

## **Iron and Steel Foundry Area Source Final Rule Summary**

On December 15, 2007, EPA signed the final iron and steel foundry area source rule. The final rule was published in the Federal Register on January 2, 2008. EPA issued the standard based on generally available control technology (GACT) for the control of the following urban hazardous air pollutants (HAPs): chromium, lead, manganese and nickel. The final rule sets emission limits for large area source foundries and requires all area source foundries to comply with pollution prevention management practices and notification and record keeping requirements.

Originally, EPA had considered a production threshold level of 500 tons of metal melted, but this would have impacted a very large number of small area source foundries. EPA proposed a production threshold level of 10,000 tons, and then ultimately settled on a production threshold level of 20,000 tons in the final rule, to minimize the number of area source foundries that would have to comply with the applicable emissions limit.

EPA estimated that the final rule would result in the following emissions reductions for iron and steel foundries nationwide: 380 tons per year of particulate matter (PM), 13.7 tons per year of metal HAPs, and 32 tons per year of organic HAPs. The total capital cost for the industry would be approximately \$17 million and the total annualized compliance cost would be approximately \$4.8 million. EPA also estimated that foundries would generate 440 tons of hazardous waste and would consume 4,440 megawatts per hour of electrical energy each year as a result of the final rule.

Based on comments submitted by AFS and numerous discussions between industry representatives and officials from EPA, SBA and the White House, EPA made several revisions to the proposed regulations in recent months. A brief summary of the final rule is provided below.

## Definition of Large and Small Area Source Foundries

Under the new area source rule, EPA has defined large and small area source foundries according to the following parameters.

- Existing Area Source Foundries
  - Small Foundry – Annual *metal melt production* of 20,000 tons or less
  - Large Foundry - Annual *metal melt production* of greater than 20,000 tons

For existing area source foundries, the initial size classification is based on production data for calendar year 2008. If the 2008 production data exceeds 20,000 tons, then the foundry must comply with the applicable emission limits and operation and maintenance requirements no later than two years after the initial classification, or by January 1, 2011. Foundries that cannot meet the applicable limit can request an extension of the compliance date for up to one year to install controls pursuant to 40 CFR §63.6(i)(4).

Once an area source foundry is classified as large, it must comply with the applicable requirements for three years. If the foundry can maintain its annual production below 20,000 tons for three years, it can be classified as a small area source foundry and would be subject to the requirements for small area source foundries. If an area source foundry that was reclassified as a small foundry exceeds the 20,000 ton production threshold, it would then upon notification of new status be subject immediately to the requirements applicable to large area source foundries.

- New Area Source Foundries
  - Small Foundry – Annual *metal melt capacity* of 10,000 tons or less
  - Large Foundry - Annual *metal melt capacity* of greater than 10,000 tons

The term, “annual metal melt capacity” is defined in the final rule for new area source foundries as “the lower of the total metal melting furnace equipment melt rate capacity assuming 8,760 operating hours per year [*i.e.*, 24 hours a day for 365 days] summed for all metal melting furnaces at the foundry, or if applicable, the maximum permitted metal melt production rate for the iron and steel foundry calculated on an annual basis.” New area source foundries would be subject to the applicable regulatory requirements immediately upon start up.

## **Requirements for Small Area Source Foundries**

Small area source foundries must comply with pollution prevention management practices, notification requirements and record keeping provisions. These requirements are summarized below.

### **1. Pollution Prevention Management Practices**

The pollution prevention management practices include metallic scrap, mercury switch removal and binder formulation provisions to remove HAP-generating materials prior to melting operations and in mold formations.

#### **A. Compliance Options for Use of Metallic Scrap**

All foundries must prepare and operate a written metallic scrap plan with specifications for one of the two equivalent compliance options. Either scrap management plan is expected to achieve similar HAP reductions.

- 1) Use of only metal ingots, pig iron, slitter, or other materials that do not include metallic scrap from motor vehicle bodies, engine blocks, oil filters, oily turnings, lead components, chlorinated plastics or free liquids.

- 2) Use of scrap that has been depleted of organics and HAP metals to the extent practicable. This requirement is not applicable to cupolas equipped with after burners.

### **B. Mercury Switch Removal**

Foundries may purchase scrap from motor vehicles only from scrap providers participating in an EPA-approved program for mercury removal or operate a site-specific mercury switch removal program at the foundry. EPA indicated that it expects that most foundries will elect to purchase scrap from providers with approved mercury switch programs.

EPA did make a few revisions to the proposed regulations in the final rule. First, EPA defined “motor vehicle scrap” for purpose of this provision to include only motor vehicle scrap that is shredded. Other types of scrap from motor vehicles that would not contain mercury such as brake rotor or pump casings would not be subject to this limitation to address mercury switch removal. In addition, EPA also allowed an additional year (i.e., two years from the effective date) for compliance with this requirement for foundries to allow time for more scrap providers to participate in an EPA-approved mercury switch removal program.

### **C. Binder Formulations**

Furfuryl alcohol warm box mold or core making must use a binder chemical formulation that does not use methanol as a specific ingredient of the catalyst formulation.

## **2. Notification Requirements**

- A. Initial notification of applicability within 120 days
- B. Initial notification that identifies the foundry as a large or small area source

- C. Subsequent notifications within 30 days of a change in process or operations that reclassifies the status of the foundry and its compliance obligations
- D. Notification of compliance status per the general provisions in 40 CFR § 63.9(h).

### **3. Record Keeping Requirements**

- A. Maintain records of monthly metal melt production
- B. Report any deviation from pollution prevention management practices in the semi-annual report required by 40 CFR §63.10 of the general provisions
- C. Record the annual quantity and composition of each HAP-containing chemical binder or coating material used to make molds and cores (to encourage foundries to consider the use of non-HAP binder and coating materials where feasible)
- D. Maintain records for at least five years

## **Requirements for Large Area Source Foundries**

### **1. Pollution Prevention Management Practices**

Large area source foundries must also comply with the pollution prevention management practices discussed above that are applicable to small area source foundries.

### **2. Emissions Limits**

- A. *Existing Foundries:* EPA set emissions limits for melting furnaces at existing large area source foundries of 0.8 pounds of particulate matter (PM) per ton of metal charged or 0.06 pounds of total metal HAP per ton of metal charged.

- B. *New Foundries*: EPA set emissions limits for melting furnaces at new large area source foundries of 0.1 pounds of PM per ton of metal charged or 0.008 pounds of total metal HAP per ton of metal charged.
- C. *Emissions Averaging*: Foundries may comply with the applicable emissions limit through emissions averaging. This would include averaging the emissions from a controlled melting furnace with the emissions from an uncontrolled furnace. For purposes of emissions averaging, EPA revised the default emissions for an uncontrolled EIF at 2.0 pounds of PM per ton of metal charged.

### **3. Fugitive Emissions**

- A. *Opacity Limit*: Large area source foundries must meet a fugitive emissions opacity limit of 20 percent for each building or structure housing foundry operations. In response to comments, this limit allows for one six-minute average per hour that does not exceed 30 percent.
- B. *Opacity Testing*: Large area source foundries must test opacity every six months. The facility may use a Method 22 visual inspection to demonstrate compliance, if there are no visible emissions (for 90 percent of the one-hour observation). If visible emissions are detected, then the facility must conduct a Method 9 test with a certified reader to demonstrate compliance.

### **4. Monitoring Requirements**

- A. *Inspection of Control Devices*: Large area source foundries must conduct initial and monthly inspections of the PM control devices. Existing foundries may use (but are not required to) use a bag leak detection system to demonstrate continuous compliance with the emissions limit.
- B. *New Sources*: New large area source foundries must use CPMS to measure and record operating parameters of wet scrubbers and

electrostatic precipitators used to comply with the standard. New foundries must also use bag leak detection systems for baghouses used to comply with the standard.

## **5. Performance Testing**

- A. Large area source foundries must demonstrate compliance with the applicable emissions limits within 180 days of the compliance date. Facilities may use test data conducted within the last five years, where appropriate.

## **6. Notification and Record Keeping Requirements**

Large area source foundries must also comply with the notification requirements and record keeping requirements discussed above that are applicable to small area source foundries.

## **7. Exemption from Title V Permitting Requirements**

EPA provided an exemption from Title V permitting requirements for iron and steel area source foundries. EPA did not receive any adverse comments to this proposed provision.

## **Additional Revisions from Proposed Rule**

1. The term, “per ton of metal charged,” replaced the term, “per ton of metal melted,” in the regulatory language of the final rule.
2. A capture and collection system is not required for each melting furnace, where an uncontrolled melting furnace is part of an emissions averaging group.

3. EPA agreed that pressure drop is not a good indicator of baghouse performance and replaced this parameter with other inspection and maintenance requirements for baghouses and other PM control devices in the final rule.
4. To allow for additional time to make repairs that are identified as part of the inspections, foundries must make necessary repairs as soon as practicable, but not later than 90 days.
5. To address potential inconsistencies in performance testing for batch operations for EAFs and EIFs, performance tests should sample only during normal production conditions to obtain representative test results.

## **Conclusion**

The final rule for iron and steel foundry area sources includes a comprehensive set of specific regulatory requirements. This document merely summarizes the major compliance issues that area source foundries must address. Foundries should review the entire regulatory text to ensure compliance with all of the applicable requirements. If you have any questions regarding the final rule, please contact Christian Richter or Jeff Hannapel at [crichter@thepolicygroup.com](mailto:crichter@thepolicygroup.com) or [jhannapel@thepolicygroup.com](mailto:jhannapel@thepolicygroup.com).