

217/782-2113

CONSTRUCTION PERMIT - NSPS SOURCE - REVISED

PERMITTEE

Northwestern Steel and Wire Company
Attn: David E. Long, Environmental Manager
121 Wallace Street
Sterling, Illinois 61081

Application No.: 00020018

I.D. No.: 195818AAI

Applicant's Designation: ARC FURNACE 8

Date Received: June 27, 2000

Subject: Electric Arc Furnace No. 8

Date Issued:

Location: 121 Wallace Street, Sterling

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of improvements to Electric Arc Furnace No. 8 and associated baghouse including changes to the furnace enclosure, features for CO combustion, gas cooling, and expansion of the baghouse, in conjunction with replacement of the furnace shell and roof as described in the above referenced application. This Permit is subject to standard conditions attached hereto and the following special conditions:

1.0 Unit Specific Conditions

1.1 Description

Northwestern Steel and Wire Company is a steel production facility. This permit authorizes certain improvements to Electric Arc Furnace No. 8 and its associated control system.

1.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Electric Arc Furnace No. 8	Melts Scrap Metal and Materials into Molten Steel with Electric Arcs from Carbon Electrodes.	Baghouse and Associated Equipment

1.3 Applicability Provisions

- a. The affected furnace for the purpose of these unit-specific conditions, is Electric Arc Furnace No. 8, following improvements, as described in Condition 1.2 unless otherwise stated in the following conditions.

- b. The affected furnace is subject to a New Source Performance Standard (NSPS) for Steel Plants, 40 CFR 60, Subparts A and AAa, because it was originally constructed after August 7, 1983. The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement.

- c. For the purpose of this permit, an electric arc furnace (EAF) means a furnace, as defined under 40 CFR 60.271(a), that produces molten steel and heats the charge materials with electric arcs from carbon electrodes. An EAF consists of the furnace shell and roof and the transformer.

1.4 Emission Standards

- a. The affected electric arc furnace (EAF) shall comply with the applicable particulate matter emission limits of the NSPS as follows, except as provided by 40 CFR 60.8 for periods of startup, shutdown and malfunction, as defined by 40 CFR 60.2.
 - i. No owner or operator shall cause to be discharged into the atmosphere from an affected EAF any gases which:
 - A. Exit from a control device and contain particulate matter in excess of 12 mg/dscm (0.0052 gr/dscf);
 - B. Exit from a control device and Exhibit 3 percent opacity or greater; and
 - C. Exit from a shop and, due solely to the operations of any affected EAF(s) Exhibit 6 percent opacity or greater.
 - ii. No owner or operator shall cause to be discharged into the atmosphere from the dust-handling system associated with an affected EAF any gases that Exhibit 10 percent opacity or greater. [40 CFR 60.272a, Standard for Particulate Matter]
- b. i. The total particulate emissions from the affected furnace including meltdown and refining, charging, tapping, slagging, electrode port leakage and ladle lancing shall not exceed the allowable emission rate specified by 35 IAC 212.321. [35 IAC 212.448]

Accordingly, emissions of particulate matter into the atmosphere from the furnace in any one hour period shall not exceed the allowable emission rate specified by the following equation.

$$E = A(P)^B$$

Where:

P = Process weight rate, in tons per hour; and,
E = Allowable emission rate, in pounds per hour; and,

For process weight rates up to 450 T/hr:

A	2.54
B	0.534

For process weight rates in excess of 450 T/hr:

A	24.8
B	0.16

ii. Notwithstanding the above pursuant to 35 IAC 201.149, the Permittee may continue operation of the affected furnace during a malfunction or breakdown with particulate matter emissions in excess of the above limit as necessary to prevent injury to personnel or severe damage to equipment, provided that the Permittee takes reasonable measures to prevent such events and minimize excess emissions, e.g., the furnace and its control system are properly maintained and operation of the furnace is only continued to allow the furnace to be emptied of molten steel. Note: additional provisions addressing malfunction and breakdown may be established in subsequent permits for the affected furnace.

c. The emission of sulfur dioxide into the atmosphere from the affected furnace shall not exceed 2,000 ppm, [35 IAC 214.301].

1.5 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the improvements to the affected arc furnace not constituting a major modification subject to the federal rule for Prevention of Significant Deterioration (PSD) 40 CFR 52.21. The Permittee has addressed the applicability of PSD. See Attachment 1.
- b. This permit is issued based on the affected furnace not being subject to 35 IAC 215.301, because its organic material emissions do not qualify as photochemically reactive material.

1.6 Operational and Production Limits and Work Practices

- a. i. Steel production of the affected furnace shall not exceed 1,630,000 tons/year. Compliance with this limitation shall be determined from a running total of 12 months of data.

- ii. Subsequent permits for the affected furnace may establish limitations on emissions based on the results of the testing required by Condition 1.7, to further ensure that the improvements to the affected furnace would not be accompanied by significant increases in emissions.

- b. At all times, the Permittee shall, to the extent practicable, maintain and operate the affected furnace, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR 60.11(a)]

1.7 Emission Limits

- a. Emissions from the affected furnace shall not exceed the following limits:

<u>Pollutant</u>	<u>Emission Factor</u>		
	<u>(lb/ton) Throughput</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
PM	See Condition 1.4	24	234.3
CO	4.7	385	3,830
NO _x	0.73	60	595
VOM	0.34	28	277.1
SO ₂	0.65	53	530
Lead	0.005	0.41	4.08

These limits are based on the usage limits in Condition 6, and information supplied in the permit application.

- b. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

1.8 Testing Requirements

- a. Within 60 days after achieving the maximum production rate at which the affected electric arc furnace will be operated, following improvements, but not later than 180 days after initial startup of such electric arc furnace following improvements, and at such other times as may be required by the Illinois EPA under section 114 of the Act, the Permittee shall have performance test(s) conducted and furnish the Illinois EPA a written report of the results of such performance test(s).

- b. i. The following methods and procedures shall be used for testing of particulate matter emissions and opacity:

- A. Method 5 shall be used for negative-pressure fabric filters and other types of control devices and Methods 5D shall be used for positive-pressure fabric filters to determine

the particulate matter concentration and volumetric flow rate of the effluent gas. The sampling time and sample volume for each run shall be at least 4 hours and 4.5 dscm (160 dscf) and, when a single EAF or AOD vessel is sampled, the sampling time shall include an integral number of heats.

B. Method 9 and the procedures of 40 CFR 60.11 shall be used to determine opacity.

C. To demonstrate compliance with 40 CFR 69.272(a)(1), (2), and (3), the test runs shall be conducted concurrently, unless inclement weather interferes.

ii. The following methods and procedures shall be used for testing emissions of pollutants other than particulate matter. Refer to 40 CFR 60, Appendix A for USEPA test methods.

Location of Sample Points	USEPA Method 1
Sulfur Dioxide	USEPA Method 6
Nitrogen Oxides	USEPA Method 7
Carbon Monoxide	USEPA Method 10
Lead	USEPA Method 12 or Method 29

c. At least 60 days prior to the actual date of testing, a written test plan shall be submitted to the Illinois EPA for review and approval. This plan shall describe the specific procedures for testing including as a minimum:

i. The person(s) who will be performing sampling and analysis and their experience with similar tests.

ii. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of the maximum emissions, the levels of operating parameters at or within which compliance is intended to be shown, if parameters for the process and any control equipment will be determined.

iii. The specific determination of emissions and operations which are intended to be made, including sampling and monitoring locations.

iv. The test methods which will be used, with the specific analysis method.

v. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification.

vi. A statement that the testing will be performed by a qualified independent testing service.

- d. Prior to carrying out these test, the Illinois EPA shall be notified a minimum of thirty (30) days prior to the scheduled date of these tests with the exact date, time and place of these tests, to enable the Illinois EPA to witness these tests.

- e. If the scheduled date for the test is changed the Permittee shall inform the Illinois EPA within five working days of the scheduled test date and must specify the date of the rescheduled test.
- f. A copy of the Final Reports for these tests and compliance status shall be submitted to the Illinois EPA within fourteen days after the test results are compiled and finalized, prior to or accompanying the operating permit application. Satisfactory completion of these tests and compliance with the limitations of this permit shall be prerequisite to the issuance of an operating permit.

1.9 Monitoring Requirements

- a. The Permittee shall perform monthly operational 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 shall include observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion). Any deficiencies shall be noted and proper maintenance performed.
 - i. Except as provided under paragraphs (ii) of this section, a continuous monitoring system for the measurement of the opacity of emissions discharged into the atmosphere from the baghouse associated with the EAF shall be installed, calibrated, maintained, and operated by the owner or operator subject to the provisions of this subpart.
 - ii. A continuous monitoring system for the measurement of opacity is not required on modular, multiple-stack, negative pressure or positive-pressure fabric filters if observations of the opacity of the visible emissions from the control device are performed by a certified visible emission observer as follows: visible emission observations are conducted at least once per day when the furnace is operating in the melting and refining period. These observations shall be taken in accordance with Method 9, and, for at least three 6-minute periods, the opacity shall be recorded for any point(s) where visible emissions are observed. Where it is possible to determine that a number of visible emission sites relate to only one incident of the visible emissions, only one set of three 6-minute observations will be required. In this case, Method

9 observations must be made for the site of highest opacity that directly relates to the cause (or location) of visible emissions observed during a single incident. Records shall be maintained of any 6-minute average that is in excess of the emission limit specified in 40 CFR 60.272a(a). [40 CFR 60.273(a), (b), (c), and (d)]

- b. The Permittee shall conduct monitoring for the affected furnace as required by 40 CFR 60.274a.

1.10 Recordkeeping Requirements

- a. The Permittee shall maintain records of the following items for the affected arc furnace.
 - i. Material throughput (tons/day and tons/month).
 - ii. Records of measurements as required by Condition 1.9 must be retained for at least 2 years following the date of the measurement.
 - iii. All data obtained under 40 CFR 60.274(b).
 - iv. All monthly operational status inspections performed under 40 CFR 60.274c.

1.11 Reporting Requirements

- a. The Permittee shall submit a written report of excess emissions to the Illinois EPA semi-annually in accordance with the NSPS 40 CFR 60.11(c) and 60.276a(a). For the purposes of these reports, excess emissions are defined as all 6-minute periods during which the average opacity is 3 percent or greater.
- b. The Permittee shall promptly notify the Illinois EPA, Compliance Section of any other exceedance with the emission limitation in the permit of the affected electric arc furnace with the permit requirements. These reports shall be submitted within 30 days of the exceedance and shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.
- c. Two copies of required reports and notifications concerning equipment operation or repairs, performance testing or continuous monitoring systems shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
5415 North University
Peoria, Illinois 61614

Page 8

If you have any questions on this, please call Kevin Smith at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

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cc: Region 2

Attachment 1

PSD Applicability

Table I - Past Actual Emissions for Furnaces 6 and 8
Tons/Year

CO	SO ₂	VOM	NO _x	PM	Lead
3,776	492.3	246.1	558.15	265.8	3.518

Table II - Future Potential Emissions for Improved Furnace 8

CO	SO ₂	VOM	NO _x	PM	Lead
3,830	530	277.1	595	234.3	4.08

Table III - Net Emissions Change (Tons/Year)

	CO	SO ₂	VOM	NO _x	PM	Lead
Table I	3,776	492.3	246.1	558.15	265.8	3.518
<u>Table II</u>	<u>3,830</u>	<u>530</u>	<u>277.1</u>	<u>595</u>	<u>234.3</u>	<u>4.08</u>
Totals	54.5	37.7	31	36.85	- 31.5	0.56

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