



# COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

W. Tayloe Murphy, Jr.  
Secretary of Natural Resources

**West Central Regional Office**  
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Robert G. Burnley  
Director

Steven A. Dietrich  
Regional Director

## STATIONARY SOURCE PERMIT TO OPERATE

This permit implements the requirements for  
Reasonably Available Control Technology (RACT) for Nitrogen Oxides (NO<sub>x</sub>) in the  
Western Virginia Emissions Control Area

This permit (i) is for the purpose of implementing the "reasonably available control technology" (RACT) requirements of 9 VAC 5-40-310 and/or 9 VAC 5-40-311 of the Regulations of the Board and (ii) establishes control technology and other requirements for the control of nitrogen oxides (NO<sub>x</sub>) emissions from the Roanoke Electric Steel Corp. facility in the Western Virginia Emissions Control Area. These RACT requirements shall be the legal and regulatory basis for control of NO<sub>x</sub> emissions from this facility.

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution,

Roanoke Electric Steel Corp.  
Registration No.: 20131  
County / Plant ID: 770-0004

is authorized to operate

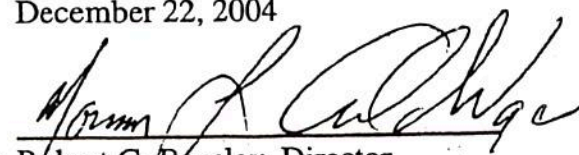
a steel mill mini-mill

located at

102 Westside Boulevard  
Roanoke, Virginia

in accordance with the Conditions of this permit.

Approved on: December 22, 2004

  
for Robert G. Burnley, Director  
Department of Environmental Quality

Permit consists of 8 pages.  
Permit Conditions 1 to 21.

**PERMIT CONDITIONS** - The regulatory reference or authority for each condition is listed in parentheses after each condition.

**PROCESS REQUIREMENTS - NO<sub>x</sub> Equipment List**

1. **Equipment List** – In accordance with 9 VAC 5-40-310, the facility shall meet either the presumptive RACT requirements of 9 VAC 5-40-311 or the RACT requirements determined by a RACT determination in accordance with 9 VAC 5-40-310 for the following equipment which are sources of NO<sub>x</sub> emissions and implemented through the remaining conditions of this permit:
  - Two (2) Tundish preheaters, each 49.08 million Btu/hr rated input capacity, fired with natural gas (primary fuel), propane, or distillate oil. Normally used intermittently, only as needed to preheat the tundish vessel until molten steel begins flowing to a billet casting machine.
  - Two (2) Ladle preheaters, each 11.2 million Btu/hr rated input capacity, fired with natural gas (primary fuel), propane, or distillate oil. Normally used as needed to preheat ladle vessels to receive a pour of molten material.
  - EAF #4 (Electric Arc Furnace #4), melts scrap steel, 26 tons/hr steel output rated capacity, heated with electricity.
  - EAF #5 (Electric Arc Furnace #5), melts scrap steel, 100 tons/hr steel output rated capacity, heated primarily with electricity, supplemented with auxiliary natural gas burners inside the steel melting furnace.
  - LMS #5 (Ladle Metallurgical Station with EAF #5), refines molten steel from EAF #5, 100 tons/hr steel output rated capacity, heated with electricity.
  - BRF #1 (Billet Reheat Furnace #1), the current Billet Reheat Furnace, planned to be replaced by the permitted but not yet installed Billet Reheat Furnace #2. Rated capacity is 90 tons/hr steel billets/ 90 million Btu/hr furnace/ 135 million Btu/hr burners, heated by low-NO<sub>x</sub> burners firing natural gas (primary fuel) or distillate oil.
  - BRF #2 (Billet Reheat Furnace #2), permitted but not yet installed replacement for the current Billet Reheat Furnace #1. Rated capacity is 160 tons/hr steel billets/ 190 million Btu/hr burners, heated by ultra low-NO<sub>x</sub> burners firing natural gas (primary fuel) or distillate oil.

(9 VAC 5-40-310)

**PROCESS REQUIREMENTS - NO<sub>x</sub> Emission Controls**

2. **Two (2) Tundish and Two (2) Ladle preheaters - NO<sub>x</sub> Emissions Control** – NO<sub>x</sub> emissions from the two (2) Tundish preheaters shall be controlled by proper operation and maintenance. Operators shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization of the manufacturer's operating instructions, at minimum. The permittee shall maintain records of the required training including a statement of time, place and nature of training provided. The permittee shall have available good written operating procedures and a maintenance schedule. These procedures shall be based on the manufacturer's recommendations, at minimum. All records required by this condition shall be kept on site and made available for inspection by the DEQ.  
(9 VAC 5-40-310 and 9 VAC 5-80-850)
  
3. **Electric Arc Furnace #4 (EAF #4) NO<sub>x</sub> Emissions Control** – NO<sub>x</sub> emissions from Electric Arc Furnace #4 for melting scrap steel shall be controlled by proper operation and maintenance. Operators shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization of the manufacturer's operating instructions, at minimum. The permittee shall maintain records of the required training including a statement of time, place and nature of training provided. The permittee shall have available good written operating procedures and a maintenance schedule. These procedures shall be based on the manufacturer's recommendations, at minimum. All records required by this condition shall be kept on site and made available for inspection by the DEQ.  
(9 VAC 5-40-310 and 9 VAC 5-80-850)
  
4. **Electric Arc Furnace #5 (EAF #5) NO<sub>x</sub> Emissions Control** – NO<sub>x</sub> emissions from Electric Arc Furnace #5 for melting scrap steel shall be controlled by proper operation and maintenance. Operators shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization of the manufacturer's operating instructions, at minimum. The permittee shall maintain records of the required training including a statement of time, place and nature of training provided. The permittee shall have available good written operating procedures and a maintenance schedule. These procedures shall be based on the manufacturer's recommendations, at minimum. All records required by this condition shall be kept on site and made available for inspection by the DEQ.  
(9 VAC 5-40-310 and 9 VAC 5-80-850)

5. **Ladle Metallurgical Station #5 (LMS #5) NO<sub>x</sub> Emissions Control** – NO<sub>x</sub> emissions from Ladle Metallurgical Station #5 for refining molten steel shall be controlled by proper operation and maintenance. Operators shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization of the manufacturer's operating instructions, at minimum. The permittee shall maintain records of the required training including a statement of time, place and nature of training provided. The permittee shall have available good written operating procedures and a maintenance schedule. These procedures shall be based on the manufacturer's recommendations, at minimum. All records required by this condition shall be kept on site and made available for inspection by the DEQ.  
(9 VAC 5-40-310 and 9 VAC 5-80-850)
6. **Billet Reheat Furnace #1 (BRF #1) NO<sub>x</sub> Emissions Control** – NO<sub>x</sub> emissions from Billet Reheat Furnace #1 shall be controlled by low-NO<sub>x</sub> burners and proper operation and maintenance. Operators shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization of the manufacturer's operating instructions, at minimum. The permittee shall maintain records of the required training including a statement of time, place and nature of training provided. The permittee shall have available good written operating procedures and a maintenance schedule. These procedures shall be based on the manufacturer's recommendations, at minimum. All records required by this condition shall be kept on site and made available for inspection by the DEQ.  
(9 VAC 5-40-310 and 9 VAC 5-80-850)
7. **Billet Reheat Furnace #2 (BRF #2) NO<sub>x</sub> Emissions Control** – NO<sub>x</sub> emissions from Billet Reheat Furnace #2, if it is installed, shall be controlled by ultra low-NO<sub>x</sub> burners and proper operation and maintenance. Operators shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization of the manufacturer's operating instructions, at minimum. The permittee shall maintain records of the required training including a statement of time, place and nature of training provided. The permittee shall have available good written operating procedures and a maintenance schedule. These procedures shall be based on the manufacturer's recommendations, at minimum. All records required by this condition shall be kept on site and made available for inspection by the DEQ.  
(9 VAC 5-40-310 and 9 VAC 5-80-850)

**PROCESS REQUIREMENTS - Operational Limitations**

8. **Fuel** - The approved fuels for the Tundish and Ladle preheaters are natural gas (primary fuel), propane, and distillate oil. Distillate oil is defined as fuel oil that meets the specifications for distillate fuel oil by the American Society for Testing and Materials. A change in the fuels may require a permit to modify and operate.  
(9 VAC 5-80-850)
9. **Fuel** - The approved fuels for Billet Reheat Furnaces #1 and #2 are natural gas (primary fuel) and distillate oil. Distillate oil is defined as fuel oil that meets the specifications for distillate fuel oil by the American Society for Testing and Materials. A change in the fuels may require a permit to modify and operate.  
(9 VAC 5-80-850)
10. **Fuel** - The approved auxiliary fuel for Electric Arc Furnace #5 is natural gas. (Electricity is the primary heat source.) A change in the fuel may require a permit to modify and operate.  
(9 VAC 5-80-850)

**EMISSIONS LIMITATIONS**

11. **NO<sub>x</sub> Emission Limits** - NO<sub>x</sub> emissions shall not exceed:
  - a. 0.25 lb/million Btu      The 2 Tundish preheaters and the 2 Ladle preheaters
  - b. 37.8 lbs/hr              #5 Electric Arc Furnace
  - c. 6.0 lbs/hr                #5 Ladle Metallurgical Station
  - d. 53.1 lbs/hr              #1 Billet Reheat Furnace
  - e. 39.9 lbs/hr              #2 Billet Reheat Furnace

(9 VAC 5-80-850, 9 VAC 5-40-310 and 9 VAC 5-40-311)

**TESTING**

12. **Performance Testing** - The permittee shall conduct performance tests to measure NO<sub>x</sub> emissions for the equipment listed in this condition to determine compliance with the emission limits in this permit. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30 and the test procedures contained in each applicable section or subpart listed in 9 VAC 5-50-410 (EPA Reference Test Methods). All details of the tests are to be arranged with the Air Compliance Manager, West Central Regional Office.

The permittee shall submit an original and one copy of a test protocol at least 30 days prior to testing, for DEQ agreement. Compliance with the emission limits shall be demonstrated no later than November 15, 2005. An original and one copy of the test results shall be submitted to the Air Compliance Manager, West Central Regional Office within 45 days after test completion and shall conform to the test report format enclosed with this permit.

- a. #5 Electric Arc Furnace
- b. #1 Billet Reheat Furnace (unless this is no longer the plant's Billet Reheat Furnace on November 15, 2005).
- c. #2 Billet Reheat Furnace (if installed) - within 60 days after reaching full capacity, but no later than 180 days after startup.

(9 VAC 5-40-30 and 9 VAC 5-80-880)

13. **Performance Testing** - Upon request and proper notification by DEQ or EPA, the permittee shall conduct performance tests to measure nitrogen oxides (NO<sub>x</sub>) emissions from any of the equipment in this permit to demonstrate compliance with the emission limits contained in this permit. The details of the tests shall be arranged with the Air Compliance Manager, West Central Regional Office.  
(9 VAC 5-40-30 and 9 VAC 5-80-880)

## RECORDS

14. **On Site Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Air Compliance Manager, West Central Regional Office. These records shall include, but are not limited to:
- a. The total amount of NO<sub>x</sub> emitted from the facility using methods and/or calculations approved by DEQ, calculated monthly as the sum of the previous consecutive twelve month period.
  - b. Annual production of steel for each #4 Electric Arc Furnace, #5 Electric Arc Furnace, and #5 Ladle Metallurgical Station, calculated monthly as the sum of the previous consecutive twelve month period.
  - c. Annual consumption of each fuel by the Tundish and Ladle preheaters, and by each Billet Reheat Furnace, calculated monthly as the sum of the previous consecutive twelve month period.

- d. For each shipment of distillate fuel oil used in the equipment in this permit, the name of the fuel supplier, the quantity of fuel, and supplier statement that it meets ASTM specifications for distillate oil.
- e. The NO<sub>x</sub> performance test reports for any equipment in this permit, including for #5 Electric Arc Furnace, and #1 and #2 Billet Reheat Furnaces.
- f. Records of operator training, maintenance schedules and record of maintenance performed that could affect NO<sub>x</sub> emissions as required by the Process Requirements - NO<sub>x</sub> Emission Controls section of this permit (Tundish and Ladle preheaters, EAF #4, EAF #5, LMS #5, BRF #1 and BRF #2)

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.

(9 VAC 5-40-390 and 9 VAC 5-80-900)

#### **GENERAL CONDITIONS**

15. **Relationship to Other Permit Requirements** - Except to the extent that the conditions in this permit may be more stringent, this permit does not supersede or replace any other valid permit, regulatory or statutory requirement. Furthermore, this approval to operate shall not relieve Roanoke Electric Steel Corp. of the responsibility to comply with all other local, state, and federal regulations, including permit regulations.  
(9 VAC 5-80-800 D and 9 VAC 5-80-820 F)
16. **Federal Enforceability** - Once the permit is approved by the U.S. Environmental Protection Agency into the Commonwealth of Virginia State Implementation Plan, the permit is enforceable by EPA and citizens under the federal Clean Air Act.  
(9 VAC 5-80-800 C.2. and 9 VAC 5-80-820 F)
17. **Permit Modification** - The Board may modify, rewrite, or amend this permit with the consent of Roanoke Electric Steel Corp., for good cause shown Roanoke Electric Steel Corp., or on its own motion provided approval of the changes is accomplished in accordance with Regulations of the Board and the Administrative Process Act (§ 2.2-4000 et seq.); however, such changes shall not be effective until the changes are approved following the requirements of 40 CFR Part 51 (Requirements for Preparation, Adoption, and Submittal of Implementation Plans).  
(9 VAC 5-80-960 and 9 VAC 5-80-1000)
18. **Failure to Comply** - Failure by Roanoke Electric Steel Corp. to comply with any of the conditions of this permit shall constitute a violation of a Permit of the Board. Failure to comply may result in a Notice of Violation and civil penalty. Nothing herein shall waive the initiation of appropriate enforcement actions or the issuance of orders as appropriate by the Board as a result of such violations. Nothing herein shall affect appropriate enforcement actions by any other federal, state, or local regulatory authority.

(9 VAC 5-80-820 F, 9 VAC 5-80-910 and 9 VAC 5-80-1010)

19. **Right of Entry** - The permittee shall allow authorized local, state, and federal representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;
- b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;
- c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and
- d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.  
(9 VAC 5-170-130 and 9 VAC 5-80-850)

20. **Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the Air Compliance Manager, West Central Regional Office of the change of ownership within thirty days of the transfer.  
(9 VAC 5-80-940)

21. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.  
(9 VAC 5-80-860 D)