and pyrene. We concluded that establishing standards for these HAP is appropriate. We selected PM as a surrogate for metal HAP emissions from melting furnaces and CO as a surrogate for organic HAP emissions from cupolas.

Pouring molten metal into sand molds produces emissions from the incomplete combustion of the organic chemicals used in chemically bonded molds and cores and also from sea coal and other organic constituents of green sand. These products of incomplete combustion are known to contain benzene, formaldehyde, and toluene. In addition, small amounts of HAP metals are emitted during pouring. We selected PM as a surrogate for metal HAP emissions from pouring and VOC as a surrogate for organic HAP emissions from pouring, cooling, and shakeout lines.

In the process of mixing sand and binder chemicals, forming the sand into molds and cores, and curing the resulting shapes, volatile constituents of the binder chemicals evaporate to some extent. The HAP emitted in the mold and core making process include cumene, formaldehyde, methanol, naphthalene, phenol, triethylamine, and xylene. Emissions vary widely between different types and formulations of chemical systems; however, for each system the HAP species emitted can be identified. We, therefore, decided to establish standards to control the emissions of these HAP.

The source of HAP emissions from the mold and core coating operation is the liquid component of the slurry, which may contain a HAP such as methanol. Alternative liquid formulations that contain no HAP are available. We conclude that substitution of coating material formulations is possible, and that it is feasible to establish emissions standards in this proposal based on pollution prevention that address liquid HAP used in coating operations.

D. How Did We Determine the Basis and Level of the Proposed Standards for Emissions Sources in the Metal Casting Department?

Scrap Selection

There is the potential for HAP emissions to occur during all phases of metal casting (including melting, pouring, cooling, and shakeout) due to impurities (such as lead, paint, oil and grease) that may be present in the scrap metal. By reducing, to the extent possible, the amounts of these impurities in the scrap metal, foundries can achieve HAP emissions reductions throughout the metal casting department.

In 1998, we conducted a detailed and comprehensive survey of known foundries in the U.S. From this survey, EPA compiled the data from the 595 iron and steel foundries that provided survey responses. Among other things, this survey requested information on work practices, such as scrap selection and/or cleaning, at foundries that reduced air emissions. Of the 595 iron and steel foundries that provided survey responses, 360 (or 60 percent) of iron and steel foundries indicated that they used some type of scrap selection, cleaning, or inspection program to ensure the quality of scrap metal used by the foundry.

The percentage of foundries that specify scrap selection as a work practice to reduce emissions are relatively consistent for foundries operating different furnace types: 45 percent of cupola foundries, 61 percent of electric arc furnace foundries, and 65 percent of electric induction furnace foundries. These percentages indicate that scrap selection or cleaning measures are utilized by a sufficient number of foundries to represent the MACT floor control regardless of the melting furnace. Furthermore, several foundries operate two different types of melting furnaces and these foundries typically specify the same scrap selection for each furnace. Electric induction furnaces have scrap preparation procedures targeted at reducing the amount of water (moisture) in the scrap being changed. These procedures are included for safety concerns specific to electric induction furnace operation and do not necessarily reduce the amount of HAP in the scrap or the HAP emissions from the metal casting department. These procedures account for the slightly higher percentage of electric induction furnaces that report general scrap selection measures.

The EPA evaluated survey responses to determine the number of foundries that have specific scrap specifications that limit either HAP contaminants (*e.g.*, lead) or contaminants that are precursors to HAP emissions (*e.g.*, oil or paint). Many of the responses were general in nature, such as ‘‘use clean scrap,’’ ‘‘follow scrap specification,’’ or ‘‘inspect scrap.’’ However, 71 foundries (12 percent) specified in their survey responses that their scrap selection procedures included limits or restrictions on the amount of organic material in the scrap metal. These organic material restrictions were most commonly expressed as limits or bans on oil, grease, and/or paint in the scrap. Occasionally, restrictions included reference to coolants or rubber components (belts, hoses) in the scrap. In addition, 55 foundries (7.5 percent) specified in their survey responses that their scrap selection procedures included limits or restrictions on the amount of tramp metals in the scrap. These scrap selection metal restrictions were most commonly limits (or bans) on lead, but often included restrictions on the use of galvanized metals (a source of cadmium) and certain alloys (a source of chromium, nickel, or high manganese).

Through information collected through site visits and additional queries of large foundries that are anticipated to be major sources of HAP emissions, we have determined that scrap selection and inspection is an integral part of foundry operations needed to ensure the quality (chemistry) of the cast parts. Although some of the foundries visited or queried did not have a written scrap selection plan and did not indicate scrap selection as a work practice used to reduce air emissions, these foundries generally purchased specific grades of scrap and typically included specifications on the scrap (such as ''no oil'' and/or ''no lead'') on their purchase requisitions. Furthermore, these foundries routinely inspected incoming scrap shipments and rejected scrap shipments that did not meet their quality requirements.

It is difficult to establish specific emissions reductions achieved by these scrap selection and inspection programs. First, nearly all foundries implement some sort of formal or informal scrap selection and inspection program (to maintain product quality) so it is difficult to assess what the baseline emissions might be without the scrap selection and inspection program. Second, these scrap selection and inspection programs are used in conjunction with other air emissions control technologies used to reduce emissions from the melting furnace and pouring, cooling, and shakeout line exhaust vent streams. The emissions reductions specifically attributable to the scrap selection and inspection program are impossible to separate out. Nonetheless, it is clear that any reduction in HAP content or HAP precursors entering the metal casting department will tend to reduce the emissions of HAP metals and organics from the metal casting department's emissions sources.

While a scrap selection and inspection program is expected to reduce HAP emissions, they cannot be expected to eliminate all HAP elements or precursors in the scrap. First, scrap loads are generally large (at least at major source iron and steel foundries) and difficult to inspect. A load of scrap may contain thousands of different pieces, and some scrap may be shredded and bundled. Visual inspections are only able to identify obvious off-specification materials that are on the top of a load. Second, some of the HAP elements are desirable components in the scrap iron and steel which contribute to the overall chemistry of the product and provide valuable properties in the cast metal (*e.g.*, manganese and chromium.) Third, even undesirable HAP metals cannot be eliminated from the cast iron and steel as they are trace components in the scrap iron and steel which cannot be separated. For example, all cast iron contains trace amounts of lead (typically 0.5 to 4 percent). As such, a load of scrap meeting a ''no lead'' scrap specification does not mean that the scrap is lead-free—only that the scrap is free of lead components (*e.g.*, batteries or wheel weights).

As a scrap selection and inspection program can be reasonably expected to reduce HAP emissions from the metal casting department and since over 6 percent (the median of the top 12 percent) of the foundries employ a scrap selection and inspection program that limits the amount of organic impurities (HAP precursors) and HAP metals in their scrap, we have determined that the MACT floor for existing sources is the work practice of scrap selection and inspection to limit the amount of organic impurities and HAP metals in the scrap used by the metal casting department of the foundry.

Considering the practical limitations discussed above, we believe that scrap specifications with specific numeric limits on HAP concentrations cannot be established. A visual inspection program cannot distinguish the trace lead content of the scrap iron and steel parts contained in a load of scrap. The ultimate chemistry of a load of scrap cannot be accurately assessed until after the metal is melted (which is too late to reduce HAP emissions). Additionally, we cannot establish that one scrap selection and inspection program that limits or restricts both organic impurities and HAP metals in the scrap provides higher emissions reductions than an alternative scrap selection and inspection program that limits or restricts both organic impurities and HAP metals. Therefore, the MACT floor for new sources is the same as the MACT floor for existing sources, which is the work practice of a scrap selection and inspection program that specifically addresses methods for reducing the amount of organic impurities and HAP metals in the scrap used by the metal casting department of the foundry.

We could identify no other practical pollution prevention method to reduce HAP emissions from the metal casting department based on alternative scrap specifications. Therefore, no emissions reduction options beyond the MACT floor were considered for the scrap selection and inspection program.

In summary, we are proposing a pollution prevention work practice standard as a component of MACT for both new and existing foundries to limit both organic and metal HAP emissions throughout the metal casting department. This standard would require facilities to develop and operate according to written specifications and procedures for the selection and inspection of the scrap iron that would limit the amount of organic impurities and HAP metals in the scrap used by the metal casting department of the foundry.

The scrap selection and inspection requirements being proposed are intended to ensure that facilities make a reasonable effort to limit the amount of organic impurities and HAP metals in the scrap they process and are based on our understanding of what the best performing facilities are currently doing. A few examples of the types of specifications that we believe are appropriate include bans on lead components (*i.e.*, lead batteries, lead pipe, and lead fittings), and that oils and other liquids be drained. We do not believe that limits on chromium or manganese content are appropriate because these elements are required in the cast iron and steel parts. We specifically request comment on the feasibility of implementing the proposed scrap selection and inspection requirements and whether or not the proposed requirements accurately reflect the practices at the best performing facilities.

Cupolas

A cupola is a vertical cylindrical shaft furnace used to melt iron and steel scrap through combustion of the coke in a forced upward flow of heated air. Virtually all emissions from a cupola are contained in the flow of air exiting the stack of the furnace, which contains organic compounds, CO and PM. The organic compounds, which arise from incomplete combustion of coke and impurities such as oil and grease in the furnace charge, include traces of organic HAP such as acetophenone and pyrene. The PM contains HAP metals such as lead and manganese that are impurities in the scrap. The organic compounds and CO are destroyed by combustion, which may occur spontaneously but is typically initiated by an afterburner located downstream from the charge. The PM are typically controlled by either a fabric filter (baghouse) or a wet scrubber.

Cupolas are used to produce molten iron. Because the coke used to fuel the cupola increases the carbon content of the molten metal, cupolas cannot be used to produce molten steel (which requires less than 1 percent carbon content). Unlike other melting furnaces, cupolas produce a continuous supply of molten metal, and they typically have much higher melting capacities than other furnace types.

A substantial body of information is available on the types, configurations, and operating conditions of the pollution control devices applied across the iron and steel foundry source category. This information was collected through our comprehensive survey of known iron and steel foundries conducted in 1998. From this survey, detailed data are available for 595 iron and steel foundries which provided survey responses. This survey indicates that 143 cupolas are operated in the U.S.

MACT for organic HAP emissions. The primary method for reducing organic HAP emissions from cupolas is an afterburner, which is used on 104 of the 143 existing cupolas. Afterburners are installed primarily to combust CO, a byproduct of the furnace operation, but also act to incinerate any organic compounds present. A typical cupola exhaust will contain CO at levels of 10 percent or higher.

The afterburner itself is a relatively simple device consisting of a cylindrical refractory-lined chamber equipped with burners for ignition and sufficiently sized to provide appropriate residence time to achieve complete combustion. Cupola afterburners are typically operated at an ignition temperature of 1,300 °F or higher to combust the CO in the cupola exhaust stream. This temperature is the minimum temperature need to oxidize CO to carbon dioxide. Given that thermal destruction of most organic compounds occurs at 1,200 °F or below,[1] we believe that organic HAP are effectively controlled by an afterburner that effectively oxidizes CO.

To confirm the effectiveness of an afterburner applied to an iron and steel foundry cupola, we conducted source tests on two cupolas, one equipped with an afterburner followed by a baghouse, and another equipped with an afterburner followed by a venturi scrubber. Three sampling runs were made in one test and four in the other. Test methods used were EPA Method 23, Determination of Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans (PCDD/PCDF) From Stationary Sources, and SW–846 Methods 0010 (sampling) and 8270 (analysis), which are applicable to the determination of semivolatile principal organic hazardous compounds from incineration systems.

Results of the Method 23 tests showed that measured amounts of PCDD/PCDF were very low and highly variable. In six of the seven runs, concentrations of at least some of the fractions or species analyzed were below the quantitative limits. Within this limitation, total PCDD/PCDF adjusted for the 2,3,7,8-TCDD Toxic Equivalency Factors (TEF) were 1.8 to 5.5 nanograms per dry standard cubic meter (ng/dscm) at 7 percent oxygen in one test, 0.17 to 0.85 ng/dscm in the other. The constituent that was consistently measured in the highest quantifiable levels adjusted by the TEF was the pentachlorinated dibenzofuran fraction, which varied from 1.0 to 3.0 ng/dscm in one test, and 0.07 to 0.40 ng/dscm in the other.

Results of SW–846 Methods 0010/8270 also showed very low and highly variable concentrations. Of the 70 compounds analyzed, only 20 were detected in the first test, 25 in the second. Only acetophenone in the first test and acetophenone and pyrene in the second test were detected at levels above the quantitative limits in all runs. The maximum concentration of acetophenone varied from less than 1 to less than 2 parts per billion by volume (ppbv). The maximum concentration of pyrene measured was 0.070 ppbv. The maximum mass emissions rates for both tests were 0.0011 and 0.00013 pounds per hour for acetophenone and pyrene, respectively. These emissions test data suggest that organic HAP emissions from well-controlled cupolas are at or below the detection limits of current EPA methods. It is clear from the data that afterburners are effective in reducing organic HAP emissions.

In selecting the MACT floor for organic HAP control from cupolas, we considered the feasibility of an emissions limit for one or more HAP organic compounds. The two tests that we conducted, as discussed above, are the only organic HAP emissions data available from cupolas. We believe the test data are too limited to determine the variability and achievability of an emissions limit for individual organic HAP compounds.

We believe CO is an appropriate surrogate for organic HAP emissions from cupolas. As discussed previously, the combustion conditions required to oxidize CO generally exceed the conditions necessary to combust organic HAP compounds. As such, effective control of CO will ensure effective control of organic HAP emissions. However, evaluation of organic HAP emissions from similar exhaust streams in other source categories indicate that reduction of the CO concentration below a few hundred ppmv does not necessarily correlate to additional organic HAP emissions reductions. This is because organic HAP destruction occurs more readily than CO oxidation and because emissions of certain organic HAP such as formaldehyde tend to increase when a combustion device is used to reduce CO concentration. This phenomena is believed to be caused by additional natural gas consumption needed to achieve these very low CO concentrations in the exhaust stream. For these reasons, we believe that CO is a good surrogate for organic HAP at concentrations above several hundred ppmv. However, available data suggest that organic HAP emissions do not continue to decrease when CO concentrations fall below a few hundred ppmv.

We have CO emissions data from 17 cupolas. We also examined State requirements for cupolas as they relate to organic HAP emissions limitations. Illinois, Indiana, Michigan, Ohio and Wisconsin are all States that contain a large number of iron and steel foundries. Each of these States have standards that relate to cupola emissions which require the use of an afterburner. The Illinois standard requires that gases are burned in a direct flame afterburner so that the resulting concentration of CO in such gases is less than or equal to 200 ppmv corrected to 50 percent excess air for cupolas with melting rates of greater than five tons per hour. The Ohio and Wisconsin standards both require afterburning at 1,300 °F for 0.3 seconds or greater. The Michigan standard requires cupolas with melting rates of 20 or more tons per hour be equipped with an afterburner control system, or equivalent, which reduces the CO emissions from the ferrous cupola by 90 percent. The Indiana standard simply requires cupolas with melting rates of 10 or more tons per hour be burned in a direct-flame afterburner or boiler. These standards clearly indicate that afterburning is the preferred control measure for organic HAP from cupolas.

These State standards are intended to control CO emissions from cupolas either by limiting outlet CO concentration, requiring a minimum CO destruction efficiency, or establishing incinerator operating conditions targeted to achieve CO destruction. Of

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[1] Air Pollution Engineering Manual. Ed. by A.J. Buonicore and W.T. Davis. Van Nostrand Reinhold, New York, 1992. Page 59.

these State standards, we believe the 200 ppmv limit is the most stringent (*i.e.*, requires the greatest CO destruction efficiency) and, therefore, the most effective in organic HAP emissions reductions. And as stated above, further reductions in CO concentration are not expected to result in further organic HAP emissions reductions.

We determined the MACT floor for new and existing cupola furnaces by ranking the furnaces for which we have emissions information based on the estimated emissions limitation achieved for that furnace. We have emissions information from the comprehensive survey of known iron and steel foundries for 143 cupolas. Two types of emissions information was used to determine the MACT floor—source test data, and engineering design parameters including afterburner control efficiency and outlet CO concentration design values.

Where we had CO emissions source test data for a furnace, we used the emissions data to estimate the emissions limitation achieved for that furnace. We have credible emissions source test data for 13 cupola afterburners controlling 17 cupolas. Each test is comprised of at least three EPA Method 10 sampling runs of approximately 1 hour in duration.

While we believe each emissions source test gives a good indication of the level of control achieved by the control device during the time of the emissions test, we do not believe a single emissions source test can be used as an estimate of the long term emissions limitation achieved for that source due to normal variations in process and control device performance and other factors, such as the inherent imprecision of sampling and analysis, which cannot be controlled. We believe that the MACT floor performance level must be achievable under the most adverse circumstances which can reasonably be expected to recur. As such, the MACT floor performance limit must include a consideration for the variability inherent in the process operations and the control device performance. Therefore, we used a statistical method to estimate the emissions limitation achieved by a furnace when emissions source test data were available. For each furnace where emissions source test data were available, the emissions limitation achieved for that furnace was estimated at the 95th percentile outlet CO concentration using a one-sided z-statistic test (*i.e.*, the emissions limitation which the furnace is estimated to be able to achieve 95 percent of the time). We evaluated several options to estimate the standard deviation that is needed to perform the z-statistic test. We decided not to estimate the standard deviation for each furnace based on the available emissions data for just that furnace since most furnaces only have three data points to use in estimating the standard deviation, one data point for each run in a three run emissions source test. Instead, we calculated a relative standard deviation (RSD) for each test and then averaged the RSD to provide our best estimate of the variability of the test data. We estimated an average RSD of 0.5 based on a pooling of all of the available emissions source test data. We believe this method adequately accounts for the normal variability in emissions source test data and provides a reasonable estimate of the long term emissions limitation achieved by a furnace.

When emissions source test data were not available for a furnace, we estimated the emissions limitation achieved by that furnace based on other emissions information including afterburner control efficiency and outlet CO concentration design values. These data were used to estimate the emission reduction limitation achieved for the remaining 126 cupolas where we did not have stack test emissions data.

Additional information on the ranking of the furnaces used to determine the MACT floor, including the data used, details of the statistical analysis performed, and the estimated emissions limitation achieved for each furnace, is available in the docket for the proposed rule.

We have interpreted the MACT floor for existing sources (*i.e.*, the average emissions limitation achieved by the best performing 12 percent of existing sources) to be the performance achieved by the median source of the top 12 percent best performing sources, which would be the 6th percentile unit. As we have emissions information on 143 cupola sources, the 6th percentile would be the 9th best performing unit (143 × 0.06 = 8.6). Based on our ranking of the emissions limitation achieved by the existing cupola afterburners, we determined that the MACT floor for organic HAP control at existing sources is a CO emissions concentration of 200 ppmv. Based on available emissions test data, we believe that existing sources can achieve an emissions limitation of 200 ppmv using a well-designed and operated afterburner to control emissions.

For new sources, the MACT floor is the emissions control that is achieved in practice by the best-controlled similar source. Based on our ranking, the best-controlled similar source has achieved a CO emissions limitation of 20 ppmv. However, evaluation of organic HAP emissions from similar exhaust streams in other source categories indicate that reduction of the CO concentration below a few hundred ppmv does not necessarily correlate to additional organic HAP emissions reductions. This is because organic HAP destruction occurs more readily than CO oxidation, and because emissions of certain organic HAP such as formaldehyde tend to increase due to the significant increase in natural gas consumption, which results in formaldehyde emissions, needed to achieve these very low CO concentrations in the exhaust stream. We believe a CO concentration of 200 ppmv is a good indicator of proper destruction of organic HAP. However, we do not believe that further reduction in CO concentrations will result in additional organic HAP emissions reduction beyond that achieved by an afterburner operated to meet a 200 ppmv CO concentration limit. Therefore, we established the MACT floor for organic HAP emissions from new sources as a CO emissions limit of 200 ppmv.

Next, we evaluated regulatory options that were more stringent than the MACT floor (beyond-the-floor) options. We could not identify any technically feasible options that can reduce organic HAP emissions below the level of the new source MACT floor of 200 ppmv. Therefore, the proposed MACT standards are based on the MACT floor performance limits for new and existing sources. For existing and new sources, the MACT standard for organic HAP emissions is a CO emissions limit of 200 ppmv.

MACT for HAP metal emissions. Metal HAP emissions from cupolas are controlled by baghouses, venturi scrubbers, and electrostatic precipitators (ESP). Based on industry survey data available for 143 cupolas in the iron and steel foundries source category, there are 58 cupolas (40 percent) controlled by baghouses, 76 (53 percent) controlled by venturi scrubbers, 1 (1 percent) controlled by an ESP, and 9 (6 percent) that are uncontrolled for metal HAP.

We have very limited metal HAP emissions data. Specifically, the only data on metal HAP emissions from cupolas include two source tests we conducted on two cupolas: one controlled by a baghouse, and the other controlled by a venturi scrubber. The two source tests demonstrate that a baghouse achieves lower HAP metal emissions than a venturi scrubber. Concentrations of lead and manganese, the two HAP metals found to be present in the highest concentrations, were substantially lower in the baghouse exhaust gas than in the wet scrubber exhaust gas. The average lead concentration measured was 42 micrograms per cubic meter (μg/dscm) from the baghouse, and 240 μg/dscm from the scrubber. The average manganese concentration was 21 μg/dscm from the baghouse, and 1,570 μg/dscm from the scrubber. While these data are useful in demonstrating that baghouses do achieve greater control of metal HAP emissions than venturi scrubbers, they are inadequate for the purpose of establishing a specific emissions standard (or standards) for metal HAP.

We also have emissions data for PM from source tests conducted on 36 cupolas: 12 controlled by baghouses, 23 controlled by venturi scrubbers, and 1 controlled by an ESP. For metal HAP compounds, we believe PM to be a reasonable surrogate. The metal compounds of concern are in fact a component of the PM contained in the cupola exhaust. As a result, effective control of cupola PM emissions will also result in effective control of HAP metals. Because emissions data for PM are available, and because PM can reasonably serve as a surrogate for metal HAP from cupolas, we elected to establish PM limits to control metal HAP emissions from cupolas.

We also looked at existing State PM emissions limitations and discovered that they are much more lenient than actual emissions.[2] Therefore, we believe that PM emissions limitations that are specified in air regulations and facility operating permits applicable to iron and steel foundries cannot function as a reasonable proxy for actual emissions and, as such, are not appropriate for establishing the MACT floor for metal HAP or for PM as a surrogate of metal HAP.

We determined the MACT floor for new and existing cupola furnaces by ranking the furnaces for which we have emissions information based on the estimated emissions limitation achieved for that furnace. We have emissions information from the comprehensive survey of known iron and steel foundries for 143 cupolas. Two types of emissions information was used to determine the MACT floor—source test data, and engineering design parameters including control type and outlet PM concentration design values.

Where we had emissions source test data for a furnace, we used the emissions data to estimate the emissions limitation achieved for that furnace. We have credible emissions source test data for 36 cupolas including 12 controlled by baghouses, 23 controlled by venturi scrubbers, and 1 controlled by an ESP. Each test is comprised of at least three EPA Method 5 sampling runs of approximately 1 hour in duration. We were careful to include only the data representing the Method 5 PM (*i.e.*, ''front half'' PM catch), as some foundries reported both front and back half PM catches.

While we believe each emissions source test gives a good indication of the level of control achieved by the control device during the time of the emissions test, we do not believe a single emissions source test can be used as an estimate of the long term emissions limitation achieved for that source due to normal variations in process and control device performance and other factors, such as the inherent imprecision of sampling and analysis, which cannot be controlled. We believe that the MACT floor performance level must be achievable ''under the most adverse circumstances which can reasonably be expected to recur.'' As such, the MACT floor performance limit must include a consideration for the variability inherent in the process operations and the control device performance.

Therefore, we used a statistical method to estimate the emissions limitation achieved by a furnace when emissions source test data were available. For each furnace where emissions source test data were available, the emissions limitation achieved for that furnace was estimated at the 95th percentile outlet PM concentration using a one-sided z-statistic test (*i.e.*, the emissions limitation which the furnace is estimated to be able to achieve 95 percent of the time.) We evaluated several options to estimate the standard deviation that is needed to perform the z-statistic test. We decided not to estimate the standard deviation for each furnace based on the available emissions data for just that furnace since most furnaces only have three data points to use in estimating the standard deviation, one data point for each run in a three run emissions source test. We also decided not to estimate the standard deviation for a furnace based on just the data available for that furnace type because we have very limited information on electric arc furnaces, and because the standard deviation estimates the three types of furnaces were very similar. An analysis of variance was performed on the data and there was no statistically significant difference in the standard deviation estimates for the three furnace types. Ultimately, we estimated an average RSD of 0.4 based on a pooling of all of the available emissions source test data for all furnaces types controlled by baghouses. Note that data on venturi scrubbers and ESP were not used in estimating the RSD because the available emissions source test data clearly demonstrated that the furnaces controlled with these devices were not among the best performing 12 percent of sources. We believe this method adequately accounts for the normal variability in emissions source test data and provides a reasonable estimate of the long term emissions limitation achieved by a furnace. Additional information on the statistical analysis used to estimate the emissions limitation achieved by a furnace, including the data used and the complete ranking of furnaces, is available in the docket for the proposed rule.

When emissions source test data were not available, we estimated the emissions limitation achieved by that furnace based on other emissions information including control type and outlet PM concentration design values. These data were used to estimate the emission reduction limitation achieved for the remaining 107 cupolas where we did not have stack test emissions data.

Additional information on the ranking of the furnaces used to determine the MACT floor, including the data used, details of the statistical analysis performed, and the estimated emissions limitation achieved for each furnace, is available in the docket for the proposed rule.

We have interpreted the MACT floor for existing sources (*i.e.*, the average emissions limitation achieved by the best performing 12 percent of existing sources) to be the performance achieved by the median source of the top 12 percent best performing sources, which would be the 6th percentile unit. It is reasonable to use the median to represent the emissions reductions achieved by the top performing units because the median represents the emissions reductions achieved by an actual facility and, therefore, is representative of the what can be achieved with the emissions controls used at that facility. As we have emissions information on 143 cupola sources, the 6th percentile would be the 9th best performing units (143 x 0.06 =

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[2] For example, Indiana, Michigan, and Wisconsin are States containing a large number of iron and steel foundries. These states have PM concentration limits for cupolas of 0.08 gr/dscf or higher. By contrast, exhaust gas emissions from 27 of the 34 cupolas for which we have data show measured PM concentrations of 0.07 gr/dscf or lower. Also, the average PM concentrations from all 12 of the cupolas with baghouses were 0.005 gr/dscf or lower.

8.6). Based on our ranking of the emissions limitation achieved by the existing cupola furnaces, we determined that the MACT floor for metal HAP control at existing sources is a PM emissions concentration of 0.005 gr/dscf. Based on available emissions test data, we believe that existing sources can achieve an emissions limitation of 0.005 gr/dscf using a well-designed and operated baghouse to control emissions.

For new sources, the MACT floor is the emissions control that is achieved in practice by the best-controlled similar source. Based on our ranking, the best-controlled similar source achieves an emissions limitation of 0.001 gr/dscf. Two cupolas were identified that have achieved average outlet PM concentrations of 0.001 gr/dscf. Both of these cupola systems employ a novel pulse-jet baghouse with horizontally supported bags (referred to as a horizontal baghouse) that exhibited significantly better performance, based on available emissions source test data, than any of the traditionally-designed (vertically hanging bag) baghouses. In addition, one of the two facilities was designed with a vendor guaranteed performance level of 0.001 gr/dscf, and five emissions source tests have been conducted on this baghouse demonstrating that it is able to achieve a PM concentration of 0.001 gr/dscf. Therefore, the MACT floor for metal HAP control at new sources is determined to be an average PM concentration of 0.001 gr/dscf or less.

Next, we evaluated regulatory options that were more stringent than the MACT floor (beyond-the-floor) options. We could not identify any technically feasible options that can reduce metal HAP emissions below the level of the new source MACT floor of 0.001 gr/dscf. For existing sources, we evaluated the option of requiring existing sources to meet the new source MACT floor of 0.001 gr/dscf. Based on the available emissions source test data, it is likely that existing sources would have to install and operate a horizontal baghouse in order to achieve an emissions limit of 0.001 gr/dscf. Since only two furnaces are currently equipped with horizontal baghouses, the rest of the existing sources would have to remove any existing controls (including traditional baghouses) and replace them with horizontal baghouses. We estimated the incremental annualized cost of requiring all existing sources to meet a 0.001 gr/dscf standard over the MACT floor level of 0.005 gr/dscf at $6.3 million dollars per year. We estimated the additional HAP emissions reduction that would be achieved at 13 tpy. Therefore, the additional cost per ton of additional HAP removed is $480,000 per ton of HAP emissions reduced for the beyond-the-floor alternative. We rejected the beyond-the-floor control option because of its high incremental costs per ton of HAP removed.

The proposed MACT standards are based on the MACT floor performance limits for new and existing sources. For existing sources, the MACT standard for cupolas is an average PM concentration of 0.005 gr/dscf or less. For new sources, the proposed MACT standard for cupolas is an average PM concentration of 0.001 gr/dscf or less.

Electric Induction Furnaces and Scrap Preheaters

An electric induction furnace is a vessel in which forms of iron and steel, such as scrap and foundry returns, are melted though resistance heating by an electric current. The current is induced in the metal charge by passing an alternating current through a coil that surrounds either the charge (the coreless electric induction furnace) or a pool of molten metal at the bottom of the vessel (the channel electric induction furnace). An electric induction furnace operates in batch mode, an operating cycle consisting of charging, melting, backcharging (adding a second load of charge after the first load has melted, which is optional), and tapping.

One major characteristic of melting operations using an electric induction furnace is that scrap feed for an electric induction furnace is commonly preheated prior to charging to the furnace. When used, preheating is almost universally effected by direct exposure of the scrap metal to a gas flame. Scrap preheaters are used primarily to eliminate volatile substances, including water, that may vaporize suddenly and cause an explosion if added to a molten charge or heel in the furnace. Scrap preheaters are also used because the cost of initial scrap heating with a gas flame (up to approximately 800 °F) is less costly than heating with electricity. Scrap preheaters are used solely for electric induction furnaces. Where used, scrap preheaters are considered to be an integral part of the electric induction furnace metal melting operation, and they generally share a common PM control device with the electric induction furnace. Therefore, we have included scrap preheaters in the evaluation of electric induction furnace control requirements.

Another significant characteristic of electric induction furnaces is that they typically have low melting rates and are generally used at smaller iron and steel foundries. From the comprehensive survey of iron and steel foundries, there are 1,394 electric induction furnaces at the 595 iron and steel foundries that provided survey responses. Although there are almost ten times more electric induction furnaces than cupolas, the total amount of metal melted nationwide using electric induction furnaces is only about 65 percent of the metal melted in cupolas. The median size electric induction furnace has a melting capacity of 1 ton/hr, and 95 percent of all electric induction furnaces at iron and steel foundries have melting capacities under 10 tons/hr. Predominately, electric induction furnaces are used at small foundries or for small-production specialty-metal castings (*e.g.*, high alloy iron castings) at larger foundries. Emissions from electric induction furnaces are generally low and primarily consist of PM and metal fumes.

MACT for organic HAP emissions. Electric induction furnaces are not considered to be a significant source of organic HAP emissions, primarily due to safety concerns with adding volatile substances to the furnace. To avoid explosion hazards, tramp materials such as oil and grease that are commonly present in scrap are removed either by the use of a scrap preheater, by cleaning and drying the scrap on-site, or are eliminated by purchasing only pre-cleaned or ingot scrap. As such, organic HAP emissions from electric induction furnaces are negligible and establishing a limit would not result in measurable emissions reductions. Therefore, we are not proposing an emissions limit regulating organic HAP emissions from electric induction furnaces.

Scrap preheaters are a potential source of organic HAP due to the volatilization and incomplete combustion of oil and grease that may be present in the scrap. Direct flame heating is used for most of the 177 scrap preheaters operated at iron and steel foundries. This method is anticipated to effect a reduction in organic HAP by combusting most of the organic materials that may be present in the scrap. A second method of control is afterburning of exhaust gases, which is used for 12 scrap preheaters at two foundries. Six of the scrap preheaters for which afterburning is used are at one foundry that preheats scrap in vessels that are so large that the flame may not penetrate the entire charge, thus allowing some organic tramp materials to be volatilized and escape without being combusted.

We do not have actual organic HAP emissions data; neither do we have data on emissions that can function as a surrogate for organic HAP. Therefore, we cannot use scrap preheater emissions data to directly calculate an emissions limit for organic HAP from scrap preheaters. We do have significant data on the methods currently used at scrap preheaters that reduce organic HAP emissions and well-established information on the performance and effectiveness of these methods, and we can use these data to estimate the level of control that these operations currently achieve.

Afterburning is used at 12 (6.8 percent) of the 177 scrap preheaters, and these scrap preheaters are located at three iron and steel foundries (6 scrap preheaters at each of 2 foundries). As these afterburners are used in conjunction with direct flame preheaters, it is reasonable to conclude that these systems achieve the greatest organic HAP emissions reductions compared to scrap preheaters operated without any additional control systems. Because more than 6 percent (*i.e.*, greater than the median of the top 12 percent) of the scrap preheaters are equipped with afterburners, the MACT floor is represented by the performance achieved by scrap preheater afterburners.

Without additional data to characterize the organic HAP removal performance of scrap preheater afterburners, we relied on our extensive experience with, and knowledge of, the capabilities of thermal incinerators at destroying organic emissions. Because afterburners are thermal incinerators, it is reasonable to conclude that the performance of scrap preheater afterburners is comparable to the performance of thermal incinerators generally. We have over 20 years of experience in evaluating the performance of thermal incinerators on a variety of organic emissions sources. Based on our experience, we have identified a well-established presumption that a well-designed and operated thermal incinerator or afterburner is capable of achieving a 98 percent reduction or an outlet concentration of 20 ppmv of VOC. There is no reason to believe that there is anything about the thermal incinerators used in conjunction with scrap preheaters that would result in any poorer or more efficient HAP reduction performance.

We believe that VOC is a reasonable surrogate for organic HAP emissions from scrap preheaters because organic HAP emissions are a significant component of the VOC emissions. Furthermore, effective control of VOC emissions will result in effective control of organic HAP emissions. Unlike the emissions from cupolas, which are high in CO content due to the incomplete combustion of coke, CO is not a good surrogate for organic HAP emissions from scrap preheaters. Scrap preheater emissions are already low in CO content because the preheaters use natural gas as fuel and operate with excess oxygen. Therefore, we selected VOC as the surrogate for organic HAP emissions from scrap preheaters.

We have determined that afterburners represent the MACT floor control for scrap preheaters. We believe that the performance of these scrap preheater afterburners is comparable to the performance of thermal incinerators on other organic emissions sources, and that VOC is a reasonable surrogate for organic HAP emissions from scrap preheaters. Accordingly, we have established the existing source MACT floor for organic HAP emissions from scrap preheaters as a 98 percent reduction or an outlet concentration of 20 ppmv of VOC.

We do not know of any control option that would result in lower organic HAP emissions than can be achieved by afterburning. As such, the MACT floor for new sources is the same as the MACT floor for existing sources. Therefore, the proposed MACT standard for both existing and new scrap preheaters is a VOC reduction of 98 percent or greater, or an outlet concentration of 20 ppmv if a 98 percent reduction would result in an outlet concentration below 20 ppmv. Because we do not have emissions data from scrap preheaters that directly or indirectly measure organic HAP, we specifically request comment on the proposed performance limits for organic HAP emissions from scrap preheaters.

We believe this emissions limit is appropriate and achievable by scrap preheaters equipped with afterburners. Because the direct flame used by some scrap preheaters can itself function as a thermal incinerator, we believe that most scrap preheaters units that employ direct flame preheating will be able to meet this limit without the application of afterburners.

MACT for metal HAP emissions. Both electric induction furnaces and scrap preheaters are sources of metal HAP. As discussed earlier, reduction of metal HAP emissions is accomplished by PM control since the metal HAP of concern are primarily contained in the particulate emissions. Baghouses, along with a few cartridge filters, are the devices most commonly used for PM controls on the 1,394 electric induction furnaces operated at iron and steel foundries. Baghouses and cartridge filters (or fabric filters) are used for controlling melting operations for 388 electric induction furnaces (28 percent), wet scrubbers are used for 21 electric induction furnaces (1.5 percent), and cyclones are used for 2 electric induction furnaces (0.1 percent). Electric induction furnaces also have the potential to emit PM during charging and tapping operations. These operations are generally controlled by the same control device used to control melting operation emissions. As such, fabric filters also dominate the charging and tapping emissions controls. Charging is controlled by fabric filters for 358 electric induction furnaces (26 percent) and tapping is controlled by fabric filters for 309 electric induction furnaces (22 percent). Over 70 percent of electric induction furnaces (961) do not use PM controls for any phase of operation.

Of the 177 scrap preheaters used at iron and steel foundries, 64 have baghouse controls for the discharging phase of operation; 23 of the 64 use the same controls for heating, and 25 of the 64 use the same controls for loading. Other controls used for PM are cyclones (used for 11 scrap preheaters) and wet scrubbers (two scrap preheaters). Approximately half of the scrap preheaters do not use controls for any phase of operation. Of the 64 scrap preheaters that are controlled by baghouses, 59 are employed in conjunction with electric induction furnaces that are also equipped with baghouses. Of those 59 scrap preheaters, 43 are controlled by the same baghouses as their associated electric induction furnace. We are proposing a single MACT limit for both electric induction furnaces and scrap preheaters because PM emissions from scrap preheaters are typically controlled with the same control device used to control the PM emissions from their associated electric induction furnace.

Data for actual emissions of HAP metals are available from only one electric induction furnace. These data are insufficient to characterize HAP emissions from iron and steel foundries. However, as we explained earlier, we believe PM to be a reasonable surrogate for HAP metal compounds for electric induction furnaces and scrap preheater/electric induction furnace systems. The metal HAP compounds of concern are in fact a component of the PM contained in the scrap preheater and electric induction furnace exhaust. As a result, effective control of PM emissions will also result in effective control of HAP metals. Outlet PM concentration data are available for 19 fabric filters (17 baghouses and 2 cartridge filters) used to control emissions from 57 electric induction furnaces and 16 scrap preheaters, 1 venturi scrubber on 2 electric induction furnaces, 1 cyclone on 2 electric induction furnaces, and 7 uncontrolled electric induction furnaces. Based on the relative availability of PM versus HAP metal emissions data and based on the nature of the metal HAP emissions (being particulate in nature), we elected to use PM as a surrogate for metal HAP emissions in establishing the MACT floor.

We also looked at Federally-enforceable emissions limitations as a possible surrogate for actual electric induction furnace and scrap preheater HAP emissions data. However, the State limitations are much more lenient than actual emissions and cannot serve as a proxy for the level of performance that such units actually achieve.[3]

We determined the MACT floor for new and existing electric induction furnaces and scrap preheaters by ranking the furnaces for which we have emissions information based on the estimated emissions limitation achieved for that furnace. We have emissions information from the comprehensive survey of known iron and steel foundries for 1,394 electric induction furnaces and scrap preheater/electric induction furnace systems. Two types of emissions information was used to determine the MACT floor—source test data, and engineering design parameters including control type and outlet PM concentration design values.

As with cupola furnaces, where we had emissions source test data for a furnace, we used the emissions data to estimate the emissions limitation achieved for that furnace. We have credible emissions source test data for 57 electric induction furnaces controlled by 19 fabric filters (17 baghouses and 2 cartridge filters), 2 electric induction furnaces controlled by venturi scrubbers, 2 electric induction furnaces controlled by cyclones, and 7 uncontrolled electric induction furnaces. Each test is comprised of at least three EPA Method 5 runs (except two tests at one foundry that employed EPA Method 17) with sampling runs of approximately 1 hour in duration. As discussed earlier, the MACT floor performance limit must include a consideration for the variability inherent in the process operations and the control device performance. Therefore, we used a statistical method to estimate the emissions limitation achieved by a furnace when emissions source test data were available. For each furnace where emissions source test data were available, the emissions limitation achieved for that furnace was estimated at the upper 95th percentile outlet PM concentration using a one-sided z-statistic test (*i.e.*, the emissions limitation which the furnace is estimated to be able to achieve 95 percent of the time.) We believe this method adequately accounts for the normal variability in emissions source test data and provides a reasonable estimate of the emissions limitation achieved by a furnace. Additional information on the statistical analysis used to estimate the emissions limitation achieved by a furnace, including the data used and the complete ranking of furnaces, is available in the docket for the proposed rule.

When emissions source test data were not available, we estimated the emissions limitation achieved by that furnace based on other emissions information from the detailed survey including control type, outlet PM concentration design values, and design PM removal efficiencies. These data were used to estimate the emission reduction limitation achieved for the remaining 1,337 electric induction furnaces and scrap preheaters where we did not have stack test emissions data.

Additional information on the ranking of the sources used to determine the MACT floor, including the data used, details of the statistical analysis performed, and the estimated emissions limitation achieved for each furnace, is available in the docket for the proposed rule.

We have interpreted the MACT floor for existing sources (*i.e.,* the average emissions limitation achieved by the best performing 12 percent of existing sources) to be the performance achieved by the median source of the top 12 percent best performing sources, which would be the 6th percentile unit. Again, it is reasonable to use the median to represent the emissions reductions achieved by the top performing units because the median represents the emissions reductions achieved by an actual facility and, therefore, is representative of the what can be achieved with the emissions controls used at that facility. As there is emissions information on 1,394 electric induction furnaces and scrap preheater/electric induction furnace sources, the 6th percentile would be represented by the 84th best performing units (1,394 × 0.06 = 83.6). Based on our ranking of the emissions limitation achieved by the existing electric induction furnaces and scrap preheaters/electric induction furnaces, we determined that the MACT floor for metal HAP control at existing sources is a PM emissions concentration of 0.005 gr/dscf. We believe that existing sources can achieve an emissions limitation of 0.005 gr/dscf using a well-designed and operated baghouse to control emissions.

For new sources, the MACT floor is the emissions control that is achieved in practice by the best-controlled similar source. Based on our ranking, the best-controlled similar source achieves an emissions limitation of 0.001 gr/dscf. This source actually employs a three stage control system: a baghouse (positive pressure, shaker, polyester, air-to-cloth ratio of 3 ft/min), followed by a set of cartridge filters, followed by high efficiency particulate arrester (HEPA) filters. There are also several traditional baghouse units that are achieving this performance level, and these units span the range of potential electric induction furnaces and scrap preheater control configurations. Furthermore, as discussed earlier, we believe baghouse technologies exist that can effectively meet this performance level, and we believe this baghouse technology can be applied to electric induction furnace and scrap preheater emissions sources. Based on the available information, the MACT floor performance level for new electric induction furnaces and scrap preheaters emissions sources is determined to be an average PM concentration of 0.001 gr/dscf or less.

Next we evaluated regulatory options that were more stringent than the MACT floor (beyond-the-floor) options. We could not identify any technically feasible options that can reduce metal HAP emissions below the level of the new source MACT floor of 0.001 gr/dscf. For existing sources, we evaluated the option of requiring existing sources to meet a more stringent limit, including the new source MACT floor of 0.001 gr/dscf. However, we believe that a more stringent limit is not justified for existing electric induction furnace and scrap preheater emissions sources because many units that could currently meet the existing source MACT floor would need to purchase new baghouse control systems and remove and dispose of their existing baghouses. The incremental cost per ton of HAP removed for a 0.001 gr/dscf emissions limit for existing electric induction furnace and scrap preheater sources is roughly $400,000 to $500,000 per ton of HAP metal reduced.

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[3] Wisconsin, Indiana, Ohio, Illinois, and Alabama have PM emissions limits that apply to melting furnace and general foundry operations. In these States, PM emissions limits are 0.05 gr/dscf or higher. In contrast, measured PM concentration in electric induction furnace baghouse offgases are generally less than 0.005 gr/dscf.

Therefore, the proposed MACT standards for electric induction furnaces and scrap preheaters are based on the MACT floor performance limits for new and existing sources. For existing sources, the MACT standard for electric induction furnaces and scrap preheaters is an average PM concentration of 0.005 gr/dscf. For new sources, the MACT standard for electric induction furnaces and scrap preheaters is an average PM concentration of 0.001 gr/dscf.

Electric Arc Furnaces

An electric arc furnace is a vessel in which forms of iron and steel such as scrap and foundry returns are melted through resistance heating by an electric current. The current flows through the arcs formed between electrodes (that are slowly lowered into the furnace) and the surface of the metal and also through the metal between the arc paths. Like an electric induction furnace, an electric arc furnace operates in batch mode; an operating cycle consists of charging the furnace, melting the charge, backcharging (which is optional), and tapping the molten metal.

Electric arc furnaces are primarily used in the steel foundry industry with limited applications at iron foundries. Based on the information collected through our comprehensive survey of iron foundries, 81 iron and steel foundries (out of 595 respondents) reported using electric arc furnaces for their melting operations. These 83 iron and steel foundries operate a total of 163 melting electric arc furnaces.

MACT for organic HAP emissions. We have no organic HAP specific emissions data for electric arc furnaces. However, electric arc furnaces are not anticipated to be a significant organic HAP emissions source. Total hydrocarbon concentrations measured in the exhaust stream show very low organic concentrations (less than 1 ppmv). Small amounts of organic HAP emissions may arise from electric arc furnaces due to the vaporization or partial combustion of contaminant oils and greases that may be present in the scrap. Implementation of a scrap selection and inspection program that limits the amount of organic impurities in the scrap used, which has previously been determined to be a part of the MACT floor for the metal casting department of the foundry, should minimize the potential for organic emissions from the electric arc furnace. Furthermore, it is likely that most trace organic materials present in the scrap after scrap selection and inspection will be pyrolyzed in the electric arc furnace due to the heat associated with the melting operation. Thus, we believe that organic HAP emissions from electric arc furnaces are negligible, and that the performance of these units with respect to organic HAP can not be measurably improved.

Moreover, no iron and steel foundry operates an emissions control system that would further reduce the organic HAP emissions, if any exist, from the electric arc furnace exhaust stream. Because no units currently reduce organic HAP emissions from electric arc furnaces in the iron and steel foundry industry, the MACT floor for organic HAP from electric arc furnaces (for both new and existing sources) would be no reduction in emissions. Because the organic concentrations are already so low, no technically feasible control technologies can be identified that could reduce the organic emissions from electric arc furnaces. Therefore, aside from the scrap selection and inspection requirements, no organic HAP emissions standards are proposed for electric arc furnaces.

MACT for metal HAP emissions. The PM emissions from electric arc furnaces contain metal HAP such as lead and manganese that are trace components in the scrap metal. The metal HAP emissions are reduced primarily by PM control. Baghouses, the only means used for controlling PM emissions for electric arc furnaces, are employed for 81 charging/ backcharging, 160 melting, and 62 tapping operations (of the 163 electric arc furnaces operated at iron and steel foundries).

The MACT floor cannot be determined from actual emissions of HAP because no HAP emissions data are available. However, as stated earlier, we believe PM to be a reasonable surrogate for HAP metal compounds. Effective control of PM emissions will also result in effective control of HAP metals.

We also looked at State limits or permit conditions as a possible surrogate for actual electric arc furnace emissions data. However, the State limits and permit conditions are much more lenient than actual emissions.[4]

We determined the MACT floor for new and existing electric arc furnaces by ranking the furnaces for which we have emissions information based on the estimated emissions limitation achieved for that furnace. We have emissions information from the comprehensive survey of known iron and steel foundries for 163 electric arc furnaces. Two types of emissions information was used to determine the MACT floor—source test data, and engineering design parameters including control type and outlet PM concentration design values.

As with the other furnace types, where we had emissions source test data for a furnace, we used the emissions data to estimate the emissions limitation achieved for that furnace. Outlet PM concentration data are available for ten baghouses that are used to control the emissions from 23 electric arc furnaces operated by iron and steel foundries. As discussed earlier, the MACT floor performance limit must include a consideration for the variability inherent in the process operations and the control device performance. Therefore, we used a statistical method to estimate the emissions limitation achieved by a furnace when emissions source test data were available. For each furnace where emissions source test data were available, the emissions limitation achieved for that furnace was estimated at the upper 95th percentile outlet PM concentration using a one-sided z-statistic test (*i.e.*, the emissions limitation which the furnace is estimated to be able to achieve 95 percent of the time.) As stated earlier, we believe this method adequately accounts for the normal variability in emissions source test data and provides a reasonable estimate of the emissions limitation achieved by a furnace.

When emissions source test data were not available, we estimated the emissions limitation achieved by that furnace based on other emissions information obtained from the detailed survey including control type, outlet PM concentration design values, and design PM removal efficiencies. These data were used to estimate the emission reduction limitation achieved for the remaining 140 electric arc furnaces where we did not have stack test emissions data.

Additional information on the ranking of the sources used to determine the MACT floor, including the data used, details of the statistical analysis performed, and the estimated emissions limitation achieved for each furnace, is available in the docket for the proposed rule.

We have interpreted the MACT floor for existing sources (*i.e.*, the average emissions limitation achieved by the best performing 12 percent of existing sources) to be the performance achieved by the median source of the top 12 percent best performing sources, which would be the 6th percentile unit. Again, it is reasonable to use the median to represent the emissions reductions

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[4] Wisconsin, Indiana, Ohio, Illinois, and Alabama have PM emissions limits that apply to melting furnace and general foundry operations. Exhaust gas concentration limits are 0.05 gr/dscf or higher. In contrast, measured PM concentration in electric arc furnace baghouse offgases are generally less than 0.005 gr/dscf.

achieved by the top performing units because the median represents the emissions reductions achieved by an actual facility and, therefore, is representative of the what can be achieved with the emissions controls used at that facility. As there is emissions information on 163 EAF sources, the 6th percentile would be represented by the 10th best performing unit (163 × 0.06 = 10). Based on our ranking of the emissions limitation achieved by the existing electric arc furnaces, we determined that the MACT floor for metal HAP control at existing electric arc furnace sources is a PM emissions concentration of 0.005 gr/dscf. We believe that existing sources can achieve a PM emissions limitation of 0.005 gr/dscf using a well-designed and operated baghouse to control emissions.

For new sources, the MACT floor is the emissions control that is achieved in practice by the best-controlled similar source. Based on our ranking, the best-controlled electric arc furnace achieves an emissions limitation of 0.001 gr/dscf. Unlike the top performing cupola or electric induction furnace control system, there does not appear to be a technological reason why this baghouse has superior performance. This baghouse is a negative-pressure shaker-type baghouse serving one furnace. One other baghouse (a positive-pressure shaker-type baghouse serving two furnaces) also appears to meet this performance limit. Positive-pressure baghouses are notoriously difficult to test and there are potential concerns about dilution air, which is often used to maintain optimal baghouse operating temperatures. However, the source test on this baghouse appears to have been rigorously performed using EPA Method 5D. The baghouse has seven compartments and seven exhaust stacks. Each exhaust stack was traversed, with 12 traverse points per stack, for each of the three runs. Thus, 96 traverse points were sampled for each run. With this many traverse points, a relatively large gas sample volume was collected, affording quantifiable PM catches even at the low concentrations observed. A second source test was performed on this unit and it again achieved an average outlet concentration 0.001 gr/dscf or less.

In addition, we believe that other available technology (*i.e.*, a horizontal baghouse as discussed in the cupola section) also can consistently meet an emissions limitation of 0.001 gr/dscf, and that this technology can also be applied for the control of electric arc furnace emissions. Based on the available information, the MACT floor performance level for new electric arc furnaces is determined to be an average PM concentration of 0.001 gr/dscf or less.

It is possible that there may be process differences that account for the low emissions achieved by some electric arc furnaces that may be grounds for further sub-categorization. We request comments and solicit supporting data on whether there are process related differences that would justify further sub-categorization of electric arc furnaces. All comments and data received will be considered in forming the final rule requirements.

Next, we evaluated regulatory options that were more stringent than the MACT floor (beyond the floor) options. We could not identify any technically feasible options that can reduce metal HAP emissions below the level of the new source MACT floor of 0.001 gr/dscf. For existing sources, we evaluated the option of requiring existing sources to meet a more stringent limit, including new source MACT floor of 0.001 gr/dscf. However, we believe that a more stringent limit is not justified for existing electric arc furnace emissions sources because many units that could currently meet the existing source MACT floor would need to purchase new baghouse control systems and remove and dispose of their existing baghouses. The incremental cost per ton of HAP removed for a 0.001 gr/dscf emissions limit for existing electric arc furnace sources is roughly $400,000 to $500,000 per ton of HAP metal reduced.

In summary, the metal HAP MACT standard for electric arc furnaces at existing sources is an average PM concentration of 0.005 gr/dscf or less. For new sources, the MACT standard for electric arc furnaces is an average PM concentration of 0.001 gr/dscf or less. These proposed MACT standards are based on the MACT floor performance limits for new and existing sources.

Pouring Areas and Pouring, Cooling, and Shakeout Lines

As described earlier in this preamble, after the iron and steel is melted, the molten metal is poured into molds that contain open cavities in the shape of the part being cast. The majority of molds are made of sand that contain prescribed amounts of clay and moisture (green sand) or chemical additives that help the sand retain the desired shape of the cast part. Molds may also be made of tempered metal (iron or steel) that are filled by gravity (permanent molds) or by centrifugal force (centrifugal casting). Some systems use polystyrene or other low density plastic (foam) patterns and pack sand around the patterns. This type of casting operation is referred to as expendable pattern casting or the lost foam process since the plastic pattern is volatilized (and/or pyrolyzed) by the molten metal as the castings are poured; expendable pattern casting is generally used for complex, close-tolerance castings.

There are two basic configurations for pouring, cooling and shakeout. The most common configuration is automated or pallet lines that transfer the mold to and from a fixed location (the ''pouring station'') where the molten metal is poured into molds. The molds are then transported to a conveyor or separate cooling area where the molds are allowed to cool until the cast part has sufficiently hardened so that it can be removed from the mold. The cast parts are removed from the molds at the shakeout station, which is typically a vibrating grate or conveyor that breaks apart the sand molds. This configuration is referred to as pouring, cooling, and shakeout lines.

The second configuration employs stationary molds (such as pit or floor molding), and the molten metal is transported to and from the molds using portable pouring ladles. The metal is poured and the molds are then allowed to cool in-place (*i.e.*, in the ''pouring area''). The molds may then be transported to a separate shakeout area or more commonly shakeout may be performed in the pouring area. Shakeout for these stationary molds is generally accomplished manually (with sledge hammers) or using back hoes or similar devices to break apart the molds and retrieve the cast part.

Based on the differences in the operation of these systems, we elected to subcategorize pouring, cooling, and shakeout operations into two subcategories—pouring, cooling, and shakeout lines; and pouring areas. Pouring, cooling, and shakeout lines use pouring stations and the molds are transported to and from the pouring station. Cooling and shakeout then occurs in a separate area within the facility. These pouring, cooling, and shakeout lines are often automated systems and are typically used for cast parts the size of automotive engine blocks or smaller. Pouring areas have molds that remain stationary during pouring and cooling (and typically shakeout). Pouring areas are commonly used to make large cast parts (*e.g.*, construction equipment) where it is difficult to move the molds after pouring due to the size of the molds employed. Based on the industry survey data, iron and steel foundries operate 1,317 pouring, cooling, and shakeout lines (*e.g.*, automated or pallet lines that have fixed pouring stations) and 435 pouring areas (*e.g.*, floor or pit molds).

MACT for organic HAP emissions. Organic HAP are emitted from pouring areas and pouring, cooling, and shakeout lines when chemicals in sand molds and cores are vaporized or pyrolyzed by the heat of the molten metal. The most common control for organic HAP is ignition of mold offgas. Ignition typically occurs spontaneously in automated pouring, cooling, and shakeout lines, while manual ignition of mold vents is standard practice for floor and pit molding (*i.e.*, pouring areas). After several minutes (roughly 5 to 10 minutes depending on the size of the mold and castings), the rate of gaseous release from the molds eventually subsides to the point that a flame cannot be supported by the mold vents. At this point, the flame goes out but the molds can continue to smolder and emit organic HAP as they continue to cool. Ignition of mold vents is believed to effectively reduce organic emissions immediately after pouring when the release of organic vapor from the molds is the highest.

In addition to mold vent ignition, three foundries operate control systems that further reduce organic HAP emissions from the pouring, cooling, and shakeout lines. One iron and steel foundry is equipped with a thermal oxidizer operated on one of its two pouring and cooling lines (the thermal oxidizer is not used to control emissions from this pouring and cooling line's shakeout station). Operators of the foundry installed the thermal oxidizer to meet State permit limits on the VOC emissions from this line. Two iron and steel foundries operate carbon adsorption systems for their pouring, cooling, and shakeout lines. At one foundry, the carbon adsorption system is reported to control pouring, cooling and shakeout operations for the one pouring, cooling, and shakeout line at the foundry. At the second foundry, the carbon adsorption system is used to control one of two cooling lines and both shakeout stations for the two pouring, cooling, and shakeout lines operated at the foundry. Both of the carbon adsorption systems were designed and installed to reduce odor by 90 percent. No additional organic HAP emissions controls (beyond mold vent ignition) are used for any pouring areas.

In addition to these control measures, some studies are currently investigating pollution prevention measures for reducing pouring, cooling, and shakeout organic HAP emissions by reducing certain additives in green sand or chemical binder formulations. The limitations to binder formulations proposed as part of the standard for mold and core making lines may also reduce organic HAP emissions from the pouring, cooling, and shakeout lines; however, no numerical limit can be assigned to these pollution prevention techniques. These systems may be used to comply with the proposed standard for new sources, but these pollution prevention techniques are only in the investigation stages and cannot be characterized as proven or commercially available techniques. Consequently, we do not consider such regulatory alternatives available for purposes of establishing emissions limits for these sources.

Only limited data on organic HAP or VOC emissions from pouring, cooling, and shakeout lines are available, and the data that are available are not adequate for establishing an emissions limit based on actual emissions. Therefore, we have determined the MACT floor for organic HAP from pouring, cooling, and shakeout lines and pouring areas based on our assessment of the effectiveness of the controls used on pouring, cooling, and shakeout lines and pouring areas at existing foundries.

Pouring, cooling, and shakeout lines. Most pouring, cooling, and shakeout lines (well over 12 percent) control organic HAP by either spontaneous ignition or manual ignition of offgas from mold vents immediately after pouring. While pouring, cooling, and shakeout lines equipped with a thermal oxidizer or carbon adsorption system achieve greater control of organic HAP emissions than lines using ignition of mold vent offgas alone, very few existing units use these control methods, and they do not constitute part of the MACT floor for existing sources. Thus, ignition of mold vent offgas represents the organic HAP MACT floor control for existing pouring, cooling, and shakeout lines.

We do not believe it is feasible to establish an emissions standard representative of the emissions limitation achieved by ignition of mold vent offgas. We do not have adequate emissions data to characterize the emissions reductions achieved by mold vent ignition. Nor can we identify any information upon which we could reasonably rely on to estimate the performance of mold vent ignition in order to establish an emissions limit. Moreover, since these emissions are not captured or conveyed to a stack, it is not reasonable to establish a numeric emissions limitation. Therefore, we are proposing a work practice requirement to ensure ignition of the offgas from the mold vents immediately after pouring as the MACT floor for pouring, cooling, and shakeout lines.

For new source MACT on pouring, cooling, and shakeout lines, we examined the pouring, cooling, and shakeout lines that are equipped with a thermal oxidizer or a carbon adsorption system. No data are available to compare the emissions limitation achieved by these pouring, cooling, and shakeout line versus pouring, cooling, and shakeout lines that only use ignition of mold vent offgas. However, since these control systems are used in conjunction with mold vent ignition, and since we know that ignition alone leaves substantial HAP emissions uncontrolled (*i.e.*, after the flame goes out), and we know that these additional technologies typically are efficient at reducing organic HAP, we believe that these systems provide more effective organic HAP emissions reductions than the use of mold vent ignition alone. No HAP or VOC emissions data exist for the carbon adsorption systems, so we are unable to determine which of the two types of control devices (thermal oxidizer or carbon adsorption system) provide the greatest reduction in organic HAP emissions.

The pouring, cooling, and shakeout lines that employ these additional control systems appear to be pouring, cooling, and shakeout lines that have unusually high VOC emissions potential. These foundries employ chemically bonded molds or use significant amounts of chemically bonded cores per ton of metal poured. As such, these foundries are expected to have much higher VOC and organic HAP emissions from their pouring, cooling, and shakeout lines than most foundries.

Data for VOC and HAP emissions were available for ten pouring, cooling, and shakeout lines at two foundries. These foundries operate green sand pouring, cooling, and shakeout lines with chemically-bonded cores (core sand to metal ratio of approximately 0.1 to 1). These pouring, cooling, and shakeout lines exhibited VOC concentrations of 0.4 to 18 ppmv (as propane). Data for the foundry operating a thermal oxidizer indicate VOC concentrations in excess of 100 ppmv.

Data for VOC and HAP emissions are also available for several bench-scale testing operations. Since the actual concentrations measured for these bench-scale units should be similar to full-scale production units, these data indicate the organic HAP emissions comprise roughly 65 percent of the VOC emissions arising from pouring, cooling, and shakeout lines. Thus, we believe that VOC is an appropriate surrogate for organic HAP emissions from pouring, cooling, and shakeout lines.

At the low organic concentrations found in most pouring, cooling, and shakeout lines, the destruction efficiency of a thermal oxidizer and the removal efficiency of a carbon adsorption system is greatly reduced. Based on the available VOC emissions data and engineering considerations of these control systems, we believe that both of these control systems are essentially equivalent control systems for reducing organic HAP emissions from pouring, cooling, and shakeout lines. The performance of these systems represents the MACT floor control for new pouring, cooling, and shakeout lines.

Without additional data to characterize the organic HAP removal performance of these systems applied to pouring, cooling, and shakeout lines, we relied on our well-established understanding of the capabilities of thermal incinerators at destroying organic emissions. It is reasonable to conclude that the performance of these control systems for pouring, cooling, and shakeout lines is comparable to the performance of well-designed and operated thermal incinerators and carbon adsorption systems generally. We have over 20 years of experience in evaluating the performance of these control systems on a wide variety of organic emissions sources. Based on our experience with these technologies and the related engineering constraints, we have reasonably concluded that well-designed and operated thermal incinerators or carbon adsorption systems are capable of achieving a 98 percent reduction down to an outlet concentration of 20 ppmv of VOC. We have no reason to expect that there is anything about these technologies used in conjunction with pouring, cooling, and shakeout lines that would result in poorer or more effective HAP reduction performance.

As with scrap preheaters, we believe that VOC is a reasonable surrogate for organic HAP emissions from pouring, cooling, and shakeout lines because the organic HAP is a significant component of the VOC emissions. Furthermore, effective control of VOC emissions will result in effective control of organic HAP emissions. Therefore, we selected VOC as the surrogate for organic HAP emissions from pouring, cooling, and shakeout lines. Accordingly, we have established the new source MACT floor for organic HAP emissions from pouring, cooling, and shakeout lines as a 98 percent reduction, or an outlet concentration of 20 ppmv if a 98 percent reduction would result in an outlet concentration below 20 ppmv.

Next, we evaluated options more stringent than the MACT floor. First we looked for alternatives that are more stringent than the MACT floor for new pouring, cooling, and shakeout lines. However, we do not know of any control option that would result in lower organic HAP emissions than can be achieved by thermal incinerators or carbon adsorption systems. Therefore, the proposed MACT standard for new pouring, cooling, and shakeout lines is a VOC reduction of 98 percent or greater or an outlet VOC concentration of 20 ppmv or less. Because we have very little data about the actual organic HAP performance of these control systems on pouring, cooling, and shakeout lines at iron and steel foundries, we specifically request comment on these performance limits for organic HAP emissions from pouring, cooling, and shakeout lines at new metal casting departments. We believe the new source emissions limit is appropriate and achievable by pouring, cooling, and shakeout lines equipped with thermal incinerators or carbon adsorption systems. It may also be possible for some pouring, cooling, and shakeout lines that use low emitting binder systems or green sand additives to meet this limit using only mold vent ignition.

We also evaluated the option of requiring existing pouring, cooling, and shakeout lines to meet the new source MACT floor of 98 percent reduction or 20 ppmv. The cost per ton of organic HAP removed for this control option will vary for each individual pouring, cooling, and shakeout line. A preliminary analysis was conducted to estimate the control cost for all chemically bonded mold pouring, cooling, and shakeout lines, as these mold lines are the most likely to have VOC emissions of greater than 20 ppmv. Based on this preliminary analysis, the cost of this control option is likely to exceed $25,000 per ton organic HAP emissions reduced. As such, we elected not to require the more stringent limit because application of these control systems to pouring, cooling, and shakeout lines that have exhaust VOC concentrations greater than 20 ppmv does not appear to be cost effective. Although we did not elect to require more stringent control systems for existing pouring, cooling, and shakeout lines at this time, we intend to further refine the cost estimates for these organic HAP emissions control systems for pouring, cooling, and shakeout lines. If the refined analysis indicates that this control option is more cost effective than currently projected, we may require existing pouring, cooling, and shakeout lines to achieve a 98 percent VOC emissions reduction or 20 ppmv VOC concentration (as propane). We specifically invite comment on whether or not a more stringent control requirement for existing pouring, cooling, and shakeout lines is appropriate. We also invite the submission of additional information that may be useful in estimating the cost and effectiveness of these control systems as applied to pouring, cooling, and shakeout lines.

Therefore, we are proposing the work practice of ensuring ignition of the offgas from the mold vents immediately after pouring as MACT for pouring, cooling, and shakeout lines at existing metal casting departments. We are also establishing emissions limitations for organic HAP emissions from pouring, cooling, and shakeout lines as a 98 percent reduction or an outlet concentration of 20 ppmv of VOC as new source MACT for metal casting departments.

Pouring Areas. Most pouring areas (well over 12 percent) control organic HAP by either spontaneous ignition or manual ignition of offgas from mold vents immediately after pouring. In addition, none of the existing pouring areas are equipped with add-on controls. Thus, ignition of mold vent offgas represents the organic HAP MACT floor control for existing and new pouring lines.

As discussed above for pouring, cooling, and shakeout lines, we do not believe it is feasible to establish an emissions standard representative of the emissions limitation achieved by ignition of mold vent offgas (*see* discussion above). Therefore, we are proposing a work practice requirement to ensure ignition of the offgas from the mold vents immediately after pouring as the MACT floor for pouring, cooling, and shakeout lines.

We evaluated potential control systems that may be applicable to reduce organic HAP emissions from pouring areas beyond the level of the MACT floor. As discussed above, thermal incinerators and carbon adsorption systems are generally effective organic HAP emissions control devices, but their effectiveness in reducing emissions becomes very limited at low organic HAP concentrations. Due to the requirements to access the molds in the pouring area (*e.g.,* for pouring, mold vent ignition and manual shakeout), any capture system employed for molding areas must be located some appreciable distance from the molds. Also, as the pouring areas are generally large (large molds or multiple molds in a pouring area), the high ventilation requirements for effective capture of pouring area emissions would necessarily result in very low organic HAP concentrations in the pouring area exhaust stream (likely less than 1 or 2 ppmv). At these low concentrations, the effectiveness of the additional organic HAP emissions controls is very low, and the secondary impacts (energy and other environmental impacts) associated with the capture and control system is significant. As such, we have determined that no effective control system is available to reduce organic HAP emissions from pouring areas beyond the MACT floor control technology (mold vent ignition).

Therefore, we are proposing the work practice of ensuring ignition of the offgas from the mold vents immediately after pouring as MACT for both new and existing pouring areas, based on the MACT floor analysis.

MACT for metal HAP emissions. Metal HAP is emitted from pouring stations and pouring areas as metal fumes escape the molten metal as it is poured into the molds. Once the molten metal is contained within the mold, the potential for metal HAP emissions is greatly reduced due to the very small surface area from which metal HAP can be released. The potential for releases is further reduced as the molten metal cools and hardens. As such, cooling and shakeout do not result in appreciable metal HAP emissions releases from the foundry.

We do not believe we can establish an emissions limit for specific HAP metals because emissions data are very limited for pouring stations and pouring areas. Metal HAP emissions data are available for a pouring station at one foundry, but these data are for uncontrolled emissions and cannot be used to assess the performance of the MACT floor control system. Furthermore, when pouring emissions are controlled, they are typically combined with other emissions sources at the foundry (*e.g.,* melting, cooling, or shakeout operations), which further complicates the development of specific HAP emissions limits.

We believe that PM is an appropriate surrogate for HAP metal emissions from pouring emissions. The metal compounds of concern are in fact a component of the PM contained in the exhaust. As a result, effective control of PM emissions will also result in effective control of HAP metals. Because emissions data for PM are available, and because PM can reasonably serve as a surrogate for metal HAP, we elected to establish PM limits to control metal HAP emissions from pouring stations and pouring areas.

We looked at State limits and permit conditions applied to pouring. The most prevalent type of limit was expressed in lb/hr of PM, and these limits are site specific and vary from plant to plant. A few States, such as Wisconsin and Michigan, have some concentration limits expressed in pounds per 1,000 pounds of exhaust gas (lb/1,000 lb). The limits range from 0.038 to 0.2 lb/1,000 lb, which is roughly equivalent to 0.02 to 0.10 gr/dscf. However, available test data show that the actual performance achieved by pouring control systems is an outlet PM concentration of 0.010 gr/dscf or less. Consequently, State limits or permit conditions cannot function as a reasonable proxy for actual emissions from pouring stations and pouring areas.

Pouring stations. Baghouses are used to control 178 (or 13 percent) of the existing pouring stations and wet scrubbers are used to control 35 (or three percent) of the pouring stations. The majority of pouring stations (1,104 pouring stations or 84 percent) do not control PM (or metal HAP) emissions.

As with melting furnaces, we determined the MACT floor for new and existing by ranking the pouring stations based on the available emissions information. Emissions information was available for 1,317 pouring stations. Again, two types of emissions information was used to determine the MACT floor—source test data, and engineering design parameters including control type and outlet PM concentration design values.

Where we had emissions source test data for a furnace, we used the emissions data to estimate the emissions limitation achieved for that furnace. Outlet EPA Method 5 performance data for PM were available for 11 controlled pouring station vent streams at nine foundries. As discussed earlier, the MACT floor performance limit must include a consideration for the variability inherent in the process operations and the control device performance. Therefore, we used the statistical method discussed earlier to estimate the emissions limitation achieved by a furnace when emissions source test data were available.

When emissions source test data were not available, we estimated the emissions limitation achieved by that furnace based on other emissions information obtained from the detailed survey including control type, outlet PM concentration design values, and design PM removal efficiencies. These data were used to estimate the emission reduction limitation achieved for the remaining 140 electric arc furnaces where we did not have stack test emissions data.

Additional information on the ranking of the sources used to determine the MACT floor, including the data used, details of the statistical analysis performed, and the estimated emissions limitation achieved for each furnace, is available in the docket for the proposed rule.

We again use the 6th percentile unit as the most representative estimate of the average emissions limitation achieved by the best performing 12 percent of existing sources because the 6th percentile points to specific control device and performance limit. The 6th percentile of 1,317 sources is the performance of the 79th best performing unit. Based on our ranking of the emissions limitation achieved by these pouring stations, we determined that the MACT floor for metal HAP control at existing sources is a PM emissions concentration of 0.010 gr/dscf. Based on available emissions test data, we believe that existing sources can achieve an emissions limitation of 0.010 gr/dscf using a well-designed and operated baghouse or wet scrubber to control emissions.

For new sources, the MACT floor is the emissions control that is achieved in practice by the best-controlled similar source. Based on our ranking, the best-controlled pouring station achieves an emissions limitation of 0.002 gr/dscf. There appeared to be no technological reason why the best-performing pouring stations achieved significantly lower PM concentrations than the other control systems in the MACT pool. However, as discussed earlier for melting furnaces, it does appear that technologies exist that can achieve these low outlet PM concentrations. Furthermore, it appears that there are several pouring stations at iron and steel foundries that currently meet a 0.002 gr/dscf emissions limit. Therefore, the MACT floor for metal HAP control for pouring stations at new affected sources is an average PM concentration of 0.002 gr/dscf or less.

Next, we evaluated regulatory options that were more stringent than the MACT floor. One option we evaluated was to require existing pouring areas to meet a 0.002 gr/dscf PM emissions limit. However, this option was rejected because the cost per ton of HAP reduced is expected to exceed $250,000 per ton. We do not know of any other control options that would result in lower emissions than the MACT floor options.

Therefore, the proposed MACT standards for metal HAP are based on the MACT floor performance limits for new and existing sources. For pouring stations at existing sources, the MACT standard is an average PM concentration of 0.010 gr/dscf or less. For pouring stations at new sources, the proposed MACT standard is an average PM concentration of 0.002 gr/dscf or less.

Pouring areas. We have information on 435 pouring areas from the industry survey. Baghouses are used to control 20 (or 4.6 percent) of these pouring areas and wet scrubbers are used to control two (or 0.5 percent) of the pouring areas. A total of 413 (or 95 percent) of the 435 pouring areas do not control pouring emissions.

Only 5 percent of pouring areas employ a capture and control system for pouring emissions. We have interpreted the MACT floor for existing sources to be the performance achieved by the median source of the top 12 percent best performing sources, which would be the 6th percentile unit. We use the 6th percentile unit because it points to a specific control technology and performance limit and more accurately reflects the central tendency in terms of the level of performance achieved by an actual unit. An arithmetic average of the emissions reduction achieved by the top 12 percent of sources for which we have emissions data would not reflect the performance of any actual unit or any actual control technology, and it would reflect a level of emissions performance that the majority of units in the top 12 percent are not currently able to achieve. Consequently, we believe it is more reasonable to use the performance of the median unit to establish the MACT floor. Accordingly, add-on controls are not part of the MACT floor for pouring areas. Because controlling HAP in the input materials is the only other measure that existing facilities use to reduce HAP emissions from these units, the MACT floor for existing units is limited to the metal HAP reduction achieved by the scrap selection and inspection program that was identified as part of the MACT floor for the entire metal casting department.

We based the MACT floor for new pouring areas on the emissions reductions achieved by the best controlled pouring area. A few facilities do capture and control metal HAP emissions from the pouring area. However, we do not have any stack test emissions data for pouring areas. As such, we ranked the available information on pouring area controls based on reported outlet concentration design performance values and the percent removal design value for each control system. Based on our ranking, the best-controlled pouring area achieves an emissions limitation of 0.002 gr/dscf. We believe that this emissions limit is achievable and reasonable. Existing technologies can consistently achieve this level of control. Therefore, the MACT floor for metal HAP control for pouring areas at new affected sources is an average PM concentration of 0.002 gr/dscf or less.

Next, we evaluated regulatory options that were more stringent than the MACT floor. One option we evaluated was to require existing pouring areas to meet a 0.010 gr/dscf PM emissions limit. However, this option was rejected because the cost per ton of HAP reduced is expected to exceed $250,000 per ton. We also evaluated requiring existing pouring stations to meet a 0.002 gr/dscf PM emissions limit. This option was also rejected because the cost per ton of additional HAP removed is estimated to exceed $500,000 per ton.

Therefore, the proposed MACT standards for metal HAP are based on the MACT floor performance limits for new and existing sources. For pouring areas at existing sources, no additional requirements are proposed beyond the scrap selection and inspection requirements identified as a component of MACT for the entire metal casting department. For pouring areas at new sources, the proposed MACT standard is an average PM concentration of 0.002 gr/dscf or less.

E. How Did We Determine the Basis and Level of the Proposed Standards for the Emissions Sources in the Mold and Core Making Department?

Emissions of HAP from mold and core making departments arise from three sources: the catalyst gas exhaust vent (gas cured systems only), curing and storage, and coating.

Catalyst Gas Exhaust Vent

Some mold and core making binder systems use a catalyst gas to cure the chemical binder. The catalyst gas does not react in the process but passes unchanged through the form and is released to the atmosphere unless it is collected and controlled. Of the binder systems that use catalyst gasses, only the phenolic urethane cold box binder system uses a gas that contains a HAP. The phenolic urethane cold box binder system uses triethylamine, a HAP, as the catalyst gas. None of the other catalyst gases used in the iron and steel foundry system are believed to contain HAP. The triethylamine phenolic urethane cold box binder system is one of the dominant binder systems in use at iron and steel foundries, especially at high volume automated production lines, due to the fast curing time of this system.

In establishing MACT for the catalyst gas exhaust vent, we first evaluated the controls used on the existing phenolic urethane cold box mold and core making lines. Of the 469 phenolic urethane cold box mold and core making lines operated by iron and steel foundries, emissions from 335 (71 percent) are controlled by wet scrubbing with acid solution, seven are controlled by incineration methods such as afterburning or regenerative thermal oxidation, four are controlled by condensers, and the remaining lines are uncontrolled.

Acid wet scrubbers are very effective at controlling triethylamine emissions. The triethylamine reacts rapidly and irreversibly in the acid solutions used as the scrubber solution. As expected, the available source test data indicate that acid wet scrubbers are highly effective in controlling triethylamine emissions. We have reliable performance test data for seven acid wet scrubbers at six foundries. Inlet and outlet measurements were conducted across five of the scrubbers, while only outlet measurements were conducted for the sixth acid wet scrubber. Each test consisted of three individual runs. One test was conducted using EPA Method 19, the standard reference method we use for the measurement of organic compound emissions from stationary sources; one test was conducted using both EPA Method 19 (inlet) and the National Institute for Occupational Safety and Health (NIOSH) Method 221 (Outlet); two tests were conducted using NIOSH Method 2010; and no test method was identified for the remaining two tests.

In all but one of the tests, the outlet emissions were lower than the quantitative limit of the sampling and analytical method used. The controlled triethylamine concentrations for the single source test with quantitative triethylamine concentrations in the acid wet scrubber exhaust ranged from 0.29 to 0.34 ppmv. This scrubber experienced the highest inlet triethylamine concentrations (ranging from 209 to 255 ppmv) and achieved an average emissions reduction of 99.8 percent. In the other tests, outlet concentrations were below detection limits, which ranged from less than 0.03 to less than 1.5 ppmv. While the true removal efficiencies cannot be determined because the outlet concentrations were below detection limits, estimating the outlet emissions at one half the detection limit provides removal efficiency estimates ranging from 98 to 99.9 percent.

We have no emissions data on the seven phenolic urethane cold box lines controlled by incineration or condensation. However, based on extensive studies on source types where incinerators have been applied, we have seen that properly designed and operated incinerators are capable of achieving a 98 percent removal efficiency down to an outlet concentration of 20 ppmv. Likewise, our studies have shown that condensers are typically only capable of achieving a removal efficiency of up to 95 percent. Based on this information and the data we have for triethylamine scrubbers, we believe that wet scrubbing is superior to both incinerators and condensers for the purpose of removing triethylamine emissions from the catalyst gas exhaust vent. As acid wet scrubbers are employed at well over 12 percent of the triethylamine phenolic urethane cold box mold and core making lines, the MACT floor for triethylamine control is characterized by the level of control achieved by wet scrubbing with acid solution.

Next we established the emissions limit based on the available emissions data for acid wet scrubbers applied to triethylamine phenolic urethane cold box mold and core making lines. As discussed above, all of the emissions data on the exhaust of the acid wet scrubbers were very low and were for the most part below the detection limit. The EPA Method 18 is the EPA-approved method applicable for determining triethylamine concentrations in the acid wet scrubber exhaust stream. The detection limit for EPA Method 18 is generally considered to be 1 ppmv. Based on the available emissions data and considering the quantitative limit associated with the applicable EPA test method for this emissions source, we select a 1 ppmv triethylamine outlet concentration as the existing source MACT floor level of control.

As no other emissions control device is known that can achieve a higher triethylamine emissions reduction than acid wet scrubbers and considering the quantitative limits associated with the applicable EPA test method for this emissions source, the new source MACT is the same as the existing source MACT, which is a 1 ppmv triethylamine outlet concentration. We believe this emissions limit is achievable by a properly designed and operated acid wet scrubber. For some triethylamine phenolic urethane cold box mold and core making lines, it may also be possible to achieve this emissions limit using a thermal combustion device.

Mold and Core Curing and Storage

Organic HAP emissions arise from evaporation of HAP constituents contained in binder chemical formulations during mold and core curing and storage. These emissions are fugitive in nature and are not subject to capture and control at any iron and steel foundries. Furthermore, no suitable control technology could be identified to reduce the HAP emissions from this source due to the low concentrations of HAP in the fugitive emissions. However, in response to VOC regulations, binder manufacturers are developing and evaluating new binder systems or re-formulations of existing binder systems to reduce VOC emissions. These new binder systems may also reduce HAP content of the binder system, which effects a reduction in the HAP emissions from mold and core curing and storage. Therefore, pollution prevention practices regarding reduced HAP binder formulations were evaluated.

In general, foundries cannot readily switch from one binder system to another because the binder systems are primarily selected based on the required properties and dimensions of the cast part being manufactured. Binder selection must consider the size of the casting (which affects the size and strength requirements of the mold and cores), the complexity of the cast shape and the tolerance requirements on the dimensions of the casting, the metal surface finish requirements of the casting, and the production rate of the foundry. In some cases, different equipment may be required or additional space needed for storage (due to slower cure times). Consequently, it is not feasible for EPA to dictate the type of binder system used at new or existing foundries solely on the basis of the HAP emissions potential of the currently available binder systems. Such a requirement would not only adversely impact the quality of the castings produced, it would also limit the on-going advances in the development of new, low HAP-containing binder systems.

Within a given binder system, there are different chemical formulations of that binder system, some of which may have reduced HAP content. These different formulations are also selected by the foundry based on the quality requirements of the casting, strength requirements of the mold, and curing times (*i.e.*, production rates). Differences in formulations may also be required based on regional or seasonal variations in temperature and humidity for optimum binder performance. Again, it is difficult to prescribe the use of specific low-HAP binder formulations without negatively impacting cast part quality. However, a foundry may more readily use a re-formulated binder system of the same type than to change the type of binder system altogether.

The available binder systems were evaluated based on consultation with binder chemical manufacturers to identify low-HAP formulations. Low-HAP formulations were identified for three binder systems that appear to provide the same performance characteristics as their traditional counterpart while achieving HAP emissions reductions. That is, we believe these low-HAP emitting binder systems can be used to replace their traditional counterparts with no adverse impacts on the production process or the quality of the product. These three systems are: Furan warm box, phenolic urethane cold box, and phenolic urethane nobake.

MACT for furan warm box binder system formulations. Methanol is the only significant HAP emitted from mold and core making lines using traditional formulations of furan warm box. According to industry suppliers, the furan warm box system can be formulated without methanol. A water-based, HAP-free system is used in at least 23 (42 percent) of the 55 furan warm box lines used in iron and steel foundries. We believe that methanol-free systems can readily substitute for other coating systems. Therefore, we are proposing a work practice standard as the MACT floor for both existing and new mold and core making lines using the furan warm box system. The proposed work practice standard requires the use of a furan warm box formulation that does not include methanol as a specific ingredient. The proposed standard for furan warm box mold and core making lines is the work practice of using a chemical formulation which does not contain methanol as a specific ingredient.

MACT for phenolic urethane cold box and phenolic urethane nobake binder system formulation. The phenolic urethane cold box and phenolic urethane nobake systems use solvents that may contain up to 10 percent naphthalene along with lesser amounts of cumene and xylene, all of which are HAP. These solvents are petroleum distillate products. The only emissions reduction practice used for these systems is the use of a formulation with an alternative distillate fraction, termed naphthalene-depleted solvent, that contains a maximum of 3 percent naphthalene and correspondingly lesser amounts of cumene and xylene. Iron and steel foundries employ 439 phenolic urethane cold box lines and 266 phenolic urethane nobake lines. At least three foundries are known to use binder chemicals with a naphthalene-depleted solvent.

Considering the above information, we are establishing a work practice standard as the new source MACT floor for phenolic urethane cold box/ phenolic urethane nobake mold and core making lines. This proposed standard requires the use of a formulation with naphthalene-depleted solvent. Because fewer than 6 percent of the sources currently use naphthalene depleted solvents, the MACT floor for existing sources is the use of the traditional naphthalene solvent, which reflects no reduction in emissions of organic HAP.

In selecting the MACT standard for existing sources, we also examined the costs associated with requiring naphthalene-depleted solvent formulations of phenolic urethane cold box/ phenolic urethane nobake binder systems at existing sources as a beyond-the-floor control option. According to information from industry sources, these solvents are available at a premium of 3 to 5 cents per pound over the price of the regular solvent. Using the 5 cents per pound figure, the price increase relates to a cost of 71 cents per pound of naphthalene reduced in the solvent (from 10 to 3 percent). By our estimate, 9 percent of the naphthalene evaporates during mold or core making; thus, the cost to reduce naphthalene emissions would be $7.94 per pound, or $15,900 per ton.

Our cost estimate is made assuming that enough naphthalene-depleted solvent is available to supply all major source foundries. The phenolic urethane cold box and phenolic urethane nobake binder systems are the primary binder systems used by foundries, especially high production foundries likely to be major sources of HAP emissions. Therefore, the availability of an adequate supply of naphthalene-depleted solvent is a significant concern. The availability question cannot be answered without additional input from the foundry industry and its suppliers and, therefore, we invite comment on this issue.

Based on the tentative assumption that an adequate supply of naphthalene-depleted solvent is available, we propose to establish a work practice standard requiring the use of naphthalene-depleted solvent in all phenolic urethane cold box and phenolic urethane nobake binder formulations for both new and existing mold and core making lines.

MACT for other chemical binder systems. The HAP content of systems other than the furan warm box, phenolic urethane cold box, and phenolic urethane nobake systems cannot be systematically reduced or eliminated because the quality of the cast part or some required feature of the mold or core, such as strength, speed of curing, and shelf life cannot otherwise be maintained. Therefore, the new and existing MACT floors for mold and core making lines using chemical binder systems other than the furan warm box, phenolic urethane cold box, and phenolic urethane nobake systems are no change in formulation, reflecting no reduction in HAP emissions. However, there may be instances where reduced-HAP binder formulations may be suitable for a given foundry's mold and core making line based on the type of castings produced. Additionally, new binder formulations are constantly being developed, and many of these have reduced HAP content. Therefore, we believe that a work practice standard that requires an initial evaluation of available binder systems, and alternative binder formulations to identify applicable binder systems or formulations that reduce HAP emissions are warranted. As proposed, a foundry operator must either adopt a reduced-HAP binder system or provide technical and/or economic rationale as to why the currently available alternative systems are inappropriate for their foundry. The binder system evaluation report is required to be updated each permit renewal period. As this requirement is considered to be beyond the floor, costs may be considered when evaluating alternative binder systems or formulations.

MACT for mold and core coating. The HAP emissions arise during the evaporation of liquid components after application of the coating material. The two emissions reduction measures employed are the light-off procedure and the use of a coating formulation with no HAP in the liquid component (the solid component may contain chromite, for example, but we do not expect this component to be emitted). Although we have no specific data on emissions from the light-off procedure, reductions cannot be greater than those achieved by eliminating HAP from the formulation. Coatings based on water or non-HAP alcohols are used in 1,145 (86 percent) of the 1,335 mold and core making lines. By comparison, 29 lines use methanol and there are 161 lines that use an unidentified alcohol or an unidentified substance that may or may not be a HAP. Although we have no definitive information regarding possible substitutions for these unidentified substances, the predominance of lines that use formulations without HAP strongly suggests that substitutions can be made. Therefore, we are establishing a work practice standard as the MACT floor for HAP emissions from mold and core making lines at existing mold and core coating departments. This standard would require use of coating formulations that do not contain HAP as a specific ingredient in the liquid component. Since no more stringent measure of emissions reductions exist, we choose the work practice of using coating formulations that contain no HAP in the liquid component as a specific ingredient as the standard for both new and existing mold and core making lines. We request comment on the availability and feasibility of coating formulations that contain no HAP in the liquid component for all mold and core coating applications.

F. How Did We Select the Proposed Initial Compliance Requirements?

We selected initial compliance requirements that will:

- Establish compliance with emissions limits,
- Determine operating limits on capture systems and control devices that will be used to demonstrate continuous compliance with emissions limits, and
- Confirm that equipment, materials, and procedures are in place that will provide compliance with work practice standards.

The proposed rule would require a performance test for each emissions source subject to a PM or triethylamine emissions limit to demonstrate initial compliance. Foundries would be required to measure PM using EPA Method 5 (or variations) and triethylamine using Method 18 (40 CFR part 60, appendix A). We would also require that operating limits for parameters relevant to control device performance be determined during the initial compliance test to ensure that the control devices operate properly on a continuing basis. All operating limits must be established during a performance test that demonstrates compliance with the applicable emissions limit. During Method 5 performance tests for PM, operating limits must be established for pressure drop and scrubber water flowrate for wet scrubbers. During Method 18 performance tests for triethylamine, operating limits must be established for scrubbing liquid flowrate and blowdown pH for wet scrubbers or combustion temperature for thermal oxidizers. Operating limits for capture systems would be established in the O&M plan.

Foundries using CEMS would be required to conduct performance evaluations, followed by a performance test comprised of 3 continuous hours of measurements. Operating limits would not apply to control devices equipped with CEMS because emissions would be directly measured.

Initial compliance with the various work practice standards is achieved through submission of written plans, establishment of the practices, and certification of such in the notification of compliance.

G. How Did We Select the Proposed Continuous Compliance Requirements?

We selected continuous compliance requirements that will:

- Periodically confirm compliance with emissions limits through performance testing,
- Verify that control devices are operating in a manner that provides compliance with the emissions limits, and
- Maintain the use of equipment, materials, and procedures that are required to provide compliance with work practice standards.

We chose a periodic performance testing schedule which is consistent with current permit requirements. We consulted with several States on how they were implementing title V permitting requirements for performance tests. In general, performance tests are repeated every 2.5 to 5 years, depending on the size of the source. Consequently, we decided that performance tests should be repeated every 5 years.

We also developed procedures to ensure that control equipment is operating properly on a continuous basis. When baghouses are used, the alarm for the a bag leak detection system must not sound for more than 5 percent of the time in any semiannual reporting period. Wet scrubbers controlling PM emissions must be monitored for pressure drop and scrubber water flowrate, which must not fall below the limits established during the performance test. Wet acid scrubbers used for triethylamine emissions control must be monitored for scrubber liquid flowrate and blowdown pH; the flowrate must not fall below the limit established during the performance test, and the pH must not rise above the limit established during the performance test. For afterburners used for triethylamine emissions control, the combustion zone temperature must not fall below the level determined during the performance test. Foundries would be allowed to select site-specific operating parameters to monitor for capture systems. The proposed rule also includes inspection and maintenance requirements for CPMS.

We also developed procedures to ensure that the work practice standards are met. The scrap specification and inspection program would be verified through written scrap specifications and maintaining appropriate records of the scrap inspections. Mold vent offgas ignition must be routinely verified. All work practice standards regarding limits on the coating and binder formulations for mold and core making would be verified by maintaining appropriate records.

H. How Did We Select the Proposed Notification, Recordkeeping, and Reporting Requirements?

We selected the proposed notification, recordkeeping, and reporting requirements to be consistent with the NESHAP General Provisions (40 CFR part 63, subpart A). These requirements are necessary and sufficient to demonstrate initial and continuous compliance.

IV. 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 we are proposing to require. The primary impact of the PM standards will be to require cupolas that are currently using venturi scrubbers to control emissions more effectively, most likely by replacing the scrubbers with baghouses. We project that these controls would reduce metal HAP emissions by about 120 tpy.

Establishment of a standard of 1 ppmv triethylamine emissions limitation would result in triethylamine emissions reductions of 146 tpy from the two foundries that do not presently control emissions; the VOC limit would result in additional organic HAP emissions reductions of 4 tpy from two foundries that do not presently control these emissions from cupolas. The EPA believes that a requirement for non-HAP coating formulations, methanol-free binder system formulations for furan warm box binder systems, naphthalene-depleted solvents, and reduced-HAP binder system formulations would reduce organic HAP emissions by as much as 790 tpy.

Overall, we expect the proposed standards to reduce HAP emissions by over 900 tpy—a 40 percent reduction from the current level of nationwide HAP emissions from iron and steel foundries. Concurrent with the reduction in HAP emissions, the proposed NESHAP is also expected to reduce PM and VOC emissions by 3,600 tpy.

B. What Are the Cost Impacts?

The nationwide total annualized cost of the proposed rule, including monitoring, recordkeeping, and reporting would be $21.7 million. This cost 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 proposed rule would be $141 million.

The capital costs associated with the proposed 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 which is estimated to cost approximately $110 million. This capital cost estimate 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 2.0 (*i.e.*, the cost of installing a baghouse at an existing facility was estimated to be 2.0 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). We request comments and supporting data on the appropriateness of such a high retrofit cost factor.

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 proposed rule is actually estimated to be less than the cost of operating the current control equipment for cupolas. Therefore, there would be a net savings in the annual operating and maintenance costs for baghouses over venturi scrubbers of roughly $7 million. The nationwide total annual cost (including capital recovery) for complying with the PM emission limit for cupolas is estimated at $2.9 million per year.

The cost impacts would also include:

- The cost of installing and operating baghouses on currently uncontrolled electric induction furnaces;
- The cost of installing and operating baghouses on currently uncontrolled pouring stations;

- The cost of installing and operating triethylamine scrubbers for currently uncontrolled triethylamine cold box mold and core making lines;
- The additional cost of using replacement naphthalene-depleted solvent in sand binder chemicals;
- The cost of installing and operating monitoring equipment (predominantly baghouse leak detectors for PM sources) on melting furnace exhaust streams, pouring, cooling, and shakeout lines, triethylamine scrubbers, and VOC afterburners; 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 proposed rule. The compliance costs associated with the proposed rule are estimated to increase the price of iron and steel castings by less than 0.1 percent with domestic production declining by almost 8,000 tons in aggregate. The analysis also indicates no impact on the market for foundry coke, which is used by cupolas in the production of iron castings.

Through the market impacts described above, the proposed rule would have distributional impacts across producers and consumers of iron and steel castings. Consumers are expected to incur $13.5 million of the overall regulatory burden of $21.7 million because of higher prices and forgone consumption. Domestic producers of iron and steel castings are expected to experience profit losses of $9.2 million due to compliance costs and lower output levels, while foreign producers would experience profit gains of $1 million associated with the higher prices. For more information, consult the economic impact analysis supporting the proposed rule that is available in the docket.

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

The proposed rule would provide positive secondary environmental and energy impacts. Primarily due to the lower energy requirements for operating a baghouse versus a wet scrubber, the proposed rule is projected to reduce annual energy consumption by 130,000 megawatt hours per year. This would lead to reduced nitrogen oxides and sulfur oxides emissions from power plants of roughly 230 tons per year and 490 tons per year, respectively. The replacement of wet scrubbers with baghouses is also responsible for the proposed rule's estimated 14.6 billion gallons per year reduction in water consumption and 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 proposed rule is estimated to be approximately the same as, if not less than, the current solid waste disposal rates.

V. Solicitation of Comments and Public Participation

We seek full public participation in arriving at final decisions and encourage comments on all aspects of this proposal from interested parties. You must submit full supporting data and a detailed analysis with your comments to allow us to make the best use of them. Be sure to direct your comments to Docket ID No. OAR–2002–0034 (see ADDRESSES).

VI. 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.

It has been determined that the proposed rule is not a ''significant regulatory action'' under the terms of Executive Order 12866 and is therefore not subject to OMB review.

B. Paperwork Reduction Act

The information collection requirements in the proposed rule will be submitted for approval to OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* An information collection request (ICR) document has been prepared by EPA (ICR No. 2096.01), and a copy may be obtained from Susan Auby by mail at the Office of Environmental Information, Collection Strategies Division (2822T), U.S. EPA, 1200 Pennsylvania Avenue, NW., Washington, DC 20460, by e-mail at *auby.susan@epa.gov,* or by calling (202) 566–1672. A copy also may be downloaded off the Internet at *http://www.epa.gov/icr.* The information requirements are not effective until OMB approves them.

The information requirements 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. 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 proposed rule would require applicable one-time notifications required by the General Provisions for each affected source. As required by the NESHAP General Provisions, all plants would be required to prepare and operate by a startup, shutdown, and malfunction plan. Plants also would be required to prepare an O&M plan for capture systems and control devices; a scrap selection and inspection plan; and a report on available reduced-HAP binder formulations. Records would be required to demonstrate continuous compliance with the O&M requirements for capture systems and control devices and requirements for monitoring systems. Semiannual compliance reports also are required. These reports would describe any deviation from the standards; any period a continuous monitoring system was ''out-of-control''; or any startup, shutdown, or malfunction event where actions taken to respond were consistent with startup, shutdown, and malfunction plan. If no deviation or other event occurred, only a summary report would be required. Consistent with the General Provisions, if actions taken in response to a startup, shutdown, or malfunction event are not consistent with the plan, an immediate report must be submitted within 2 days of the event with a letter report 7 days later.

The annual public reporting and recordkeeping burden for this collection of information (averaged over the first 3 years after the effective date of the final rule) is estimated to total 26,389 labor hours per year at a total annual cost of $2,884,840 including labor, capital, and operation and maintenance.

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; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to respond to a collection of information; search existing 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 are listed in 40 CFR part 9 and 48 CFR chapter 15.

Comments are requested on the EPA's need for this information, the accuracy of the burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques. Send comments on the ICR to the Director, Collection Strategies Division (2822T), U.S. EPA (2136), 1200 Pennsylvania Avenue, NW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, marked ''Attention: Desk Officer for EPA.'' Include the ICR number in any correspondence. Because OMB is required to make a decision concerning the ICR between 30 and 60 days after December 23, 2002, a comment to OMB is best assured of having its full effect if OMB receives it by January 22, 2003. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

C. Regulatory Flexibility Act (RFA) as Amended by Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601 et seq.

The RFA generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of the proposed 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.

In accordance with the RFA, we conducted an assessment of the proposed rule on small businesses within the iron and steel castings manufacturing industry. 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 $4.7 million in compliance costs, or 22 percent of the total industry compliance costs of $21.7 million. Under the proposed rule, the mean annual compliance cost as a share of sales for small businesses is 0.64 percent, and the median is 0.35 percent, with a range of 0.03 to 2.36 percent. We estimate that four of the 20 small businesses may experience an impact greater than 1 percent of sales, but no small businesses will experience an impact greater than 3 percent of sales. While a few small firms may experience initial impacts greater than 1 percent of sales, no significant impacts on their viability to continue operations and remain profitable are expected. *See* Docket A–2000–34 for more information on the economic analysis.

After considering the economic impacts of today's final rule on small entities, I certify that this action will not have a significant impact on a substantial number of small entities.

Although the proposed rule would not have a significant economic impact on a substantial number of small entities, we have nonetheless worked to minimize the impact of the proposed 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 proposed rule. We continue to be interested in the potential impacts of the proposed rule on small entities and welcome comments on issues related to such impacts.

D. Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Pub. L. 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.

The EPA has determined that the proposed 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. The maximum total annual cost of the proposed rule for any year has been estimated to be $6.8 million. Thus, today's proposed rule is not subject to sections 202 and 205 of the UMRA. In addition, the EPA has determined that the proposed rule contains no regulatory requirements that might significantly or uniquely affect small governments because it contains no requirements that apply to such governments or impose obligations upon them. Therefore, today's proposed rule is not subject to the requirements of section 203 of the UMRA.

E. Executive Order 13132, Federalism

Executive Order 13132, entitled ''Federalism'' (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure ''meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' ''Policies that have federalism implications'' is defined in the Executive Order to include regulations that have ''substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.'' The proposed rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. None of the affected facilities are owned or operated by State governments and the proposed rule would not preempt any State laws that are more stringent. In addition, the proposed rule is required by statute and, if implemented, will not impose any substantial direct compliance costs. Thus, the requirements of section 6 of the Executive Order do not apply to the proposed rule.

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

Executive Order 13175, entitled ''Consultation and Coordination with Indian Tribal Governments (65 FR 67249, November 9, 2000) requires EPA to develop an accountable process to ensure ''meaningful and timely input in the development of regulatory policies on matters that have tribal implications.'' The proposed rule does not have tribal implications, as specified in Executive Order 13175. No tribal governments own or operate iron and steel foundries. The proposed rule is required by statute and will not impose any substantial direct compliance costs. Thus, Executive Order 13175 does not apply to the proposed rule.

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

Executive Order 13045, ''Protection of Children from Environmental Health Risks and Safety Risks'' (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 proposed rule is not subject to Executive Order 13045 because it is based on technology performance and not on health or safety risks.

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

The proposed rule is not subject to Executive Order 13211 (66 FR 28355, May 22, 2001) because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act (NTTAA) of 1995 (Pub. L. No. 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 proposed rule involves technical standards. The EPA proposes in the proposed rule to use EPA Methods 1, 1A, 2, 2A, 2C, 2D, 2F, 2G, 3, 3A, 3B, 4, 5, 5D, and 18 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, and 5D. The search and review results have been documented and are placed in the docket for the proposed rule.

The search for emissions measurement procedures identified 17 voluntary consensus standards applicable to the proposed rule. The EPA determined that 14 of these 17 standards were impractical alternatives to EPA test methods for the purposes of the proposed rule. Therefore, EPA does not propose to adopt these standards today. The reasons for this determination for the 14 methods are in docket for the proposed 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 this proposed 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 proposing to include these three voluntary consensus standards in today's proposal, the EPA will consider the standards when final.

The EPA takes comment on the compliance demonstration requirements in the proposed rule and specifically invites the public to identify potentially-applicable voluntary consensus standards. Commentors should also explain why the proposed rule should adopt these voluntary consensus standards in lieu of or in addition to EPA's standards. Emissions test methods submitted for evaluation should be accompanied with a basis for the recommendation, including method validation data and the procedure used to validate the candidate method (if a method other than Method 301, 40 CFR part 63, appendix A, was used).

Section 63.7732 of the proposed rule lists the EPA test methods for use in emissions tests. Under § 63.8 of the NESHAP General Provisions (40 CFR part 63, subpart A), a source may apply to EPA for permission to use alternative monitoring in place of any of the EPA testing methods.

List of Subjects in 40 CFR Part 63

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

Dated: November 26, 2002.

Christine Todd Whitman,

Administrator.

For the reasons stated in the preamble, title 40, chapter I, part 63 of the CFR is proposed to be amended as follows:

PART 63—[AMENDED]

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

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

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

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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 on the first compliance date that applies to you. Your iron and steel foundry is a major source of HAP 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.

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

(a) This subpart applies to each new or existing affected source at your iron and steel foundry.

(b) Affected sources covered by this subpart are each new or existing metal casting department and each new or existing mold and core making department at your iron and steel foundry.

(c) This subpart covers emissions from each metal melting furnace, scrap preheater, pouring area, pouring station, and pouring, cooling, and shakeout line in a new or existing metal casting department and each mold and core making line and mold and core coating line in a new or existing mold and core making department.

(d) An affected source at your iron and steel foundry is existing if you commenced construction or reconstruction of the affected source on or before December 23, 2003.

(e) An affected source at your iron and steel foundry is new if you commence construction or reconstruction of the affected source 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) For each 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 [3 YEARS AFTER DATE OF PUBLICATION OF THE FINAL RULE IN THE **Federal Register**].

(b) For each new affected source for which its initial startup date is on or before [DATE OF PUBLICATION OF THE FINAL RULE IN THE **Federal Register**], you must comply with each emissions limitation, work practice standard, and operation and maintenance requirement in this subpart that applies to you by [DATE OF PUBLICATION OF THE FINAL RULE IN THE **Federal Register**].

(c) For each new affected source for which its initial startup date is after [DATE OF PUBLICATION OF THE FINAL RULE IN THE **Federal Register**], 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.

(d) 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).

(e) 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 in paragraphs (a)(1) through (8) of this section that applies to you.

(1) You must control emissions of particulate matter from a metal melting furnace or scrap preheater at an existing metal casting department to a level that does not exceed 0.005 grains per dry standard cubic foot (gr/dscf).

(2) You must control emissions of particulate matter from a metal melting furnace or scrap preheater at a new metal casting department to a level that does not exceed 0.001 gr/dscf.

(3) You must control emissions of particulate matter from a pouring station at an existing metal casting department to a level that does not exceed 0.010 gr/dscf.

(4) You must control emissions of particulate matter from a pouring area or pouring station at a new metal casting department to a level that does not exceed 0.002 gr/dscf.

(5) You must control emissions of carbon monoxide from a cupola at a new or existing metal casting department to a level that does not exceed 200 parts per million by volume (ppmv).

(6) You must reduce emissions of volatile organic compounds from a scrap preheater at a new or existing metal casting department by 98 percent by weight or to a level that does not exceed 20 ppmv as propane.

(7) You must reduce emissions of volatile organic compounds from all pouring, cooling, and shakeout lines at a new metal casting department, on a flow-weighted average basis, by 98 percent by weight or to a level that does not exceed 20 ppmv as propane.

(8) You must reduce emissions of triethylamine from a triethylamine cold box mold or core making line at a new or existing mold and core making department to a level that does not exceed 1 ppmv.

(b) You must meet each operating limit in paragraphs (b)(1) through (6) of this section that applies to you.

(1) For each emissions source subject to an emissions limit under paragraph (a) of this section, you must capture and vent emissions through a capture system that maintains a face velocity of at least 200 feet per minute. 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 baghouse applied to emissions from a metal melting furnace, scrap preheater, pouring area or pouring station subject to an emissions limit for particulate matter in paragraphs (a)(1) through (4) of this section such that the alarm on each bag leak detection system does not activate for more than 5 percent of the total operating time in any semiannual reporting period.

(3) 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 particulate matter in paragraphs (a)(1) through (4) of this section such that the 3-hour average pressure drop and scrubber water flowrate does not fall below the minimum levels established during the initial performance test.

(4) You must operate each combustion device applied to emissions from a triethylamine cold box mold or core making line subject to the emissions limit for triethylamine in paragraph (a)(8) of this section, such that the 3-hour average combustion zone temperature does not fall below the minimum level established during the initial performance test.

(5) You must operate each wet acid scrubber applied to emissions from a cold box mold or core making line subject to the emissions limit for triethylamine in paragraph (a)(8) of this section such that:

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

(ii) The 3-hour average pH of the scrubber blowdown does not exceed the maximum level established during the initial performance test.

(c) If you use a control device other than a baghouse, wet 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 particulate matter, total gaseous non-methane organics, volatile organic compounds, or triethylamine to the atmosphere 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 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 metal casting department. A copy of the plan must be kept onsite and readily available to all plant personnel with purchase, selection, or inspection duties. Each plan must include the information specified in paragraphs (a)(1) through (3) of this section.

(1) Specifications for incoming scrap including, but not limited to, restrictions on the amount of free liquids, grease, oils, painted parts, plastic parts, lead components, and galvanized materials. You must provide each scrap vendor a copy of your specifications.

(2) Procedures for visual inspection 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 the best 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 do not meet specifications.

(3) Procedures to ensure that no oily turnings are included in foundry returns used as part of the furnace charge material.

(i) The procedures must include daily visual inspections of the foundry returns to be used as furnace charge.

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

(b) For each pouring, cooling, and shakeout line in an existing metal casting department and each pouring area in a new or existing metal casting department, you must manually ignite the gases from each mold vent that do not ignite automatically.

(c) For each mold or core making line in a new or existing mold and core making department, you must use a coating formulation that does not contain HAP as an ingredient of the liquid component of the formulation.

(d) For each furan warm box mold or core making line in a new or existing mold and core making department, you must use a binder chemical formulation that contains no methanol that is specifically a part of the formulation.

(e) For each phenolic urethane cold box or phenolic urethane nobake mold or core making line in a new or existing mold and core making department, you must use a binder chemical formulation in which the solvents are naphthalene-depleted. Depletion of naphthalene must not be accomplished by substitution of naphthalene with other HAP.

(f) For each mold or core making line in a new or existing mold or core making department other than a furan warm box, phenolic urethane cold box, or phenolic urethane nobake mold or core making line, you must:

(1) Conduct a study to evaluate and identify available reduced-HAP binder formulations for each line; and

(2) Adopt reduced-HAP binder formulations for each line unless you demonstrate in your report that all available alternatives are technically or economically infeasible. If you do not adopt a reduced-HAP binder formulation for a line, you must conduct a study to evaluate and identify available reduced-HAP binder formulations every 5 years (at permit renewal).

(g) As provided in § 63.6(g), you may request to use an alternative to the work practice standards in paragraphs (a) through (f) of this section.

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 affected source, 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). Each plan must contain the elements described in paragraphs (b)(1) through (3) 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 in the capture system before the next scheduled inspection.

(2) Operating limits for each capture system for an emissions source subject to an emissions limit in § 63.7690(a). You must establish the operating limits 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 flowrate through each separately ducted hood, total volumetric flowrate 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 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 particulate matter emissions.

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 affected source in § 63.7683 and the date upon which continuous monitoring systems have been installed and verified operational and any applicable operating limits have been set, 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).

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 within 180 calendar days of the compliance date that is specified in § 63.7683 for your affected source 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 within 30 calendar days after the compliance date that is specified for your affected source in § 63.7683.

(c) If you commenced construction or reconstruction between December 23, 2002 and [DATE OF PUBLICATION OF THE FINAL RULE IN THE **Federal Register**], you must demonstrate initial compliance with either the proposed emissions limit or the promulgated emissions limit no later than [180 CALENDAR DAYS AFTER THE DATE OF PUBLICATION OF THE FINAL RULE IN THE **Federal Register**] 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 [DATE OF PUBLICATION OF THE FINAL RULE IN THE **Federal Register**], 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 [3 YEARS AND 180 CALENDAR DAYS AFTER THE DATE OF PUBLICATION OF THE FINAL RULE IN THE **Federal Register**] 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?

You must conduct subsequent performance tests to demonstrate compliance with all applicable emissions limitations in § 63.7690 for your affected source no less frequently than every 5 years.

§ 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 affected source according to the requirements in § 63.7(e)(1) and the conditions specified in paragraphs (b) through (d) of this section.

(b) To determine compliance with the applicable emissions limit for particulate matter in § 63.7690(a)(1) through (4) for a metal melting furnace, scrap preheater, pouring station, or pouring area, you must follow the test methods and procedures specified in paragraphs (b)(1) through (6) of this section.

(1) Determine the concentration of particulate matter according to the test methods in appendix A to part 60 of this chapter 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 flowrate 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 concentration of particulate matter.

(2) Collect a minimum sample volume of 60 dry standard cubic feet of gas during each particulate matter sampling run. A minimum of three valid test runs are needed to comprise a performance test.

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

(4) For electric arc and electric induction 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 emissions limit in § 63.7690(a)(5) for carbon monoxide from a cupola at a new or existing metal casting department, you must follow the procedures in paragraphs (c)(1) through (3) of this section.

(1) Using the continuous emissions monitoring system (CEMS) required in § 63.7740(e), measure and record the concentration of carbon monoxide for 3 consecutive operating hours. 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.

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

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

(d) To determine compliance with the emissions limit in § 63.7690(a)(6) for volatile organic compound emissions from a scrap preheater at a new or existing metal casting department, or in § 63.7690(a)(7) for volatile organic compound emissions from one or more pouring, cooling, and shakeout lines at a new metal casting department, you must follow the procedures specified in paragraphs (d)(1) through (3) of this section.

(1) Measure and record the concentration of volatile organic compound emissions (as propane) using the CEMS in § 63.7740(f) for 3 consecutive operating hours.

(i) If you elect to meet the percent reduction standard for a scrap preheater, you must measure the concentration of emissions at inlet and outlet of the control device (or the inlet and outlet of the emissions source, if no control device is present) prior to any releases to the atmosphere.

(ii) If you elect to meet the concentration limit of 20 ppmv for a scrap preheater or pouring, cooling, and shakeout line, 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. For two or more exhaust streams from a pouring, cooling, and shakeout line, compute the flow-weighted average concentration for each combination of exhaust streams using Equation 1 of this section:

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

Where;

C_w = Flow-weighted concentration, ppmv (as propane);

C_i = Concentration of volatile organic compounds from exhaust stream ‘‘i,’’ ppmv (as propane);

n = Number of exhaust streams sampled; and

Q_i = Volumetric flowrate of effluent gas from exhaust stream ‘‘i,’’ in dry standard cubic feet per minute.

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

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

(e) To determine compliance with the limit in § 63.7690(a)(8) for a triethylamine cold box mold or core making line, you must follow the test methods and procedures in 40 CFR part 60, appendix A, specified in paragraphs (e)(1) through (5) of this section.

(1) 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.

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

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

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

(5) Method 18 to determine the concentration of triethylamine. The Method 18 sampling option and time must be sufficiently long such that either the triethylamine 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 ⅕ of the applicable emissions limit. In no case shall the sampling time be less than 1 hour.

§ 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), you must establish site-specific operating limits according to the procedures in paragraphs (a)(1) and (5) of this section.

(2) Concurrent with applicable emissions 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).

(3) 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.

(4) Review and record the monitoring data. Identify and explain any times the capture system operated outside the applicable operating limits.

(5) Certify in your performance test report that during all test runs, the capture system maintained a minimum face velocity of 200 feet per minute and the values or settings in your capture system operation and maintenance plan were established.

(b) For each wet scrubber subject to the operating limits in § 63.7690(b)(3) for pressure drop and scrubber water flowrate, you must establish site-specific operating limits according to the procedures specified in paragraphs (b)(1) and (2) of this section.

(1) Using the continuous parameter monitoring systems (CPMS) required in § 63.7740(c), measure and record the pressure drop and scrubber water flowrate in intervals of no more than 15 minutes during each particulate matter test run.

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

(c) For each combustion device applied to emissions from a triethylamine 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 (b)(1) and (2) of this section.

(1) Using the CPMS required in § 63.7740(d), 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 limits in § 63.7690(b)(4) for scrubbing liquid flowrate and pH of the scrubber blowdown, you must establish site-specific operating limits according to the procedures specified in paragraphs (d)(1) and (2) of this section.

(1) Using the CPMS required in § 63.7740(e), measure and record the scrubbing liquid flowrate and the scrubber blowdown pH during each triethylamine sampling run in intervals of no more than 15 minutes.

(2) Compute and record the 3-hour average scrubbing liquid flowrate and average scrubber blowdown pH 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.

§ 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 metal melting furnace or scrap preheater at an existing metal casting department, the average concentration of particulate matter in the exhaust stream, determined according to the performance test procedures in § 63.7732(b), did not exceed 0.005 gr/dscf;

(2) For each metal melting furnace or scrap preheater at a new metal casting department, the average concentration of particulate matter in the exhaust stream, determined according to the performance test procedures in § 63.7732(b), did not exceed 0.001 gr/dscf;

(3) For each pouring station at an existing metal casting department, the average concentration of particulate matter in the exhaust stream, measured according to the performance test procedures in § 63.7732(b), did not exceed 0.010 gr/dscf;

(4) For each pouring area or pouring station at a new metal casting department, the average concentration of particulate matter in the exhaust stream, measured according to the performance test procedures in § 63.7732(b), did not exceed 0.002 gr/dscf;

(5) For each cupola at a new or existing metal casting department:

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

(ii) The 3-hour average concentration of carbon monoxide, measured according to the performance test procedures in § 63.7732(c), did not exceed 200 ppmv.

(6) For each scrap preheater at a new or existing metal casting department:

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

(ii) The 3-hour average concentration of volatile carbon compounds, measured according to the performance test procedures in § 63.7732(d), was reduced by 98 percent, by weight, or did not exceed 20 ppmv as propane.

(7) For each pouring, cooling, and shakeout line at a new metal casting department:

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

(ii) The 3-hour average concentration of volatile organic compounds from a pouring, cooling, and shakeout line, or the flow-weighted 3-hour average concentration of volatile organic compounds from one or more lines, measured according to the performance test procedures in § 63.7732(d), did not exceed 20 ppmv as propane.

(8) For each triethylamine cold box mold or core making line in a new or existing mold and core making department, the 3-hour average concentration of triethylamine, determined according to the performance test procedures in § 63.7732(e), did not exceed 1 ppmv.

(b) You have demonstrated initial compliance with the operational requirements in § 63.7690(b) if:

(1) For each capture system subject to operating limits in § 63.7690(b)(1), you have demonstrated that the face velocity is greater than 200 feet per minute using the procedures in paragraphs (b)(1)(i) or (ii) of this section, and you have established appropriate site-specific operating limits(s) and have a record of the operating parameter data measured during the performance test in accordance with § 63.7733(a).

(i) Calculate the hood face velocity by measuring the flowrate in the duct and the face area of the hood using the procedures in paragraphs (b)(1) (i)(A) through (D) of this section.

(A) Use Method 1 to select an appropriate sampling port location in the duct leading from the hood to the control device.

(B) Use Method 2 to measure the volumetric flowrate in the duct from the hood to the control device.

(C) Determine the face area of the hood by measuring the open area between the emission source and the hood. If the hood has access doors, the face area shall include the open area for the doors when the doors are in the position they are in during normal operation.

(D) Calculate the face velocity by dividing the volumetric flowrate by the total face area of the hood.

(ii) Measure the face velocity directly using the procedures in paragraphs (b)(1)(ii)(A) through (E) of this section.

(A) Measure the face velocity using a propellor anemometer or equivalent device.

(B) The propellor anemometer shall be made of a material of uniform density and shall be properly balanced to optimize performance.

(C) The measurement range of the anemometer shall extend to at least 1000 feet per minute.

(D) A known relationship shall exist between the anemometer signal output and air velocity, and the anemometer must be equipped with a suitable readout system.

(E) Measure the face velocity by placing the anemometer in the plane of the hood opening. If the hood has access doors, measure the face velocity with the doors in the position they are in during normal operation.

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

(3) For each combustion device subject to the operating limit specified in § 63.7690(b)(3) 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).

(4) For each acid wet scrubber subject to the operating limits in § 63.7690(b)(4) for scrubbing liquid flowrate and scrubber blowdown pH, you have established appropriate site-specific operating limits and have a record of the scrubbing liquid flowrate and pH of the scrubbing liquid blowdown measured during the performance test in accordance with § 63.7733(e).

§ 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 work practice standard in § 63.7700, you have demonstrated initial compliance if you have certified in your notification of compliance status that:

(1) You have prepared and submitted a written plan for the selection and inspection of iron and steel scrap to the applicable permitting authority for review according to the requirements in § 63.7700(a) and will meet each of the work practice requirements in the plan.

(2) You will meet each of the work practice requirements in paragraphs (a)(2)(i) through (iv) of this section:

(i) For each pouring area and pouring, cooling, and shakeout line subject to the work practice standard in § 63.7700(b), you meet each work practice requirement for ignition of gases;

(ii) For each mold or core coating line subject to the work practice standard in § 63.7700(c), you meet the ‘‘no HAP’’ requirement for each coating formulation;

(iii) For each furan warm box mold or core making line subject to the work practice standard in § 63.7700(d), you will meet the ‘‘no methanol’’ requirement for each binder chemical formulation; and

(iv) For each phenolic urethane cold box or phenolic urethane nobake mold or core making line subject to the work practice standard in § 63.7700(e), you will meet the ‘‘naphthalene-depleted solvent’’ requirement for each binder chemical formulation.

(3) 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.

(4) For each mold and core coating line (other than furan warm box, phenolic urethane cold box, or phenolic urethane nobake mold or core making lines) subject to the work practice standard in § 63.7700(f), you have demonstrated initial compliance if:

(i) You have certified in your notification of compliance status that you meet the ‘‘reduced-HAP’’ work practice requirement for each binder chemical formulation or that adoption of the reduced-HAP chemical formulation is technically and/or economically infeasible;

(ii) You have prepared and submitted a written study to the applicable permitting authority for review and approval that evaluates and identifies available reduced-HAP binder formulations for each line. If you do not adopt reduced-HAP binder chemical formulations for a line, your report must demonstrate to the satisfaction of the permitting authority that their use is technically and/or economically infeasible; and

(iii) 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.

§ 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) established in your operation and maintenance plan, you have demonstrated initial compliance if you meet the conditions in paragraphs (a)(1) through (3) of this section.

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

(i) You have prepared the capture system operation and maintenance plan according to the requirements of § 63.7710(b), including monthly inspection procedures and detailed descriptions of the operating parameter(s) selected to monitor the capture system; and

(ii) You will operate the capture and collection system at the value or settings established in your operation and maintenance 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.

(3) You have submitted a notification of compliance status according to the requirements in § 63.7750(e), including a copy of the capture system 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 prepared the control device operation and maintenance plan 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) You have submitted a notification of compliance status according to the requirements of § 63.7750(e), including a copy of your operation and maintenance plans for capture systems and control devices.

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) established in your capture system operation and maintenance plan, you must install, operate, and maintain a CPMS according to the requirements in § 63.7741(a) and the requirements in paragraphs (a)(1) through (3) 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 flowrate through each separately ducted hood or the average hourly total volumetric flowrate 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 baghouse subject to the operating limit in § 63.7690(b)(2) for the bag leak detection system alarm, you must at all times monitor the relative change in particulate matter 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 (kneed 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)(3), you must at all times monitor the pressure drop and scrubber water flowrate using CPMS according to the requirements in § 63.7741(c).

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

(e) For each wet acid scrubber subject to the operating limits in § 63.7690(b)(5), you must at all times monitor the scrubbing liquid flowrate and scrubber blowdown pH using CPMS according to the requirements of § 63.7741(e).

(f) For each cupola at a new or existing metal casting department, you must at all times monitor the concentration of carbon monoxide using a CEMS according to the requirements of § 63.7741(g).

(g) For each scrap preheater at a new or existing metal casting department, and each pouring, cooling, and shakeout line at a new metal casting department, you must at all times monitor the concentration of volatile organic compound emissions using a CEMS according to the requirements of § 63.7741(h).

§ 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), 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 flowrate.

(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) For each baghouse subject to the operating limit specified in § 63.7690(b)(2) for the bag leak detection system alarm, you must install, operate, and maintain each bag leak detection system according to the requirements specified 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 system must provide output of relative changes in particulate matter loadings.

(3) The system must be equipped with an alarm that will sound when an increase in relative particulate loadings is detected over a preset level. The alarm must be located such that it can be heard by the appropriate plant personnel.

(4) Each system that works based on the triboelectric effect must be installed, operated, and maintained in a manner consistent with the guidance document, ''Fabric Filter Bag Leak Detection Guidance'' (EPA–454/R–98–015, September 1997). This document is available on the EPA's Technology Transfer Network at *http://www.epa.gov/ttn/emc/cem/tribo.pdf* (Adobe Acrobat version) or *http://www.epa.gov/ttn/emc/cem/tribo.wpd* (WordPerfect version). You may install, operate, and maintain other types of bag leak detection systems but you must install, operate, and maintain these systems, in a manner consistent with the manufacturer's written specifications and recommendations and you must also submit a monitoring plan appropriate for these systems.

(5) To make the initial adjustment of the system, establish the baseline output by adjusting the sensitivity (range) and the averaging period of the device. Then, establish the alarm set points and the alarm delay time.

(6) Following the initial adjustment, do not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time except as detailed in your operation and maintenance plan. Do not increase the sensitivity by more than 100 percent or decrease the sensitivity by more than 50 percent over a 365-day period unless a responsible official certifies, in writing, that the baghouse has been inspected and found to be in good operating condition.

(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)(3), you must install and maintain CPMS to measure and record the pressure drop across the scrubber and scrubber water flowrate according to the requirements specified 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 flowrate, 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 flowrate.

(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)(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 acid wet scrubber subject to the operating limits in § 63.7690(b)(5), you must install and maintain CPMS to measure and record the scrubbing liquid flowrate and the scrubber blowdown pH according to the requirements in paragraphs (e)(1) and (2) of this section.

(1) For each CPMS for scrubbing liquid flowrate, 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 flowrate.

(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.

(2) For each CPMS for scrubber blowdown pH, you must:

(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.

(f) For each CPMS installed on a capture system, wet scrubber, combustion device, or wet acid scrubber that is subject to the operating limits in § 63.7690(b), you must operate the CPMS 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 cupola at a new or existing metal casting department, you must install, operate, and maintain a CEMS to measure and record the concentration of carbon monoxide emissions according to the requirements in paragraphs (g)(1) and (2) of this section.

(1) You must install, operate, and maintain each CEMS according to Performance Specification 4 in 40 CFR part 60, appendix B.

(2) You must conduct a performance evaluation of each CEMS according to the requirements in § 63.8 and Performance Specification 4 in 40 CFR part 60, appendix B.

(h) For each scrap preheater at a new or existing metal casting department and each pouring, cooling, and shakeout line at a new metal casting department, you must install, operate, and maintain a CEMS to measure and record the concentration of volatile organic compound emissions according to the requirements in paragraphs (h)(1) and (2) 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.

(i) You must operate each CEMS according to the requirements specified in paragraphs (i)(1) through (3) of this section.

(1) 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.

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

(3) 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.

(4) 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) For each new or existing affected source, you must demonstrate continuous compliance by:

(1) Maintaining the average concentration of particulate matter from a metal melting furnace or scrap preheater at an existing metal casting department in a concentration at or below 0.005 gr/dscf;

(2) Maintaining the average concentration of particulate matter from a metal melting furnace or scrap preheater at a new metal casting department in a concentration at or below 0.001 gr/dscf;

(3) Maintaining the average concentration of particulate matter from a pouring station at an existing metal casting department in a concentration at or below 0.010 gr/dscf;

(4) Maintaining the average concentration of particulate matter from a pouring station at a new metal casting department in a concentration at or below 0.002 gr/dscf;

(5) Maintaining the 3-hour average concentration of carbon monoxide emissions from a coupla at a new or existing metal casting department in a concentration at or below 200 ppmv and:

(i) 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

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

(6) Maintaining a 98 percent reduction in the 3-hour average concentration of volatile organic compounds from a scrap preheater at a new or existing metal casting department or the 3-hour average in a concentration at or below 20 ppmv as propane and:

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

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

(7) Maintaining a 98 percent reduction in the 3-hour average concentration of volatile organic compounds from one or more pouring, cooling, and shakeout lines at a new metal casting department or maintaining the 3-hour, flow-weighted average concentration of volatile organic compounds from one or more pouring, cooling, and shakeout lines at a new metal casting department in a

concentration at or below 20 ppmv as propane:

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

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

(8) Maintaining the average concentration of triethylamine from a triethylamine cold box mold or core making line at a new or existing mold and core making department in a concentration at or below 1 ppmv.

(9) Conducting subsequent performance tests at least every 5 years for each emissions source subject to an emissions limitation in § 63.7690(a).

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

(2) Monitor the capture system according to the requirements in § 63.7740(a) and collect, reduce, and record the monitoring data for each of the operating limit parameters according to the applicable requirements in this subpart.

(b) For each baghouse subject to the operating limit in § 63.7690(b)(2) for the bag leak detection system alarm, you must demonstrate continuous compliance by completing the requirements in paragraphs (b)(1) through (3) of this section:

(1) Maintaining each baghouse such that the bag leak detection system alarm does not sound for more than 5 percent of the operating time during any semiannual reporting period. Follow the procedures specified in paragraphs (b)(1)(i) through (v) of this section to determine the percent of time the alarm sounded.

(i) Alarms that occur due solely to a malfunction of the bag leak detection system are not included in the calculation.

(ii) Alarms that occur during startup, shutdown, or malfunction are not included in the calculation if the condition is described in the startup, shutdown, and malfunction plan and all the actions you took during the startup, shutdown, or malfunction were consistent with the procedures in the startup, shutdown, and malfunction plan.

(iii) Count 1 hour of alarm time for each alarm when you initiated procedures to determine the cause of the alarm within 1 hour.

(iv) Count the actual amount of time you took to initiate procedures to determine the cause of the alarm if you did not initiate procedures to determine the cause of the alarm within 1 hour of the alarm.

(v) Calculate the percentage of time the alarm on the bag leak detection system sounds as the ratio of the sum of alarm times to the total operating time multiplied by 100.

(2) 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

(3) 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. If you increase or decrease the sensitivity of the bag leak detection system beyond the limit in § 63.7741(b)(1), you must include a copy of the required written certification by a responsible official in the next semiannual compliance report.

(c) For each wet scrubber that is subject to the operating limits in § 63.7690(b)(3), you must demonstrate continuous compliance by:

(1) Maintaining the 3-hour average pressure drop and 3-hour average scrubber water flowrate 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 flowrate according to the requirements of § 63.7741(f) and recording all information needed to document conformance with these requirements.

(d) 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 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.

(e) 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 flowrate at a level no lower than the level established during the initial or subsequent performance test;

(2) Maintaining the 3-hour average scrubber blowdown pH at a level no higher than the level established during the initial or subsequent performance test;

(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 flowrate and scrubber blowdown pH according to the requirements of § 63.7741(f) and recording all information needed to document conformance with these requirements.

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

(a) For each iron and steel foundry subject to the work practice standards in § 63.7700(a), you must demonstrate continuous compliance by maintaining records documenting conformance with the procedures in your scrap selection and inspection plan.

(b) For each pouring area in a new or existing metal casting department and each pouring, cooling, and shakeout line in an existing metal casting department subject to the work practice standard in § 63.7700(b), you must demonstrate continuous compliance by:

(1) Visually inspecting each line at least once every shift to verify that the gases have ignited automatically and record the results of each inspection;

(2) Manually igniting the gases from each mold vent that do not ignite automatically and recording that manual ignition was done.

(c) For each new or existing mold and core making department you must:

(1) Maintain records of the chemical composition of all coating formulations applied in each mold or core coating

line to demonstrate compliance with the requirement of § 63.7700(c);

(2) Maintain records of the chemical composition of all binder formulations applied in each furan warm box mold or core making line to demonstrate compliance with the requirement of § 63.7700(d);

(3) Maintain records of the chemical composition of all binder formulations applied in each phenolic urethane cold box and each phenolic urethane nobake mold or core making line to demonstrate compliance with the requirement of § 63.7700(e);

(4) Maintain records of the chemical composition of all binder formulations applied in each mold or core making line (other than furan warm box, phenolic urethane cold box, and phenolic urethane nobake mold or core making lines) to demonstrate compliance with the requirement of § 63.7700(f). If you do not adopt reduced-HAP binder formulations for a line, you must conduct a study to evaluate and identify available formulations as described in § 63.7700(g) every 5 years; and

(5) If you change the formulation of any coating or binder chemical used in the mold and core coating and mold and core making lines subject to the requirements of § 63.7700(b) through (f), notify us in your next compliance report and recertify compliance with the applicable work practice standard.

§ 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; and

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

(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 affected source or until the affected source 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).

Notifications, Reports, and Records

§ 63.7750 What notifications must I submit and when?

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

(b) As specified in § 63.9(b)(2), if you startup your affected source before [DATE OF PUBLICATION OF THE FINAL RULE IN THE **Federal Register**], you must submit your initial notification no later than [120 CALENDAR DAYS AFTER THE DATE OF PUBLICATION OF THE FINAL RULE IN THE **Federal Register**].

(c) As specified in § 63.9(b)(3), if you start your new affected source on or after [DATE OF PUBLICATION OF THE FINAL RULE IN THE **Federal Register**], 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 affected source by § 63.7683 and ending on June 30 or December 31, whichever date comes first after the compliance date that is specified for your affected source.

(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 affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 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 affected source 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 affected 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 affected source 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 affected source pursuant to 40 CFR part 70 or 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 affected source 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 affected source to your permitting authority.

§ 63.7752 What records must I keep?

(a) You must keep the records specified in paragraphs (a)(1) through (3) 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).

(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 on site 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 off site.

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 work practice standards 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.

§ 63.7762 What definitions apply to this subpart?

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

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. 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.

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 a 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 affected source 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 though 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 that by design are captured, conveyed through ductwork, and exhausted from the foundry building through a stack using forced ventilation.

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 furan warm box system by the foundry industry.

Hazardous air pollutant means any substance on the list originally established in 112(d)(1) of the Clean Air Act and subsequently amended as published in the Code of Federal Regulations.

Iron and steel foundry means 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 near final shape products.

Metal casting department means the area of a foundry and associated equipment in which all operations needed to melt metal and produce mechanically finished castings are done, including preparation of furnace feed, melting metal, transferring molten metal to pouring stations, pouring metal into molds, cooling molds, and separating castings from molds.

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, which is a furnace that receives metal already in the molten state.

Mold and core making department means the area of a foundry and associated equipment in which all operations needed to produce molds, mold sections, and cores are done, including those operations performed in mold or core making and mold or core coating lines.

Mold or core coating line means the collection of equipment that is used to prepare slurry or other forms of coating materials that contain finely divided refractory substances, coat molds or cores with the slurry, and dry the coating.

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 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.

Naphthalene-depleted solvent means a petroleum distillate product or similar product used in sand binder chemical formulations that contains 3 percent or less naphthalene by weight.

Phenolic urethane cold box mold or core making line means a cold box mold or core making line in which the binder chemical system used is that system commonly termed phenolic urethane system by the foundry industry. This system typically uses triethylamine or dimethylethylamine as the catalyst gas.

Phenolic urethane nobake mold or core making line means a mold or core making line in which the binder chemical system used is that system commonly designated phenolic urethane nobake system by the foundry industry.

Pouring area means an area in which molten metal is brought to molds that remain stationary from the time they receive the molten metal through cooling.

Pouring, cooling, and shakeout line means the combination of either a pouring station and its associated cooling area or a pouring area with the area in which shakeout is done.

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.

Shakeout means the process of separating a casting from a mold using a mechanical unit or manual procedure designed for and dedicated to this purpose.

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.

Tables to Subpart EEEEE of Part 63

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 emission standards.	No	Subpart EEEEE has no opacity or visible emissions standards and does not require COMS.
63.6(i)(i)–(j)	Compliance extension and Presidential compliance exemption.	Yes	
63.7(a)(3), (b)–(h)	Performance testing requirements	Yes	
63.7(a)(1)–(a)(2)	Applicability and performance test dates.	No	Subpart EEEEE specifies applicability and performance test dates.
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 requirement	Yes	
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 requirements.	No	Subpart EEEEE specifies requirements for operation of CMS and CEMS.
63.8(c)(5)	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)(1), (b)(2)(xii)–(b)(2)(xiv), (b)(3), (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.

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

[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
63.10(d)(3)	Reporting opacity or visible emission observations.	No	Subpart EEEEE does not include opacity or visible emissions limits.
63.10(e)(3)	Excess emission reports	No	Subpart EEEEE specifies reporting requirements.
63.10(e)(4)	Reporting COMS data	No	Subpart EEEEE 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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