

ILLINOIS POLLUTION CONTROL BOARD  
September 6, 1979

IN THE MATTER OF: )  
 )  
PARTICULATE EMISSIONS FROM STEEL ) R78-10  
MILLS (Proposed Revision of Rule )  
203(d) of Chapter 2 )

ORDER OF THE BOARD (by Mr. Goodman):

The Board hereby adopts the following amendments to the Air Pollution Control Regulations. In addition the Board hereby deletes Rules 203(d)(2) and 203(d)(6) and renumbers Rule 203(d) as follows: Rule 203(d)(1) shall remain; Rule 203(d)(3) shall be Rule 203(d)(2); Rule 203(d)(4) shall be Rule 203(d)(3); Rule 203(d)(5) shall be Rule 203(d)(4); Rule 203(d)(6) shall be deleted, and the following Rule shall be Rule 203(d)(5); Rule 203(d)(7) shall be Rule 203(d)(6); Rule 203(d)(8) shall be Rule 203(d)(7); and Rule 203(d)(9) shall be Rule 203(d)(8); and Rule 203(d)(10) shall be Rule 203(d)(9).

203(d) Process Emissions

(5) Steel Manufacturing Processes. Except where noted, Rules 203(a), 203(b) and 203(c) shall not apply to the following steel manufacturing processes. The following rules shall apply:

(A) Beehive Coke Ovens. No person shall cause or allow the use of beehive ovens in any coke manufacturing process.

(B) By-Product Coke Plants.

- (i) Rule 202 shall not apply to by-product coke plants.
- (ii) Charging: No person shall cause or allow the emission of visible particulate matter from any coke oven charging operation when coal is being charged, except for a total of no more than 170 seconds over five (5) consecutive oven

charges, or in the case of existing five meter coke batteries having three charging ports, for a total of no more than 200 seconds over five (5) consecutive oven charges.

- (iii) Pushing: All coke facilities shall be equipped with pushing systems with particulate control equipment which shall be designed to capture at least 90% of all particulate emissions from pushing operations. The particulate control equipment shall be operated and maintained in a manner to achieve the design efficiency. If a stationary hood system is used, the particulate emissions from the outlet of said particulate control equipment shall not exceed 0.03 grains per dry standard cubic foot [0.07 grams per cubic meter at dry, standard conditions (dscm)]. If a closely hooded mobile system is used in connection with the operation of an existing coke oven battery with the emissions exhausted directly to the particulate control equipment, the particulate emissions from the outlet of said particulate control equipment shall not exceed 0.06 gr/dscf (0.14 g/dscm).
- (iv) Coke Oven Doors:
  - (aa) No person shall cause or allow visible emissions from more than 10% of all coke oven doors at any time. Compliance shall be determined by a one pass observation of all coke oven doors on any one battery.
  - (bb) No person shall cause or allow the operation of a coke oven unless there is on the plant premises at all times an adequate inventory of spare coke oven doors and seals and unless there is a readily available coke oven door repair facility.
- (v) Coke Oven Lids: No person shall cause or allow visible emission from more than 5% of all coke oven lids at any time. Compliance shall be determined by a one pass observation of all coke oven lids.
- (vi) Coke Oven Offtake Piping: No person shall cause or allow visible emissions from more than 10% of all coke oven offtake piping at any time. Compliance shall be determined by

a one pass observation of all coke oven off-take piping.

- (vii) Coke Oven Combustion Stack: No person shall cause or allow the emission of particulate matter from a coke oven combustion stack to exceed 0.05 gr/dscf (0.11 g/dscm).
  - (viii) Quenching: All coke oven quench towers shall be equipped with grit arrestors or equipment of comparable effectiveness. The make-up water shall not directly include coke by-product plant effluent. Total dissolved solids concentrations in the make-up water shall not exceed 1500 mg/l. Provided however that the limitations on the quality of quench make-up water shall not apply where the operator employs an equivalent method of control as determined by the Agency.
  - (ix) Work Rules: No person shall cause or allow the operation of a by-product coke plant except in accordance with operating and maintenance work rules approved by the Agency.
- (C) Sinter Processes. Emissions of particulate matter from sinter processes shall be controlled as follows:
- (i) Breaker Box: No person shall cause or allow the emission of particulate matter into the atmosphere from the breaker stack of any sinter process to exceed the allowable emission rate specified by Rule 203(a).
  - (ii) Main Windbox: No person shall cause or allow the emission of particulate matter into the atmosphere from the main windbox of any existing sinter process to exceed 1.2 times the allowable emission rate specified by Rule 203(a).
  - (iii) Balling Mill Drum, Mixing Drum, Pug Mill and Cooler: No person shall cause or allow the emission of visible particulate matter into the atmosphere from any Balling Mill Drum, Mixing Drum, Pug Mill or Cooler to exceed 30% opacity.
  - (iv) Hot and Cold Screens:
    - (aa) Particulate emissions from all hot and cold screens shall be controlled by air pollution control equipment or an equivalent dust suppression system. Emissions from said air pollution control equipment shall not exceed 0.03 gr/dscf (0.07 g/dscm).

(bb) Provided, however, that if the owner or operator can establish that the particulate emissions from the hot screens and cold screens do not exceed the aggregate of the allowable emissions as specified by Rule 203(a) for new emission sources or Rule 203(b) for existing emission sources, whichever is applicable, then Rule 203(d)(5)(C)(iv)(aa) shall not apply.

(D) Blast Furnace Cast Houses.

(i) Particulate emissions from the blast furnace casting operation into the ambient air shall not exceed the allowable emission rate specified in Rule 203(a), calculated and measured as follows:

(aa) For purposes of this rule, the casting operation for each furnace shall be considered as a separate operation and the process weight ("P") in the calculation shall be the total weight of the iron and slag entering the cast house during the casting operation.

(bb) Measurement method.

(bb-1) Application

This test procedure shall be used to determine compliance with Rule 203(d)(5)(D)(1) Blast Furnace Cast Houses. If the United States Environmental Protection Agency adopts a test procedure to sample particulate emissions from blast furnace cast houses, that test procedure may be substituted for the one specified in this paragraph upon publication in the Federal Register.

(bb-2) Measurement Equipment for this Test Procedure

The measurement equipment used for this test procedure shall consist of the following:

(aaa) High Volume Air Samplers with 0.3 micron glass fiber filters shall be used for the determina-

tion of cast house particulate emission concentrations.

(bbb) Velocity measurements shall be determined by the use of a suitable instrument designed for the accurate determination of velocities within the range encountered during the sampling duration.

(ccc) Temperature measurements shall be determined by the use of a suitable instrument designed for the accurate determination of temperature within the range encountered during the sampling duration.

(bb-3) Test Procedure

(aaa) Sampling Time Duration:

Sampling and opacity observations will initiate with the opening of the tap hole and terminate with the plugging of the tap hole.

(bbb) Opacity Observations:

Opacity observations of the cast house roof monitor particulate emissions into the atmosphere shall be performed during the test runs by use of the USEPA Method 9 Procedure as published in the Federal Register, Thursday, August 18, 1977.

(ccc) Number of Test Runs:

The average of six complete sampling runs during normal operating conditions will be the minimum required to determine compliance with Rule 203(d)(5)(D)(i).

(ddd) Sampled Emission:

During the test period, par-

ticulate emissions from the casting operation shall be directed into the cast house to the extent feasible and shall not create an unsafe or hazardous condition. Those emissions in and/or directed to the cast house shall be allowed to escape only at sampling area locations. Compliance with this requirement shall be determined by an agency-certified observer, and any significant visible emission from the cast house anyplace other than a sampling location will invalidate the test.

(eee) Sampler Locations:

Samplers shall be located as close as practicable to the discharge point of the cast house emissions to the atmosphere and shall be oriented in the direction of the air flow. The sampler grid pattern shall be divided up such that the cross sectional area per sampler shall not exceed one hundred (100) square feet (9.29 square meters). If necessary to insure representative samples, the Agency may specify an area of less than one hundred (100) square feet (9.29 square meters). Each sampler shall be located at the approximate center of each sampling area. The concentration of particulate matter as determined by each sampler shall be considered as the concentration for each respective area.

(fff) Velocity Measurement Locations:

Velocity measurements shall be made as close as possible to each sampling point location without interfering with the measurement. The average velocity measured at each

sampling point for the entire sample run shall be used as the average velocity for each entire sampler area respectively.

(ggg) Temperature Measurement Locations:

The same as velocity measurement locations.

(hhh) Emission Exhaust Pressure Measurements:

This pressure shall be considered the barometric pressure as measured at the cast house floor.

(iii) Recording of Operating Parameters:

The following information shall be recorded for those casts tested:

(iii-1) Material charge weights to the blast furnace for the operating turn during which cast house tests are performed;

(iii-2) Cast weights, total weight of iron plus slag entering the cast house during each casting operation sampled;

(iii-3) All information contained in blast furnace casting logs or other similar records, size of the tap hole drill bit used for each cast and the length of the tap hole for each previous cast.

(bb-4) Calculations

(aaa) Mass Emission Rate (lbs./hr.)

The mass emission rate (lbs./hr.) for each test run shall consist of the sum of the mass emissions as determined per each sample area. Should the sample time

duration be greater than one hour, the ratio calculated for one hour divided by the sample time duration (hours) shall be multiplied by the sum of the mass emissions to obtain the pounds per hour rate.

- (ii) Provided, however, that Rule 203(d)(5)(D)(i) shall not apply at the option of the operator if the operator has installed and is operating and maintaining collection equipment designed to collect a minimum of fifty percent (50%) of particulate emissions from the tap hole, the trough to the skimmers, and the iron spouts. Such emissions shall be evacuated to pollution control equipment. Emissions from said pollution control equipment shall not exceed 0.02 gr/dscf (0.046 g/dscm).
- (E) Basic Oxygen Furnaces. Emissions of particulate matter from Basic Oxygen Processes shall be controlled as follows:
- (i) Charging, Refining and Tapping. Particulate emissions from all basic oxygen furnaces shall be collected and ducted to pollution control equipment. Emissions from basic oxygen furnace operations during the entire cycle (operations from the beginning of the charging process through the end of the tapping process) shall not exceed the allowable emission rate specified by Rule 203(a) for new emission sources or Rule 203(b) for existing emission sources, whichever is applicable. For purposes of computing the process weight rate for this Rule 203(d)(5)(E)(i), nongaseous material charged to the furnace and process oxygen shall be included. No material shall be included more than once.
  - (ii) Hot Metal Transfer, Hot Metal Desulfurization, and Ladle Lancing:
    - (aa) Particulate emissions from hot metal transfers to a mixer or ladle, hot metal desulfurization operations, and ladle lancing shall be collected and ducted to pollution control equipment, and emissions from the pollution control equipment shall not exceed 0.03 gr/dscf (0.07 g/dscm).



- (bb) Provided, however, that if the owner or operator can establish that the total particulate emissions from hot metal transfers, hot metal desulfurization operations and ladle lancing operations combined do not exceed the allowable emissions as specified by Rule 203(a) for new emission sources or Rule 203(b) for existing emission sources, whichever is applicable, where the process weight rate (P) is the hot metal charged to the BOF vessel, then Rule 203(d)(5)(E)(ii)(aa) shall not apply.
- (F) Hot Metal Desulfurization Not Located in the BOF. The particulate emissions from hot metal desulfurization shall be collected and ducted to pollution control equipment, and emissions from the pollution control equipment shall not exceed 0.03 gr/dscf (0.07 g/dscm).
- (G) Electric Arc Furnaces. The total particulate emissions from meltdown and refining, charging, tapping, slagging, electrode port leakage, and ladle lancing shall not exceed the allowable emission rate specified by Rule 203(a) or Rule 203(b), whichever is applicable.
- (H) Argon-Oxygen Decarburization Vessels. The total particulate emissions from all charging, refining, alloy addition, and tapping operations shall not exceed the allowable emission rate specified by Rule 203(a) for new emission sources or Rule 203(b) for existing emission sources, whichever is applicable.
- (I) Liquid Steel Charging. Particulate emissions from liquid steel charging in continuous casting operations shall be controlled by chemical or mechanical shrouds or methods of comparable effectiveness.
- (J) Hot Scarfing Machines. All hot scarfing machines shall be controlled by pollution control equipment. Emissions from said pollution control equipment shall not exceed 0.03 gr/dscf (0.07 g/dscm) during hot scarfing operations.
- (K) Measurement Methods. Particulate emissions from emission sources subject to Rule 203(d)(5) shall be determined in accordance with procedures published in 40 CFR Part 60, Appendix A, Methods 1-5, front one-half of the sampling train. 42 Fed. Reg. 41754, et seq. (August 18, 1977). Visible emission evaluation for determining compliance

shall be conducted in accordance with procedures published in 40 CFR Part 60, Appendix A, Method 9. 42 Fed. Reg. 41754, et seq., (August 18, 1977).

(L) Compliance Dates.

- (i) Every owner or operator of an emission source the construction or modification of which is commenced after September 6, 1979 shall comply with the emission standards and limitations of this Rule 203(d)(5) upon commencement of operation.
- (ii) Every owner or operator of an emission source the construction or operation of which was commenced prior to September 6, 1979 shall comply with the emission standards and limitations of this Rule 203(d)(5) no later than December 31, 1982.
- (iii) From the effective date of this Rule 203(d)(5) through December 31, 1982, full compliance with an approved Compliance Program and Project Completion Schedule pursuant to Rule 104 for all sources of particulate emissions subject to Rule 203(d)(5) and 203(f) as amended under common ownership or control in the same air quality control region shall constitute compliance with the emission standards and limitations contained in this Part II if such Compliance Program and Project Completion Schedule:
  - (aa) provides for compliance by all sources of particulate matter subject to Rules 203(d)(5) and 203(f), as amended, under common ownership or control in the same air quality region, as expeditiously as practicable considering what is economically reasonable and technically feasible, and
  - (bb) provides for reasonable further progress in achieving the reductions in particulate emissions required by Rules 203(d)(5) and 203(f), as amended, including annual increments of reductions such that at least one-third of the total reductions are achieved by December 31, 1980 and at least two-thirds of the total reduction are achieved by December 31, 1981, unless the owner or operator demonstrates in a hearing before the Board that such increments

are technically infeasible or economically unreasonable or unless the owner or operator demonstrates in a hearing before the Board that some alternate schedule represents reasonable further progress within the meaning of Section 172(b) of the Clean Air Act, 42 U.S.C. §7502(b).

- (iv) The provisions of Rule 203(d)(5)(L)(iii) shall not apply to any facility subject to a rule which is not in full force and effect as a matter of state law because of judicial action, and in such event the facility shall remain subject to the regulations in effect at the time these amendments are adopted.
- (M) The provisions of Rule 203(d)(5)(L) are not severable. Should any portion thereof be found invalid or be disapproved by U.S. E.P.A. as a revision of the state implementation plan pursuant to the Clean Air Act, then the entire Rule 203(d)(5)(L) shall be null and void, the provisions of Rules 203(d)(5)(A) and (B) shall become immediately effective, and the provisions of existing Rules 203(a), (b), and (c) and prior Rule 203(d)(2) (in effect from April 14, 1972 to the effective date of this Rule) shall be reinstated.

Mr. Werner dissented.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Order was adopted on the 6<sup>th</sup> day of September, 1979 by a vote of 4-1.

  
 Christan L. Moffett, Clerk  
 Illinois Pollution Control Board