



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5

77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

VIA ELECTRONIC MAIL
DELIVERY RECEIPT REQUESTED

Peter Ryan, Quality Manager
Smith Foundry
1855 E 28th St.
Minneapolis, MN 55407
ryan_peter@smithfoundry.com

Re: Notice and Finding of Violation
Smith Foundry
Minneapolis, Minnesota

Dear Peter Ryan:

The U.S. Environmental Protection Agency (EPA) is issuing the enclosed Notice of Violation and Finding of Violation (NOV/FOV) to Smith Foundry (you) under Section 113(a) of the Clean Air Act, 42 U.S.C. § 7413(a). We find that you are violating the Minnesota State Implementation Plan (SIP) and the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Iron and Steel Foundries Area Sources at 40 C.F.R. Part 63, Subpart ZZZZZ at your Minneapolis, Minnesota facility (the Facility).

Section 113 of the Clean Air Act gives us several enforcement options. These options include issuing an administrative compliance order, issuing an administrative penalty order, and bringing a judicial civil or criminal action.

We are offering you an opportunity to confer with us about the violations alleged in the NOV/FOV. The conference will give you an opportunity to present information on the specific findings of violation, any efforts you have taken to comply and the steps you will take to prevent future violations. In addition, in order to make the conference more productive, we encourage you to submit to us information responsive to the NOV/FOV prior to the conference date.

Please plan for your facility's technical and management personnel to attend the conference to discuss compliance measures and commitments. You may have an attorney represent you at this conference. The EPA contact in this matter is Jacob Herbers. You may email him at Herbers.Jacob@epa.gov or call him at (312) 886-0405 to request a conference. You should make the request within 10 calendar days following receipt of this letter.

We should hold any conference within 30 calendar days following receipt of this letter.

Sincerely,

JOSEPH
KOESTERS

Digitally signed by
JOSEPH KOESTERS
Date: 2023.08.15
14:52:08 -05'00'

Joseph Koesters

Acting Supervisor, Air Enforcement and Compliance Assurance Section WI/MI

cc: Rachel Studanski, Manager
Land and Air Compliance Section
Industrial Division
Minnesota Pollution Control Agency (MPCA)

2. MINN. R. 7011.0075.1 applies to stationary sources and provides that “[u]nless specifically allowed by a part 70, state, or general permit, each piece of listed control equipment, with the exception of low-temperature fabric filters (ID #018) using visible emissions as the monitoring parameter under part 7011.0080, shall at all times be operated in the range established by the control equipment manufacturer’s specifications for each monitoring parameter listed in part 7011.0080” MINN. R. 7011.0080 lists “pressure drop” as the monitoring parameter for “fabric filter (bag house),” which the Rule identifies as a type of “Pollution Control Equipment.”
3. MINN. R. 7011.0075.2 provides that “[t]he owner or operator of a stationary source shall maintain each piece of listed control equipment according to the control equipment manufacturer’s specifications, shall comply with source-specific maintenance requirements specified in a part 70, state, or general permit, and shall perform the following on each piece of listed control equipment:

- A. ...
- B. ...
- C. thoroughly inspect all control equipment at least annually, or as required by the manufacturing specification (this often requires shutting down temporarily);
- D. inspect monthly, or as required by the manufacturing specification, components that are subject to wear or plugging, for example: bearings, belts, hoses, fans, nozzles, orifices, and ducts;
- E. inspect quarterly, or as required by the manufacturing specification, components that are not subject to wear including structural components, housings, ducts, and hoods;
- F. check daily, or as required by the manufacturing specification, monitoring equipment, for example: pressure gauges, chart recorders, temperature indicators, and recorders;
- G. ...
- H. maintain a record of activities conducted in items A to G consisting of the activity completed, the date the activity was completed, and any corrective action taken; and
- I. maintain a record of parts replaced, repaired, or modified for the previous five years.”

4. MINN. R. 7011.0080 provides that an owner or operator of a stationary source must comply with the monitoring and recordkeeping requirements listed in the following table, and must maintain the required records for a minimum of five years from the date the record was made:

Pollution Control Equipment Type	Monitoring Parameter(s)	Record-keeping Requirement
Fabric filter (bag house), high temperature ($T > 250^{\circ}\text{F}$), medium temperature ($180^{\circ}\text{F} > T > 250^{\circ}\text{F}$)	Pressure drop	Record pressure drop every 24 hours if in operation
Fabric filter (bag house), low temperature ($T < 180^{\circ}\text{F}$)	Pressure drop or visible emissions observation from filter outlet during an entire cleaning cycle...	Record pressure drop every 24 hours if in operation, or Record whether any visible emissions are observed and the time period of observation every 24 hours if in operation...”

Preventing Particulate Matter from Becoming Airborne

5. MINN. R. 7011.0150 provides that “[n]o person shall cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne,” or “cause or permit a building or its appurtenances . . . to be . . . used . . . without applying all such reasonable measures as may be required to prevent particulate matter from becoming airborne.”
6. Pursuant to MINN. R. 7005.0100, “[p]articulate matter” means material, except water, that exists at standard conditions in a finely divided form as a liquid or solid as measured by an applicable reference method, or an equivalent or alternative method.

Standards of Performance for Industrial Process Equipment

7. MINN. R. 7011.0715(A) provides, in part, that “[n]o owner or operator of any industrial process equipment that was not in operation before July 9, 1969, shall cause to be discharged into the atmosphere from the industrial process equipment any gases that . . . in any one hour contain the sum of filterable and organic condensable particulate matter in excess of the amount permitted in part 7011.0730”
8. MINN. R. 7011.0730 Table 1 sets forth hourly emission limits based on process weight rate, and provides the following equation for determining the amount of gases that may be discharged from industrial process equipment in accordance with MINN. R. 7011.0715(A):

$$E = 3.59 * P^{0.62} \text{ [for] } P \leq 30 \text{ tons/hour}$$

 ...where:
 E = emissions in pounds per hour;
 P = process weight rate in tons per hour.”
9. The emissions limit in MINN. R. 7011.0730 does not apply if the calculation set forth in MINN. R. 7011.0735 Table 2 can be used to show that a less stringent limit applies.

Notifications of Deviations and Breakdowns

10. MINN. R. 7019.1000.1 provides that “[t]he owner or operator of an emission facility, in the event of any deviation, as defined in part 7007.0100, subpart 8a, that could endanger human health or the environment, must notify, orally or by e-mail, the commissioner or must telephone the state duty officer . . . immediately after discovery of the deviation or immediately after when the deviation reasonably should have been discovered by the owner or operator. Within two working days of the discovery, the owner or operator must submit to the commissioner a written description of the deviation”
11. MINN. R. 7007.0100.8a defines “[d]eviation” as “any noncompliance with an applicable requirement or permit condition.”
12. MINN. R. 7019.1000.2 provides that “[t]he owner or operator of an emission facility, emissions unit, or stationary source must notify the commissioner within 24 hours of a

breakdown of more than one hour of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required if:

- A. an applicable requirement as defined in part 7007.0100, subpart 7, or compliance document as defined in part 7017.2005, subpart 2, does not require operation of the control equipment;
- B. an applicable requirement or compliance document specifies alternative minimum operating conditions for the process or control equipment that are still complied with despite the breakdown; or
- C. the Facility directly and continuously monitors the emissions with a continuous emissions monitor or similar direct monitoring device that demonstrates emissions do not exceed the applicable limit of any regulated pollutant during the breakdown.

At the time of notification or as soon as possible thereafter, the owner or operator must inform the commissioner of the cause of the breakdown and the estimated duration. The owner or operator must notify the commissioner when the breakdown is over.”

- 13. MINN. R. 7019.1000.4 provides that “[i]n any shutdown, breakdown, or deviation covered by [1000.1, 1000.2, or 1000.3], the owner or operator must immediately or as soon as possible considering plant and personnel safety take all practical steps to modify operations to reduce the emission of any regulated air pollutant. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment are permitted to operate.”

NESHAP Requirements

- 14. The NESHAP for Iron and Steel Foundries Area Sources at 40 C.F.R. Part 63, Subpart ZZZZZ, applies to iron foundries.
- 15. 40 C.F.R. § 63.10880(f) provides that “[i]f the metal melt production for calendar year 2008 is 20,000 tons or less, your area source is a small foundry.”
- 16. 40 C.F.R. § 63.10890, which provides “Requirements for New and Existing Affected Sources Classified as Small Foundries,” states that the owner and operator of iron foundries must “[a]t all times . . . operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.”

Factual Background

- 17. Smith Foundry owns and operates the Facility, which is an iron foundry in Minneapolis, Minnesota.
- 18. MPCA conducted air pollutant monitoring around the perimeter of the Facility on October 27, 2022, and April 13, 2023 (MPCA Monitoring).

19. EPA conducted a CAA inspection of the Facility on May 26, 2023 (May 2023 Inspection).
20. Documents provided by the Facility show that the Facility's metal melt production for calendar year 2008 was less than 20,000 tons.
21. The Facility's casting and molding processes create emissions of PM, lead, and other pollutants.
22. A process flow diagram of the Facility and annual Air Emissions Inventory Reports provided to EPA show that Smith Foundry owns and operates, or has owned and operated, the following industrial process equipment at the Facility:
 - A. Two sand mullers (EU 002 and EU003) since 1972 and 1989, respectively;
 - B. A sand transfer and storage area (EU 004) since 1974;
 - C. A shakeout (EU 007) since 1985;
 - D. A shot blaster (EU 008) since 1982;
 - E. Ten grinders (EU 009) since 1982;
 - F. A sodium silicate mixer sand transport area (EU 012) since 1978;
 - G. A main sand transfer area (EU 013) since 1978;
 - H. A bond silo (EU 014) since 1976;
 - I. A casting and pouring area (EU 015) since 1994;
 - J. A shell core area (EU 018 and EU 019) since 2010; and
 - K. A raw material storage area.
23. The Facility's permit requires an Operation and Maintenance Plan (O&M Plan), including the requirement to measure the pressure drop across each baghouse every day.
24. The process flow diagram of the Facility, annual Air Emissions Inventory Reports, and the O&M Plan provided to EPA show that Smith Foundry owns and operates, or has owned and operated, the following control equipment at the Facility:

Control Equipment ID ¹	Baghouse #	Brand Name	Connected EUs	O&M Plan Pressure Drops (in. H ₂ O)
CE 001	1	Pangborn	EU 002, EU 007	5-7
CE 002	2	American Air	EU 004, EU 012, EU 013	2-6
CE 003	3	Jetson	EU 008	2-6
CE 004	4	Jetson	EU 009	2-5
CE 005	5	Torit	EU 003	1-5
CE 006	6	Torit	EU 007	Not provided

¹ This table, created by EPA, compiles and summarizes information about the control equipment obtained from the documents provided by Smith Foundry.

25. The process flow diagram of the Facility and the Facility's annual Air Emissions Inventory Reports show that the bond silo (EU14), casting and pouring area (EU15), and shell core area (EU18 and EU19) are uncontrolled.
26. On April 15, 2019, Smith Foundry reported to MPCA that "the baghouse controlling PM emissions from the shot blaster (EU008) and grinding units (EU009) has malfunctioned and requires repair. The shot blaster unit will not be operated; however, use of the grinding units must continue for normal operations. The necessary parts have been ordered and will be installed in less than 24 hours. Uncontrolled emissions from the grinding units are minimal, and will be tracked. There are no exceedances from any emission limit permit condition."
27. There is inconsistent information about the number of pieces of control equipment currently operating at the Facility. At the May 2023 Inspection, Facility staff stated that the Facility had four baghouses. However, the Facility's O&M Plan mentions five baghouses (CEs 001-005), and the Facility's Emissions Inventories and Process Flow Diagram show six baghouses (CEs 001-006).
28. Smith Foundry's permit requires them to maintain an O&M plan, in accordance with the control equipment operation provisions in the Minnesota SIP at MINN. R. 7007.0800.14.
29. Following the May 2023 Inspection, EPA sent Smith Foundry emails on June 5, June 23, and June 30, 2023, requesting in writing the documents requested during the May 2023 Inspection. Smith Foundry provided documents in response to the May 2023 Inspection on June 5, June 9, June 20, June 27, and June 30, 2023.

Findings and Violations

30. Smith Foundry owns and operates "control equipment" at the Facility that are subject to the control equipment maintenance requirements in the Minnesota SIP at MINN. R. 7011.0075 and the monitoring and recordkeeping regulations in the Minnesota SIP at MINN. R. 7011.0080.
31. PM emissions from the Facility are subject to the airborne PM regulations in the Minnesota SIP at MINN. R. 7011.0150.
32. The Facility's industrial process equipment are subject to the standards of performance for post-1969 industrial process equipment in the Minnesota SIP at MINN. R. 7011.0715.
33. The Facility's industrial process equipment are subject to the emission rate regulations in the Minnesota SIP at MINN. R. 7011.0715(A) and 7011.0730.
34. Smith Foundry owns and operates emission units at the Facility that are subject to the deviation and breakdown notification regulations in the Minnesota SIP at MINN. R. 7019.1000.

35. The Facility is subject to the requirements for new and existing affected sources classified as small foundries at 40 C.F.R. § 63.10890 (NESHAP for Iron and Steel Foundries Area Sources).

Failure to Comply with Operation, Maintenance, and Recordkeeping Requirements for Listed Control Equipment

Failure to maintain the baghouses CE 001 and CE 004 within specified pressure drop ranges (MINN. R. 7011.0075.1)

36. Smith Foundry's current O&M Plan states that, on a daily basis, Facility staff should "[r]ecord pressure drop for the baghouses and report any pressure drops outside of the specified range." The O&M Plan lists a specified range of 5 to 7 inches of water (in. H₂O) for the "Pangborn" baghouse (CE 001) and a range of 2 to 5 in. H₂O for the "Jetson" baghouse (CE 004). The Pangborn (CE 001) baghouse controls emissions from the shakeout area and one of the sand mullers, and the Jetson baghouse (CE 004) controls emissions from the grinding units.
37. During and following the May 2023 Inspection, EPA requested records of all baghouse pressure drop and visible emissions records from the past five years. Smith Foundry did not provide EPA with any visible emission records for the Facility's baghouses.
38. In its April 15, 2019 deviation report to MPCA, Smith Foundry stated that the baghouse connected to the grinding units (EU 009) malfunctioned, causing uncontrolled emissions from EU 009. These statements indicate that, when the baghouse malfunctioned, it was not operating within the specific pressure drop range.
39. Smith Foundry's "Daily Dust Collector Pressure Differential Report Forms" show that "Pangborn" (CE 001) was operating at pressure drops between 2.6 to 5.0 in. H₂O, and "Grind Room" (CE 004) was operating at pressure drops between 0.4 to 1.2 in. H₂O from June 25, 2020 to July 10, 2020, July 20, 2020 to July 25, 2020, and December 4, 2020 to January 8, 2021.
40. During the May 2023 Inspection, EPA observed that the Pangborn baghouse (CE 001) had a pressure drop of 0 in. H₂O while the connected EUs were operating.
41. Smith Foundry's failure to maintain baghouses within the specified pressure drop ranges on various dates spanning between 2019 and 2023 violated MINN. R. 7011.0075.1.

Failure to maintain baghouse inspection and maintenance records (MINN. R. 7011.0075.2)

42. The Facility's O&M Plan specifies inspection and maintenance procedures to be performed on the Facility's baghouses daily, weekly, monthly, quarterly, and annually.
43. During and following the May 2023 Inspection, EPA requested records of all inspections and maintenance performed on the Facility's baghouses pursuant to the Facility's O&M Plan and Permit. Smith Foundry did not provide EPA with any inspection or maintenance records for the period of September 1, 2018 to June 25, 2023.

44. Smith Foundry's failure to maintain baghouse inspection and maintenance records from September 1, 2018 to June 25, 2023 violated MINN. R. 7011.0075.2H.

Failure to record and maintain records of baghouse pressure drops (MINN. R. 7011.0080)

45. During and following the May 2023 Inspection, EPA requested records of baghouse pressure drops at the Facility.
46. Smith Foundry did not provide EPA with any records of baghouse pressure drops for CE 001, CE 004, CE 005, or CE 006 for the following time periods: September 1, 2018 to June 24, 2020, July 26, 2020 to December 3, 2020, and January 9, 2021 to the present.
47. Smith Foundry did not provide EPA with any records of baghouse pressure drops for CE 002 or CE 003.
48. Smith Foundry's failure to maintain records of baghouse pressure drops for various dates spanning between 2018 and the present violated MINN. R. 7011.0080.

Failure to Prevent PM from Becoming Airborne (MINN. R. 7011.0150)

49. The April 2023 MPCA Monitoring recorded elevated levels of airborne PM on and across the North boundary of the Facility. The October 2022 MPCA Monitoring recorded elevated levels of airborne PM on and across the Southeast boundary of the Facility.
50. During the May 2023 Inspection, EPA's inspectors observed airborne PM throughout the interior of the Facility, PM deposits on surfaces throughout the Facility, and airborne PM escaping out of many open doors and windows around the Facility.
51. During the May 2023 Inspection, EPA's inspectors also observed cracks and holes in the shakeout ductwork, and observed that capture equipment was either absent, or failing to capture a significant portion of the airborne PM, at the shell core area, the shakeout area, the sand transfer and storage areas, and the material storage area of the Facility.
52. Smith Foundry's failure to apply reasonable measures to prevent PM from becoming airborne at many areas both inside and outside the Facility from at least October 2022 to May 2023 violated MINN. R. 7011.0150.

Failure to Demonstrate Compliance with SIP Emission Limits at the Casting and Pouring Area (MINN. R. 7011.0715(A))

53. Inputting information from Smith Foundry's 2018-2022 Air Emissions Inventory Reports into the formula in Table 1 of MINN. R. 7011.0730 results in the following PM emission rates and emissions limits for the casting and pouring area (EU 015):

Year	PM Emissions Rate (lb/hr)	PM Emissions Limit (lb/hr)
2018	12.44	5.66
2019	11.13	5.28

2020	10.27	5.03
2021	9.81	4.89
2022	9.20	4.69

54. Smith Foundry's failure to comply with the PM emission limits specified in MINN. R. 7011.0730 Table 1 for the casting and pouring area violated MINN. R. 7011.0715.

Failure to Notify MPCA about Deviations that Could Endanger Human Health or the Environment (MINN. R. 7019.1000.1)

55. Smith Foundry reported 0.1 tons of lead emissions from the Facility each year from 2020 through 2022, and has reported emissions of other metal hazardous air pollutants (MHAP) in various years. The Facility also emits PM. Therefore, emissions from the Facility could endanger human health or the environment.
56. Each of the violations mentioned above in paragraphs 41, 52, and 54 above resulted in increased emissions at the Facility, and are therefore deviations that could endanger public health or the environment.
57. As of July 26, 2023, MPCA had not received any notifications of deviations from Smith Foundry since April 16, 2019.
58. Smith Foundry's failure to notify MPCA about deviations that could endanger human health or the environment violated MINN. R. 7019.1000.1.

Failure to Take All Practical Steps to Modify Operations to Respond to Deviations (MINN. R. 7019.1000.4)

59. At the May 2023 inspection, EPA inspectors did not observe any evidence that Facility staff either took or were taking any practical steps to modify operations to respond to the deviations at the sand transfer and storage area, shakeout, sodium silicate mixer sand transport area, main sand transfer area, casting and pouring area, and shell core area, which were occurring on May 26, 2023.
60. Smith Foundry's failure to take all practical steps to modify operations to respond to deviations violated MINN. R. 7019.1000.4.

Failure to Notify MPCA about Breakdowns of Equipment (MINN. R. 7019.1000.2)

61. During the May 2023 inspection, EPA observed, and Facility staff verified, that the Pangborn baghouse (CE 001) had zero pressure drop and had not been working for some time. This resulted in increased emissions from PM not being drawn through the baghouse.
62. As of July 26, 2023, MPCA had not received any notifications of breakdowns from Smith Foundry since April 16, 2019.

63. Smith Foundry's failure to notify MPCA about breakdowns of CE 001 violated MINN. R. 7019.1000.2.

Failure to maintain good air pollution control practices (40 C.F.R. § 63.1089)

64. For the reasons discussed in paragraphs 41, 52, 54, and 60 above, from 2018 to the present, Smith Foundry has failed to operate and maintain its control equipment, emission units, the material storage area, and the building envelope in a manner consistent with safety and good air pollution control practices for minimizing emissions, in violation of 40 C.F.R. § 63.1089.

Environmental Impact of Violations

65. These violations have caused and can cause excess emissions of PM and Lead.
66. Particulate Matter: PM, especially fine particulates, contains microscopic solids or liquid droplets, which can get deep into the lungs and cause serious health problems. Particulate matter exposure contributes to:
- A. irritation of the airways, coughing, and difficulty breathing;
 - B. decreased lung function;
 - C. aggravated asthma;
 - D. chronic bronchitis;
 - E. irregular heartbeat;
 - F. nonfatal heart attacks; and
 - G. premature death in people with heart or lung disease.
67. Lead: Once lead enters the body it distributes through blood and is accumulated in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen carrying capacity of the blood. The most common lead effects currently are neurological effects in children and cardiovascular effects (e.g., high blood pressure and heart disease) in adults. Infants and young children are especially sensitive to lead, which may contribute to behavioral problems, learning deficits and lowered IQ.

MICHAEL
HARRIS

Digitally signed by
MICHAEL HARRIS
Date: 2023.08.15
13:47:56 -05'00'

Michael D. Harris
Division Director
Enforcement and Compliance Assurance Division