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BUREAU OF AIR REGULATION

**AIR CONSTRUCTION PERMIT  
APPLICATION FOR TEST PRODUCTION  
OF VEHICLE TIRES AS A CARBON  
SOURCE FOR STEEL MAKING IN THE  
ELECTRIC ARC FURNACE (EAF)**

*Gerdau Ameristeel  
Jacksonville Steel Mill*

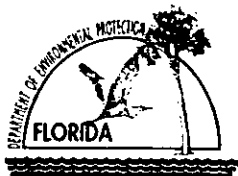
**Prepared For:**  
**Gerdau Ameristeel**

**Prepared By:**  
**Golder Associates Inc.**  
**6241 NW 23rd Street, Suite 500**  
**Gainesville, Florida 32653-1500**

**December 2006**  
**0639766**

**DISTRIBUTION:**  
**2 Copies – Gerdau Ameristeel**  
**4 Copies – FDEP**  
**1 Copy – Golder Associates Inc.**

**APPLICATION FOR AIR PERMIT – LONG FORM**



# Department of Environmental Protection

## Division of Air Resource Management

### APPLICATION FOR AIR PERMIT - LONG FORM

#### I. APPLICATION INFORMATION

**Air Construction Permit** – Use this form to apply for an air construction permit at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air permit. Also use this form to apply for an air construction permit:

- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment area (NAA) new source review, or maximum achievable control technology (MACT) review; or
- Where the applicant proposes to assume a restriction on the potential emissions of one or more pollutants to escape a federal program requirement such as PSD review, NAA new source review, Title V, or MACT; or
- Where the applicant proposes to establish, revise, or renew a plantwide applicability limit (PAL).

**Air Operation Permit** – Use this form to apply for:

- an initial federally enforceable state air operation permit (FESOP); or
- an initial/revised/renewal Title V air operation permit.

**Air Construction Permit & Title V Air Operation Permit (Concurrent Processing Option)** – Use this form to apply for both an air construction permit and a revised or renewal Title V air operation permit incorporating the proposed project.

To ensure accuracy, please see form instructions.

#### Identification of Facility

1. Facility Owner/Company Name: <b>Gerdau Ameristeel</b>	
2. Site Name: <b>Jacksonville Steel Mill</b>	
3. Facility Identification Number: <b>0310157</b>	
4. Facility Location...: Street Address or Other Locator: <b>16770 Rebar Road</b> City: <b>Baldwin</b> County: <b>Duval</b> Zip Code: <b>32234</b>	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

#### Application Contact

1. Application Contact Name: <b>James P. Wold, Environmental Specialist</b>	
2. Application Contact Mailing Address: Organization/Firm: <b>Gerdau Ameristeel</b> Street Address: <b>16770 Rebar Road</b> City: <b>Baldwin</b> State: <b>FL</b> Zip Code: <b>32234</b>	
3. Application Contact Telephone Numbers... Telephone: <b>(904) 226-4261</b> ext.133 Fax: <b>(904) 266-2996</b>	
4. Application Contact Email Address: <b>jwold@gerdauameristeel.com</b>	

#### Application Processing Information (DEP Use)

1. Date of Receipt of Application: <b>1/5/07</b>	2. Project Number(s): <b>0310157-009-AC</b>
3. PSD Number (if applicable):	4. Siting Number (if applicable):

## APPLICATION INFORMATION

### Purpose of Application

This application for air permit is submitted to obtain: (Check one)

#### **Air Construction Permit**

- ☒ Air construction permit.
- ☐ Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).
- ☐ Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

#### **Air Operation Permit**

- ☐ Initial Title V air operation permit.
- ☐ Title V air operation permit revision.
- ☐ Title V air operation permit renewal.
- ☐ Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.
- ☐ Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

#### **Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)**

- ☐ Air construction permit and Title V permit revision, incorporating the proposed project.
- ☐ Air construction permit and Title V permit renewal, incorporating the proposed project.

**Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:**

- ☐ I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

### Application Comment

This construction permit application is for a test production run of vehicle tires as a carbon source in Gerdau Ameristeel's Jacksonville Steel Mill electric arc furnace (EAF).

## APPLICATION INFORMATION

### Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Proc. Fee
001	Electric Arc Furnace	AC1A	NA

### Application Processing Fee

Check one: ☐ Attached - Amount: \$ \_\_\_\_\_ ☒ Not Applicable

## APPLICATION INFORMATION

### Owner/Authorized Representative Statement

**Complete if applying for an air construction permit or an initial FESOP.**

1. Owner/Authorized Representative Name: <b>Donald R. Shumake, Vice President/General Manager</b>
2. Owner/Authorized Representative Mailing Address: Organization/Firm: <b>Gerdau Ameristeel</b> Street Address: <b>16770 Rebar Road</b> City: <b>Baldwin</b> State: <b>Florida</b> Zip Code: <b>32234</b>
3. Owner/Authorized Representative Telephone Numbers: Telephone: <b>(904) 226-4261</b> ext. <b>100</b> Fax: <b>(904) 266-4244</b>
4. Owner/Authorized Representative Email Address: <b>shumake@gerdauameristeel.com</b>
5. Owner/Authorized Representative Statement:  <i>I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other requirements identified in this application to which the facility is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit.</i>  <div style="display: flex; justify-content: space-between;"><div>Signature <u>Donald R. Shumake</u></div><div>Date <u>1-2-07</u></div></div>

## APPLICATION INFORMATION

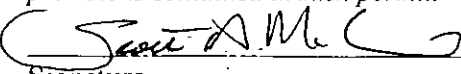

### Application Responsible Official Certification

Complete if applying for an initial/revised/renewal Title V permit or concurrent processing of an air construction permit and a revised/renewal Title V permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."

1. Application Responsible Official Name:			
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable): <input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C. <input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively. <input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. <input type="checkbox"/> The designated representative at an Acid Rain source.			
3. Application Responsible Official Mailing Address: Organization/Firm: Street Address: City: State: Zip Code:			
4. Application Responsible Official Telephone Numbers: Telephone: () ext. Fax: ()			
5. Application Responsible Official Email Address:			
6. Application Responsible Official Certification: <i>I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.</i>  Signature _____ Date _____			

## APPLICATION INFORMATION

### Professional Engineer Certification

1. Professional Engineer Name: <b>Scott A. McCann</b> Registration Number: <b>54172</b>
2. Professional Engineer Mailing Address... Organization/Firm: <b>Golder Associates Inc.**</b> Street Address: <b>6241 NW 23<sup>rd</sup> Street, Suite 500</b> City: <b>Gainesville</b> State: <b>FL</b> Zip Code: <b>32653</b>
3. Professional Engineer Telephone Numbers... Telephone: <b>(352) 336-5600</b> ext. <b>543</b> Fax: <b>(352) 336-6603</b>
4. Professional Engineer Email Address: <b>smccann@golder.com</b>
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/> if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/> if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/> if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/> if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i>  Signature: <u></u> Date: <u>12/14/06</u> (seal) <u></u> <u>12/14/06</u>

\* Attach any exception to certification statement.

\*\* Board of Professional Engineers Certificate of Authorization #00001670



## II. FACILITY INFORMATION

### A. GENERAL FACILITY INFORMATION

#### Facility Location and Type

1. Facility UTM Coordinates: Zone 17      East (km)    405.7 North (km)   3,350.2		2. Facility Latitude/Longitude: Latitude (DD/MM/SS)    30/16/52 Longitude (DD/MM/SS)   81/58/50	
3. Governmental Facility Code: 0	4. Facility Status Code: A	5. Facility Major Group SIC Code: 33	6. Facility SIC(s):  3390
7. Facility Comment :			

#### Facility Contact

1. Facility Contact Name: <b>James P. Wold, Environmental Specialist</b>			
2. Facility Contact Mailing Address... Organization/Firm: <b>Gerdau Ameristeel</b> Street Address: <b>16770 Rebar Road</b> City: <b>Baldwin</b> State: <b>FL</b> Zip Code: <b>32234</b>			
3. Facility Contact Telephone Numbers: Telephone: <b>(904) 226-4261</b> ext.133      Fax: <b>(904) 266-2996</b>			
4. Facility Contact Email Address: <b>jwold@gerdauameristeel.com</b>			

#### Facility Primary Responsible Official

Complete if an "application responsible official" is identified in Section I. that is not the facility "primary responsible official."

1. Facility Primary Responsible Official Name:		
2. Facility Primary Responsible Official Mailing Address: Organization/Firm: Street Address: City:                      State:                      Zip Code:		
3. Facility Primary Responsible Official Telephone Numbers: Telephone: ( )      ext.      Fax: ( )		
4. Facility Primary Responsible Official Email Address:		

## FACILITY INFORMATION

### Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a “major source” and a “synthetic minor source.”

1. <input type="checkbox"/> Small Business Stationary Source	<input type="checkbox"/> Unknown
2. <input type="checkbox"/> Synthetic Non-Title V Source	
3. <input checked="" type="checkbox"/> Title V Source	
4. <input type="checkbox"/> Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. <input type="checkbox"/> Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. <input type="checkbox"/> Major Source of Hazardous Air Pollutants (HAPs)	
7. <input type="checkbox"/> Synthetic Minor Source of HAPs	
8. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. <input type="checkbox"/> One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. <input type="checkbox"/> One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. <input type="checkbox"/> Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:	

## FACILITY INFORMATION

### List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
NO <sub>x</sub>	A	N
CO	A	N
VOC	B	N
PM	A	N
PM <sub>10</sub>	A	N
Lead	B	N
SO <sub>2</sub>	A	N

## FACILITY INFORMATION

## B. EMISSIONS CAPS

### **Facility-Wide or Multi-Unit Emissions Caps**

[illegible]

## FACILITY INFORMATION

### C. FACILITY ADDITIONAL INFORMATION

#### Additional Requirements for All Applications, Except as Otherwise Stated

1. Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <b>Dec 04 (PSD)</b>
2. Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <b>Dec 04 (PSD)</b>
3. Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <b>Dec 04 (PSD)</b>

#### Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (existing permitted facility)
2. Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL): <input checked="" type="checkbox"/> Attached, Document ID: <b>See Part 2</b>
3. Rule Applicability Analysis: <input checked="" type="checkbox"/> Attached, Document ID: <b>See Part 2</b>
4. List of Exempt Emissions Units (Rule 62-210.300(3), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (no exempt units at facility)
5. Fugitive Emissions Identification: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
6. Air Quality Analysis (Rule 62-212.400(7), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
7. Source Impact Analysis (Rule 62-212.400(5), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
8. Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9. Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(c), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
10. Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable



## EMISSIONS UNIT INFORMATION

Section [1] of [1]  
Electric Arc Furnace

### III. EMISSIONS UNIT INFORMATION

**Title V Air Operation Permit Application** - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

**Air Construction Permit or FESOP Application** - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

**Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application** -- Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

**EMISSIONS UNIT INFORMATION**

Section [1] of [1]  
Electric Arc Furnace

**A. GENERAL EMISSIONS UNIT INFORMATION****Title V Air Operation Permit Emissions Unit Classification**

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

- ☒ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.
- ☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

**Emissions Unit Description and Status**

1. Type of Emissions Unit Addressed in this Section: (Check one)

- ☐ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).
- ☒ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.
- ☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:  
**Electric Arc Furnace (EAF)**

3. Emissions Unit Identification Number: **EU 008**

4. Emissions  
Unit Status  
Code:  
**C**

5. Commence  
Construction  
Date:

6. Initial  
Startup  
Date:

7. Emissions Unit  
Major Group  
SIC Code:  
**3390**

8. Acid Rain Unit?  
☐ Yes  
☒ No

9. Package Unit:  
Manufacturer:

Model Number:

10. Generator Nameplate Rating: **MW**

11. Emissions Unit Comment:



## EMISSIONS UNIT INFORMATION

Section [1] of [1]

Electric Arc Furnace

### Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description:

Baghouse No. 5 (Fabric filter – medium temperature)

2. Control Device or Method Code(s): 017

**EMISSIONS UNIT INFORMATION**

Section [1] of [1]

Electric Arc Furnace

**B. EMISSIONS UNIT CAPACITY INFORMATION**

(Optional for unregulated emissions units.)

**Emissions Unit Operating Capacity and Schedule**

1. Maximum Process or Throughput Rate: <b>176 TPH (scrap steel)</b>
2. Maximum Production Rate: <b>160 billet TPH</b>
3. Maximum Heat Input Rate: <b>34.6 million Btu/hr</b>
4. Maximum Incineration Rate:       pounds/hr tons/day
5. Requested Maximum Operating Schedule: <b>24 hours/day</b> <b>7 days/week</b> <b>52 weeks/year</b> <b>8,520 hours/year</b>
6. Operating Capacity/Schedule Comment:  <b>Batch operation with a maximum daily average of 160 billet tons steel per hour, Monthly average of 140 billet tons steel per hour 1,192,800 billet tons of steel per year.</b>

**EMISSIONS UNIT INFORMATION**Section **[1]** of **[1]**

Electric Arc Furnace

**C. EMISSION POINT (STACK/VENT) INFORMATION****(Optional for unregulated emissions units.)****Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram: <b>Baghouse No. 5</b>		2. Emission Point Type Code: <b>3</b>	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:  <b>Baghouse No. 5 will have one stack.</b>			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code: <b>V</b>		6. Stack Height: <b>115 feet</b>	
		7. Exit Diameter: <b>19 feet</b>	
8. Exit Temperature: <b>230°F</b>		9. Actual Volumetric Flow Rate: <b>1,000,000 acfm</b>	
		10. Water Vapor: <b>5%</b>	
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:  <b>Actual volumetric flow will vary from 750,000 to 1,000,000 acfm as needed to sufficiently evacuate the EAF and Meltshop building.</b>			

**EMISSIONS UNIT INFORMATION**

Section [1] of [1]  
Electric Arc Furnace

**D. SEGMENT (PROCESS/FUEL) INFORMATION****Segment Description and Rate: Segment 1 of 2**

1. Segment Description (Process/Fuel Type): <b>Industrial Process, Natural Gas</b>		
2. Source Classification Code (SCC): <b>3-90-006-99</b>		3. SCC Units: <b>Million cubic feet (MMcf)</b>
4. Maximum Hourly Rate: <b>0.034</b>	5. Maximum Annual Rate: <b>289.7</b>	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: <b>1,019</b>
10. Segment Comment: <b>214 cf/ton steel x 160 ton/hr = 0.034 MMcf/hr</b>  <b>0.034 MMcf/hr x 8,520 hr/yr = 289.7 MMcf/yr</b>		

**Segment Description and Rate: Segment 2 of 2**

1. Segment Description (Process/Fuel Type): <b>Scrap Steel and Raw Materials</b>		
2. Source Classification Code (SCC): <b>3-03-009-04</b>		3. SCC Units: <b>Tons of Raw Material</b>
4. Maximum Hourly Rate: <b>176</b>	5. Maximum Annual Rate: <b>1,499,520</b>	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: <b>Raw materials (scrap steel, fluxes, carbon, alloys, etc.) to EAF</b> <b>Annual rate based on 8,520 hours per year.</b>		

**Section [1] of [1]**  
**Electric Arc Furnace**

### List of Pollutants Emitted by Emissions Unit

[illegible]

**EMISSIONS UNIT INFORMATION**

Section [1] of [1]

Electric Arc Furnace

**POLLUTANT DETAIL INFORMATION**

Page [1] of [6]

Particulate Matter - Total

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: <b>PM</b>		2. Total Percent Efficiency of Control: <b>99%</b>	
3. Potential Emissions: <b>15.43 lb/hour          65.7 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to          tons/year			
6. Emission Factor: <b>0.0018 gr/dscf</b>  Reference: <b>Permit</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From:          To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b><math>0.0018 \text{ gr/dscf} \times (1,000,000 \text{ acfm}) \times 60 \text{ min/1 hr} \times 1 \text{ lb/7,000 gr} = 15.43 \text{ lb/hr}</math></b> <b><math>15.43 \text{ lb/hr} \times 8,520 \text{ hr/yr} \times 1 \text{ ton/2,000 lb} = 65.7 \text{ TPY}</math></b>			
11. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Annual emissions based on 8,520 hours per year.</b>			

**EMISSIONS UNIT INFORMATION**Section **[1]** of **[1]**  
Electric Arc Furnace**POLLUTANT DETAIL INFORMATION**Page **[1]** of **[6]**  
Particulate Matter- Total**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

**Allowable Emissions** Allowable Emissions **1** of **1**

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.0018 gr/dscf</b>	4. Equivalent Allowable Emissions: <b>15.43 lb/hour      65.7 tons/year</b>
5. Method of Compliance: <b>EPA Method 5.</b>	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**Section [1] of [1]  
Electric Arc Furnace**POLLUTANT DETAIL INFORMATION**Page [2] of [6]  
Particulate Matter – PM<sub>10</sub>**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: <b>PM<sub>10</sub></b>		2. Total Percent Efficiency of Control: <b>99%</b>	
3. Potential Emissions: <b>15.43 lb/hour                      65.7 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.0018 gr/dscf</b>  Reference: <b>Permit</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From:                      To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:			
11. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Annual emissions based on 8,520 hours per year.</b>			



**EMISSIONS UNIT INFORMATION**Section [1] of [1]  
Electric Arc Furnace**POLLUTANT DETAIL INFORMATION**Page [2] of [6]  
Particulate Matter – PM<sub>10</sub>**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.0018 gr/dscf</b>	4. Equivalent Allowable Emissions: <b>15.43 lb/hour      65.7 tons/year</b>
5. Method of Compliance: <b>EPA Method 5</b>	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [1] of [1]

Electric Arc Furnace

**POLLUTANT DETAIL INFORMATION**

Page [3] of [6]

Carbon Dioxide

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: <b>CO</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>320 lb/hour                      1,193 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>2.0 lb/ton of steel</b>  Reference: <b>Permit</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From:                      To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>160 ton/hr x 2.0 lb/ton = 320 lb/hr</b> <b>1,192,800 ton/yr x 2.0 lb/ton / 2000 lb/ton = 1,193 TPY</b>			
11. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Annual emissions based on 8,520 hours per year.</b>			

**EMISSIONS UNIT INFORMATION**Section **[1]** of **[1]**  
Electric Arc Furnace**POLLUTANT DETAIL INFORMATION**Page **[3]** of **[6]**  
Carbon Dioxide**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>2.0 lb/ton of steel</b>	4. Equivalent Allowable Emissions: <b>320 lb/hour      1,193 tons/year</b>
5. Method of Compliance: <b>EPA Method 10; Three 3-hour test runs.</b>	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**Section **[1]** of **[1]**  
Electric Arc Furnace**POLLUTANT DETAIL INFORMATION**Page **[4]** of **[6]**  
Nitrogen Oxide**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: <b>NO<sub>x</sub></b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>52.8 lb/hour                      197 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.33 lb/ton of steel</b>  Reference: <b>Permit</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From:                      To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>160 ton/hr x 0.33 lb/ton = 52.8 lb/hr</b> <b>1,192,800 ton/yr x 0.33 lb/ton / 2000 lb/ton = 197 TPY</b>			
11. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Annual emissions based on 8,520 hours per year.</b>			

**EMISSIONS UNIT INFORMATION**Section **[1]** of **[1]**  
Electric Arc Furnace**POLLUTANT DETAIL INFORMATION**Page **[4]** of **[6]**  
Nitrogen Oxide**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.33 lb/ton steel</b>	4. Equivalent Allowable Emissions: <b>52.8 lb/hour      197 tons/year</b>
5. Method of Compliance: <b>EPA Method 7E, Three test runs.</b>	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**Section [1] of [1]  
Electric Arc Furnace**POLLUTANT DETAIL INFORMATION**Page [5] of [6]  
Volatile Organic Compounds**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: <b>VOC</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>20.8 lb/hour                      77.5 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.13 lb/ton of steel</b>  Reference: <b>Permit</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From:                      To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>160 ton/hr x 0.13 lb/ton = 20.8 lb/hr</b> <b>1,192,800 ton/yr x 0.13 lb/ton / 2000 lb/ton = 77.5 TPY</b>			
11. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Annual emissions based on 8,520 hours per year.</b>			

**EMISSIONS UNIT INFORMATION**Section [1] of [1]  
Electric Arc Furnace**POLLUTANT DETAIL INFORMATION**Page [5] of [6]  
Volatile Organic Compounds**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.13 lb/ton of steel</b>	4. Equivalent Allowable Emissions: <b>20.8 lb/hour      77.5 tons/year</b>
5. Method of Compliance: <b>EPA Method 18, 25, or 25A; Three test runs.</b>	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

## EMISSIONS UNIT INFORMATION

Section [1] of [1]  
Electric Arc Furnace

## POLLUTANT DETAIL INFORMATION

Page [6] of [6]  
Lead

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: <b>Lead (Pb)</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>0.312 lb/hour      1.163 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to      tons/year			
6. Emission Factor: <b>0.00195 lb/ton steel</b>  Reference: <b>Permit</b>		7. Emissions Method Code:	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From:      To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>160 ton/yr x 0.00195 lb/ton = 0.312 lb/hr</b> <b>1,192,800 ton/yr x 0.00195 lb/ton / 2000 lb/ton = 1.163 TPY</b>			
11. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Annual emissions based on 8,520 hours per year.</b>			



**EMISSIONS UNIT INFORMATION**Section [1] of [1]  
Electric Arc Furnace**POLLUTANT DETAIL INFORMATION**Page [6] of [6]  
Lead**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.312 lb/hr</b>	4. Equivalent Allowable Emissions: <b>0.312 lb/hour      1.163 tons/year</b>
5. Method of Compliance: <b>EPA Method 12; Three test runs.</b>	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [1] of [1]  
Electric Arc Furnace

**G. VISIBLE EMISSIONS INFORMATION**

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

**Visible Emissions Limitation:** Visible Emissions Limitation 1 of 3

1. Visible Emissions Subtype: <b>VE10</b>	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: <b>10 %</b> Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: <b>EPA Method 9</b>	
5. Visible Emissions Comment: <b>Dust handling system (dust captured by baghouse) NSPS, 40 CFR 60, Subpart AAa, Permit Requirement</b>	

**Visible Emissions Limitation:** Visible Emissions Limitation 2 of 3

1. Visible Emissions Subtype: <b>VE99</b>	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: <b>100 %</b> Maximum Period of Excess Opacity Allowed: <b>60 min/hour</b>	
4. Method of Compliance: <b>Best operational practices.</b>	
5. Visible Emissions Comment: <b>Excess emissions for startup, shutdown, malfunction not to exceed 2 hours per 24-hour period. Rule 62-210.700(1) and 40 CFR 60.11(c).</b>	

## EMISSIONS UNIT INFORMATION

Section [1] of [1]  
Electric Arc Furnace

### G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

**Visible Emissions Limitation:** Visible Emissions Limitation 3 of 3

1. Visible Emissions Subtype: <b>VE03</b>	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: <b>3 %</b> Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: <b>Continuous Opacity Monitor or Method 9</b>	
6. Visible Emissions Comment: <b>Opacity from the exit of the control device.</b> <b>NSPS, 40 CFR 60, Subpart AAa.</b>  <b>40 CFR 60.273a( c) A continuous monitoring system is not required on modular, multiple-stack, negative pressure, or positive pressure fabric filters if a VE of the control device is performed once per day when the furnace is operating in the melting and refining period.</b>	

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_ of \_\_

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

**EMISSIONS UNIT INFORMATION**

Section [1] of [1]

**II. CONTINUOUS MONITOR INFORMATION****Complete if this emissions unit is or would be subject to continuous monitoring.****Continuous Monitoring System:** Continuous Monitor \_ of \_

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

**Continuous Monitoring System:** Continuous Monitor \_ of \_

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

## EMISSIONS UNIT INFORMATION

Section [1] of [1]

Electric Arc Furnace

### I. EMISSIONS UNIT ADDITIONAL INFORMATION

#### Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <b>Dec 04 (PSD)</b>
2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <b>Dec 04 (PSD)</b>
3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <b>Dec 04 (PSD)</b>
4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

## EMISSIONS UNIT INFORMATION

Section [1] of [1]  
Electric Arc Furnace

### Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(6) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) <input type="checkbox"/> Attached, Document ID: <input checked="" type="checkbox"/> Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(5)(h)6., F.A.C., and Rule 62-212.500(4)(f), F.A.C.) <input type="checkbox"/> Attached, Document ID: <input checked="" type="checkbox"/> Not Applicable
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) <input type="checkbox"/> Attached, Document ID: <input checked="" type="checkbox"/> Not Applicable

### Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements <input type="checkbox"/> Attached, Document ID: <input type="checkbox"/> Not Applicable
2. Compliance Assurance Monitoring <input type="checkbox"/> Attached, Document ID: <input type="checkbox"/> Not Applicable
3. Alternative Methods of Operation <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
4. Alternative Modes of Operation (Emissions Trading) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
5. Acid Rain Part Application <input type="checkbox"/> Certificate of Representation (EPA Form No. 7610-1) <input type="checkbox"/> Copy Attached, Document ID: _____ <input type="checkbox"/> Acid Rain Part (Form No. 62-210.900(1)(a)) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input type="checkbox"/> Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input type="checkbox"/> Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input type="checkbox"/> Not Applicable

**EMISSIONS UNIT INFORMATION**

Section [1] of [1]  
Electric Arc Furnace

**Additional Requirements Comment**

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**PART 2**



## **1.0 INTRODUCTION**

This construction permit application is for a test production run of vehicle tires as a carbon source in Gerdau Ameristeel's Jacksonville Steel Mill electric arc furnace (EAF). Per the Florida Department of Environmental Protection's (FDEP) letter dated January 20, 2006, included as Attachment A, the test production run is proposed to be performed with the new EAF currently being constructed as part of Construction Permit 0310157-007-AC/PSD-FL-349.

## **2.0 EXISTING FACILITY DESCRIPTION**

Gerdau owns and operates a secondary metal production facility, EAF steel mill located in Baldwin, Florida, (Jacksonville Steel Mill). The Jacksonville Steel Mill receives scrap steel by truck and rail and processes it into steel rebar, wire, and rod. The meltshop facility has been operating since 1976.

The new EAF will have a maximum design capacity of 1,192,800 tons of tapped steel per year at 8,520 hours per year. The EAF and Ladle Metallurgy Furnace (LMF) will each have a daily maximum hourly production rate of 160 tons per hour (TPH) and a monthly maximum hourly production rate of 140 TPH.

The facility has supporting activities including scrap delivery from the scrap yard to the furnace and slag processing. A new scrap building authorized as part of Construction Permit 0310157-007-AC/PSD-FL-349 will have a concrete floor and will be constructed south of the new meltshop building. Incoming scrap will be received directly into the new building by both railcar and truck. The scrap will then be loaded into the charge buckets with overhead cranes and transported by a specialized rail car to the meltshop. During the loading of scrap into the charge bucket, carbon in the form of petroleum coke (pet-coke) is layered into the scrap mix. The pet-coke is brought into the facility in "supersac" bags and these are placed into the charge bucket. The rail cars will be routed into the south end of the new meltshop building where a crane will pick up the loaded charge bucket and charge the EAF.

## **3.0 PROPOSED PROJECT**

Several mini-mills in the United States are utilizing discarded tires as a feed stock to the EAF in an effort to reduce and/or replace the conventional use of bituminous coal or pet-coke. Tires offer

several benefits in steel making; steel belts and beads are recycled in the process and the carbonaceous materials are incorporated into the steel bath to assist in the steel making process.

The proposed project will be to unload a semi-truck of shredded or whole tires into a temporary storage location. The tire material will then be loaded by bobcat into the flux bin and then loaded into the charge bucket for use in the EAF. During the temporary process various mixes of tire material and charge carbon will be used. The amount of tires used per heat will be documented during the trial period and submitted with the testing data. The use of tires in the EAF will not increase its capacity. The test will include approximately 40 heats with each heat of a minimum 40 minutes in duration and be completed within 2 weeks.

Tires will supplement and/or replace the current carbon source, pet-coke, in the charge bucket. The carbon and hydrogen in the tires will provide fuel energy while the steel belts and beads will become part of the heat (steel product). Tires typically have an approximate sulfur content of 1.4 percent with a heating value of 15,800 British thermal units per pound (Btu/lb) compared to pet-coke with a typical sulfur content of 3 percent and higher, with a heating value of around 13,200 Btu/lb. It is anticipated that the use of tires versus pet-coke will result in decreased sulfur dioxide (SO<sub>2</sub>) emissions from the EAF. Tire use is not expected to result in increases of carbon monoxide (CO), nitrous oxides (NO<sub>x</sub>), particulate matter (PM), or volatile organic compounds (VOC) emissions. Several U.S. steel facilities are currently utilizing tires as a carbon source in EAF operations.

### **3.1 Existing Emission Data**

Gerdau Ameristeel has performed tests to establish the affects on EAF emissions from tires used as a substitute for charge carbon at a similar facility and the results are as follows:

#### **Gerdau Ameristeel-Wilton, Iowa, June 6-10, 2005 (5 Tire Test Runs):**

- Average PM and PM with a diameter of 10 microns or less (PM<sub>10</sub>) emissions with tires equal to 5.615 pounds per hour (lb/hr) and 0.0013 grains per dry standard cubic foot (gr/dscf) compared to permit limits of 14.3 lb/hr and 0.0052 gr/dscf;
- Observed Opacity of 0 percent;
- Average NO<sub>x</sub> emissions with tires equal to 11.1 lb/hr compared to the permit limit of 45 lb/hr;

- Average SO<sub>2</sub> emissions with tires equal to 1.7 parts per million (ppm) compared to a permit limit of 500 ppm; and
- Average CO emissions equal to 157.8 lb/hr compared to a permit limit of 466 lb/hr.

**Gerdau Ameristeel-Wilton, Iowa, January 10-11, 2006:**

- No significant difference in CO; 181.2 lb/hr without tires, 174.2 lb/hr with tires.

Summaries of the test results are provided in Attachment B.

### **3.2 Other Emission Data**

EPA published "Pilot-Scale Evaluation of the Potential for Emissions of Hazardous Air Pollutants From Combustion of Tire-Derived Fuel," April 1994, states that "overall, it appears that, with the exception of zinc, potential emissions from tire derived fuel (TDF) combustion are not significantly different from emissions from combustion of conventional fossil fuels, when burned in a well designed and well operated combustion device. If unacceptable particulate loading occurs due to zinc emissions, then the emissions would have to be controlled by an appropriate particulate control device." The report states, "results indicate that, if burned in a steady-state mode, TDF combustion will result in very low emissions of CO, total hydrocarbons (THCs), volatile and semi-volatile organics, and PCDD/PCDF (dioxins/furans). The report abstract is provided as Attachment C. A comparison of the chemical composition of pet-coke versus tires is included as Attachment D.

Based on a comparison of chemical composition of pet-coke and tires, U.S. Environmental Protection Agency's (EPA) experience with combustion of TDF and the physical characteristics of the EAF, no increase in chlorine or dioxins/furans is expected as a result of substituting tires for pet-coke in the EAF.

### **3.3 Emission Test Schedule and Methods**

Gerdau proposes to perform the tire trial following the initial compliance test for the new EAF. Gerdau proposes to use the compliance test results as the baseline to compare the affects of the tire trial.

During the temporary process various mixes of shredded tires and charge carbon will be used. The amount of tires used per heat will be documented during the trial period and submitted with the testing data. The EAF will have the capacity to charge carbon at a rate of 64 lb per ton of steel. The average weight of scrap tire is 20 lb. Based on equal carbon content of pet-coke and tires, an approximate range of up to three scrap tires or more per ton of steel may be added into the steel mix for the test runs. The use of tires in the EAF will not increase its capacity. The test will include 40 heats and be completed within two weeks. To the extent possible, identical grades of steel will be used. The new EAF is scheduled to begin operation April, 2007. Testing would be expected to occur after the initial compliance test following startup.

#### 3.3.1 PM and Metals

EPA Method 5 and 29, referenced in the Code of Federal Regulation, Title 40, Part 60 (40 CFR 60), Appendix A will be employed to measure PM and lead emissions. Three to five test runs will be performed each of sufficient duration to include at least three heat cycles. These test runs will be performed during the heats with the largest amount added tire material. The results of these tests will be representative of the largest potential change in emissions compared to normal operations. As such these tests will be sufficient to compare PM and lead emissions from the EAF with and without tires.

Per FDEP's request to measure chromium (Cr), cadmium (Cd), and mercury (Hg), the following information is provided. A comparison of metal content of pet-coke and tires is provided in Attachment D. As shown in the table the concentration of these metals in pet-coke and tires is not significantly different. Because tires represent a small fraction of the total heat and because the content of Cr, Cd, and Hg, are not significantly different from the existing carbon source, it is proposed that testing not be performed for these metals. There is no reason to believe that emissions of these metals will be significantly different from heats with or without tires.

#### 3.3.2 Gaseous Pollutants

The following pollutants will be measured during all test heats (approximately 40 heats).

#### 3.3.3 NO<sub>x</sub>

EPA Method 7E, referenced in 40 CFR 60, Appendix A will be employed to measure NO<sub>x</sub> emissions.

#### 3.3.4 SO<sub>2</sub>

EPA Method 6C, referenced in the 40 CFR 60, Appendix A will be employed to measure SO<sub>2</sub> emissions.

#### 3.3.5 VOC

EPA Method 18, 25 or 25A, referenced in 40 CFR 60, Appendix A will be employed to measure VOC emissions.

#### 3.3.6 CO

EPA Method 10A, referenced in 40 CFR 60, Appendix A will be employed to measure CO emissions.

#### 3.3.7 Visible Emissions

EPA Method 9 referenced in 40 CFR 60, Appendix A will be employed to measure opacity during each PM emission test run.

### **4.0 RULE APPLICABILITY**

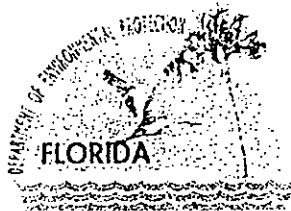
The facility is currently permitted under Title V Permit No. 0310157-006-AV. The facility is not a major source of hazardous air pollutants (HAPs).

Emission Unit 008 is regulated by; NSPS 40 CFR 60 Subpart AAa (EAF only); and Prevention of Significant Deterioration (PSD) Permit 0310157-007-AC/PSD-FL-349.

### **5.0 PSD REVIEW**

No increases in emissions are expected with the substitution of tires as a carbon source during the proposed test runs. In addition, the test runs consist of approximate 40 heats with each heat lasting a minimum of 40 minutes. PSD review is not applicable to the project. If the process is successful, a permanent method will be designed and a minor source air construction permit application will be submitted to add tires as an authorized raw material for the EAF.

**ATTACHMENT A**  
**FDEP LETTER REQUESTING AIR CONSTRUCTION PERMIT**



# Department of Environmental Protection

Jeb Bush  
Governor

Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Colleen M. Castille  
Secretary

January 20, 2005

CERTIFIED MAIL - Return Receipt Requested

Mr. James P. Wold  
Environmental Manager  
Gerdau Ameristeel - Jacksonville Steel Mill  
16770 Rebar Road  
Baldwin, Florida 32234

Dear Mr. Wold:

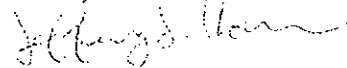
RE: Request to Conduct Performance Tests While Using Vehicle Tires as a Carbon Source in the Mill's EAF

The Department received your letter on January 18, 2006, requesting permission to conduct performance tests while using vehicle tires as a carbon source in the mill's EAF. The proposal will require an air construction permit (including a Public Notice) to authorize the proposed trial test. Therefore, complete the appropriate application pages and have it signed by the Authorized Representative and sealed by a Professional Engineer (PE) registered in Florida; and, the PE of Record will be required to oversee the technical aspects of the proposed project and the performance tests. The application should include the following information:

1. Has the new EAF been installed, because the Department would be more interested in the tests being performed on the new unit than the existing one? Please see permit 0310157-007-AC/PSD-FL-349, which was issued on September 21, 2005, authorizing the construction of a new EAF and LMF.
2. Please provide the proposed pollutant testing methods that will be used in the performance tests. For particulate and metals, EPA Method 29 - Determination of Metals Emission from Stationary Sources should be used. However, if both EPA Methods 5 and 29 are proposed, the Department would not object. The metals of concern are lead (Pb), chromium (Cr), cadmium (Cd), and mercury (Hg). For mercury, EPA Method 101A could also be performed.
3. Since chlorine is contained in both bituminous coal and tires and in about the same amounts, what emissions are expected from this component? Has there been any testing conducted at any steel mill for this pollutant or resultant compounds, i.e., dioxin or furans? If so, please provide such documentation.
4. Regarding a potential modification and PSD concerns, what emissions data will be used for baseline emissions for comparative purposes? There didn't appear to be any proposed in the request. In addition and for comparative purposes, it is very important that the production throughput be equivalent for both the baseline tests and the tire substitution tests.
5. In the second paragraph of your letter, it was mentioned that there are several mini-mills already using tires in their processes and that summary data from emissions testing is available. Please provide us with that data, for it might be useful in establishing a testing protocol for your mill.
6. How many tests are you planning to perform and when are these tests to be conducted? Please be definitive in your response, as your request covers a two-week time period.

If you have any questions regarding this matter, please contact Mr. Bruce Mitchell at 904/413-9198 or write to me at the above letterhead address.

Sincerely,

  
Jeffery F. Koerner, P.E.  
Permitting North Administrator  
Bureau of Air Regulation

TLV/bm

cc: Richard Robinson, ERMD-EQD



## GERDAU AMERISTEEL

Ms. Trina L. Vielhauer,  
Chief, Bureau of Air Regulations  
Florida Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

October 17, 2006

RE: Request for Test Production Run - Tires as Carbon Source in EAF

Gerdau Ameristeel is requesting temporary approval to test the use of vehicle tires as a carbon source for the Jacksonville Steel Mill electric arc furnace (EAF). If this test is successful, a permanent procedure will be developed to facilitate the use of tires as a carbon source and submit an application for your approval.

Several mini-mills in the United States are utilizing discarded tires as a feed stock to the electric arc furnace (EAF) in an effort to reduce and/or replace the conventional use of bituminous coal or petroleum coke (pet-coke). In addition to the steel belts and beads, the carbonaceous materials are incorporated into the steel bath to assist in the steel making process. Summary data from emission testing suggests that the use of tires may actually reduce SO<sub>2</sub> emissions from the EAF. Tire use is not expected to result in significant changes in emissions of NO<sub>x</sub>, PM, or VOC.

The proposed process will be to unload a semi-truck of shredded tires into a temporary storage location. The shredded tires will then be loaded by bobcat into the flux bin and then loaded into the charge bucket for use in the EAF. During the temporary process various mixes of shredded tires and charge carbon will be used. The amount of tires used per heat will be documented during the trial period and submitted with the testing data. The use of tires in the EAF will not increase its' capacity. The test will include 40 heats and be completed within two weeks.

During these proposed test runs, performance tests will be performed to determine the EAF gaseous emissions. The stack tests will be performed for SO<sub>2</sub>, NO<sub>x</sub>, CO, and VOC. If the process is successful, we will design a permanent method and submit that modification request to our air permit for your approval.





**GERDAU AMERISTEEL**

Please let us know at your earliest convenience your position on this trial test over a two week period. Ideally, we would appreciate if we could have your approval by the middle of February then our test would be conducted in late February or early March.

If you have any questions, please do not hesitate to call.

Thank you,

James P. Wold  
Environmental Manager  
Jacksonville Steel Mill  
904-266-4261 x133

cc: Richard L. Robinson, P.E., Manager Air Pollution Source Permitting Section  
Donald R. Shumake, Vice President/General Manager  
David Larocca, Project Engineer

**ATTACHMENT B**  
**GERDAU AMERISTEEL – WILTON TEST DATA**

# Eagle Mountain Scientific, Inc.



Results of the  
Carbon Monoxide Testing  
Gerdau AmeriSteel Iowa  
Wilton Factory  
EAF Baghouse  
Permit #:03-TV-006

**Prepared for:**

Mr. Jack Skelley  
North Star Steel  
PO Box 3002  
Wilton, Iowa 52778

Report # 902284  
January 10-11, 2006

**Prepared By:**

*Brian Durkop*

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**Brian Durkop**  
Manager

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Appendix C	Process Operations Data
Appendix D	Equipment Calibrations
Appendix E	Test Verification Letter

## SECTION 1.0

### EXECUTIVE SUMMARY

This report presents the results of a source test performed by Eagle Mountain Scientific, Inc. (EMSI) at the Gerdau Ameristeel facility located in Wilton, Iowa. The tests were performed on January 10-11, 2006 to quantify Carbon Monoxide emissions from the baghouse. The purpose of the test was to add used tires to the process as a source of carbon. The goal was to meet the requirements set forth in the Permit to Operate (03-TV-006) while using used tires in the process. EMSI conducted U. S. EPA (EPA) and Iowa Department of Natural Resources (Iowa DNR) approved testing methods. This report describes the procedures used to complete the testing and the results of these tests.

The testing was performed by Mr. Mark Carlson and Mr. Nate Traut. The process operating conditions were recorded by Gerdau Ameristeel plant personnel.

#### 1.1 Summary of Test Methods

**Table 1.1**  
**Gerdau Ameristeel**  
**EAFF Baghouse**  
**January 10-11, 2006**

METHOD	PURPOSE	RUN TIME	# OF RUNS
EPA 1	Determination of Traverse Points	NA	1
EPA 2	Determination of Velocity and Volumetric Flow	30 minutes	3
EPA 3	Determination of Molecular Weight	30 minutes	3
EPA 4	Determination of Moisture	30 minutes	3
EPA 10	Determination of Carbon Monoxide	~90 minutes	3

## 1.2 Summary of Test Results

**Table 1.2**  
**Gerdau Ameristeel**  
**EAF Baghouse**  
**Without Tires**  
**January 10-11, 2006**

POLLUTANT	RUN 1	RUN 2	RUN 3	RUN 4	AVERAGE	LIMIT
Carbon Monoxide Without Tires (lb/hr)	198.3	166.7	178.6	-	181.2	466.0
Carbon Monoxide With Tires (lb/hr)	147.8	181.5	198.0	169.5	174.2	466.0

## 1.3 Summary of Production

**Table 1.4**  
**Gerdau Ameristeel**  
**EAF Baghouse**  
**Carbon Monoxide**  
**Without Tires**  
**January 10-11, 2006**

PARAMETER	RUN 1	RUN 2	RUN 3	Average
Heat Number	21525	21528	21539	-
Operation Time (min)	87.5	98.3	94.1	93.3
Production (tons/hr)	41.6	48.7	52.5	47.6
Total Scrap Charge Weight (lbs)	173,700	169,700	173,900	172,433
Kilowatt Hour (per ton)	416	405.5	407.2	409.6
Natural Gas (scfm)	19,400	17,900	17,600	18,000

**Table 1.4**  
**Gerdau Ameristeel**  
**EAF Baghouse**  
**Carbon Monoxide**  
**With Tires**  
**January 11, 2006**

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4
Heat Number	21541	21543	21544	21545
Operation Time (min)	97.7	99.9	98.3	94.7
Production (tons/hr)	32.7	41.6	36.0	44.2
Number Tires 1 <sup>st</sup> Charge	55	51	52	55
Number Tires 2 <sup>nd</sup> Charge	30	34*	33	30
Tire Weight	1,700	1,700	1,700	1,700
Total Scrap Charge Weight (lbs)	174,900	177,900	174,800	164,800
Kilowatt Hour (per ton)	429.3	400.5	448.5	422.9
Natural Gas (scfm)	14,000	17,900	18,000	18,100

\* added in 3<sup>rd</sup> Charge

#### **1.4 Summary of Report Organization**

This report is organized in the following manner. Section 2.0 provides detailed test results for the individual test runs. Section 3.0 provides a summary of the testing procedures.

The following information is located in appendices A through E, respectfully: copies of the field data sheets, calculated field data results, process operations data, equipment calibrations, and the test plan.

Eagle Mountain Scientific, Inc.



Results of the  
Compliance Testing  
Gerdau Ameristeel Iowa  
Wilton Generating Plant  
EAF Baghouse

Permit #:03-TV-006

Prepared for:

Mr. Jack Skelley  
Gerdau Ameristeel Iowa  
PO Box 3002  
Wilton, Iowa 52778

Report # 902240  
June 6-10, 2005

Prepared By:

*Brian Durkop*

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Brian Durkop  
Manager

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Appendix D	Laboratory Results
Appendix E	Equipment Calibrations
Appendix F	Test Verification Letter

## SECTION 1.0

### EXECUTIVE SUMMARY

This report presents the results of a source test performed by Eagle Mountain Scientific, Inc. (EMSI) at the Gerdau Ameristeel facility located in Wilton, Iowa. The tests were performed on June 6-7 and 9-10, 2005 to quantify particulate matter, gaseous emissions and visible emissions from the baghouse. The purpose of the test was to add used tires to the process as a source of carbon. Testing was conducted over a 4-day period, and various number of tires were added during each heat. The goal was to meet the requirements set forth in the Permit to Operate (03-TV-006) while using used tires in the process. EMSI conducted U. S. EPA (EPA) and Iowa Department of Natural Resources (Iowa DNR) approved testing methods. This report describes the procedures used to complete the testing and the results of these tests.

The testing was performed by Mr. James Wilson, Mr. Mark Carlson, and Mr. Denny Winkle. The process operating conditions were recorded by Gerdau Ameristeel plant personnel.

#### 1.1 Summary of Test Methods

**Table 1.1**  
**Gerdau Ameristeel**  
**EAF Baghouse**  
**June 6-10, 2005**

METHOD	PURPOSE	RUN TIME	# OF RUNS
EPA 1	Determination of Traverse Points	NA	1
EPA 2	Determination of Velocity and Volumetric Flow	240 minutes	3
EPA 3	Determination of Molecular Weight	240 minutes	3
EPA 4	Determination of Moisture	240 minutes	3
EPA 5	Determination of Particulate Matter	240 minutes	3
EPA 6C	Determination of Sulfur Dioxide	60 minutes	3
EPA 7E	Determination of Nitrogen Oxides	60 minutes	3
EPA 9	Determination of Opacity	60 minutes	1
EPA 10	Determination of Carbon Monoxide	60 minutes	3
EPA 202	Determination of Condensable Particulate Matter	NA	3

## 1.2 Summary of Test Results

Table 1.2  
Gerdau Ameristeel  
EAF Baghouse  
June 6-10, 2005

POLLUTANT	RUN 1	RUN 2	RUN 3	RUN 4	RUN 5	AVERAGE	LIMIT
Total Particulate (lb/hr)	6.943	7.960	3.878	3.379	5.917	5.615	14.3
Total Particulate (gr/dscf)	0.0017	0.0019	0.0009	0.0008	0.0014	0.0013	0.0052
PM-10 (lb/hr)	6.943	7.960	3.878	3.379	5.917	5.615	11.97
Nitrogen Oxide (lb/hr)	10.9	12.0	10.3	11.9	10.2	11.1	45.0
Sulfur Dioxide (lb/hr)	3.6	7.7	4.6	10.8	12.5	7.7	70.2
Sulfur Dioxide (ppm)	0.8	1.6	1.0	2.3	2.6	1.7	500.0
Carbon Monoxide (lb/hr)	112.8	174.95	87.3	203.2	210.6	157.8	466.0
Opacity (%)	0	0	0	0	0	0	40

**ATTACHMENT C**

**EPA PILOT SCALE EVALUATION OF THE POTENTIAL FOR EMISSIONS OF  
HAZARDOUS AIR POLLUTANTS FROM COMBUSTION OF TIRE-DERIVED FUEL**

United States  
Environmental Protection  
Agency

Control Technology Center

EPA-600/R-94-070

April 1994



PILOT-SCALE EVALUATION OF THE POTENTIAL  
FOR EMISSIONS OF HAZARDOUS AIR POLLUTANTS  
FROM COMBUSTION OF TIRE-DERIVED FUEL

*control* *technology center*



#### **EPA REVIEW NOTICE**

The research described in this article has been reviewed by the Air and Energy Engineering Research Laboratory, U.S. Environmental Protection Agency, and approved for publication. The contents of this article should not be construed to represent Agency policy nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

**Pilot-Scale Evaluation of the Potential for Emissions of Hazardous Air Pollutants from**

**Combustion of Tire-Derived Fuel**

Prepared by:

Paul M. Lemicux  
U.S. Environmental Protection Agency  
Air and Energy Engineering Research Laboratory  
Research Triangle Park, NC 27711

Prepared for:

U.S. Environmental Protection Agency  
Office of Research and Development  
Washington, DC 20460

## ABSTRACT

Experiments were conducted in a 73 kW (250,000 Btu/hr) rotary kiln incinerator simulator to examine and characterize emissions from incineration of scrap tire material. The purposes of this project are to: (1) generate a profile of target analytes for full-scale stack sampling efforts, not to generate statistically defensible emission factors for the controlled combustion of scrap tire material; and, (2) where possible, give insight into the technical issues and fundamental phenomena related to controlled combustion of scrap tires. Wire-free crumb rubber sized to  $< 0.64$  cm ( $< 1/4$  in) was combusted at two different feed rates, two different temperatures, and at three different kiln oxygen concentrations. Along with continuous emissions monitoring for oxygen ( $O_2$ ), carbon dioxide ( $CO_2$ ), carbon monoxide (CO), nitric oxide (NO), sulfur dioxide ( $SO_2$ ), and total hydrocarbons (THCs), samples were taken to examine volatile and semi-volatile organics, polychlorinated p-dibenzodioxins and dibenzofurans (PCDD/PCDF), and metal aerosols. In addition, a continuous polycyclic aromatic hydrocarbon (PAH) analyzer was used in all the tests. Samples were analyzed with an emphasis on the 189 hazardous air pollutants (HAPs) listed in the 1990 Clean Air Act Amendments (CAAA), but other compounds were also identified where possible.

Results indicate that, if burned in a steady-state mode, TDF combustion will result in very low emissions of CO, THCs, volatile and semi-volatile organics, and PCDD/PCDF. Metal emissions were also very low, with the exception of arsenic (As), lead (Pb), and zinc (Zn). Uncontrolled stack concentrations of As and Pb were 37.16 and 65.96  $\mu\text{g}/\text{Nm}^3$ , respectively. Uncontrolled Zn emissions were considerably higher, at 35,465  $\mu\text{g}/\text{Nm}^3$ . Results also indicate that organic emissions can increase significantly when TDF is fired in a non-steady mode. The continuous PAH analyzer appeared to track transient operation well, and gave concentration results in the same range as those derived using EPA standard semi-volatile organic sampling methodologies.

Overall, it appears that, with the exception of zinc, potential emissions from TDF combustion are not significantly different from emissions from combustion of conventional fossil fuels, when burned in a well-designed and well-operated combustion device. If unacceptable particulate loading occurs due to zinc emissions, then the emissions would have to be controlled by an appropriate particulate control device.



**ATTACHMENT D**  
**PET-COKE AND TIRE TYPICAL ANALYSIS**

**ATTACHMENT D**  
**PET-COKE AND TIRE TYPICAL ANALYSIS**

**TYPICAL ULTIMATE ANALYSIS**

<b>Parameter</b>	<b>Eastern Bituminous Coal</b>	<b>Pet-Coke</b>	<b>Tires</b>
Carbon %	80.64	79	77.9
Hydrogen %	4.5	3.3	7.4
Oxygen %	2.4	0.08	2.245
Nitrogen %	1.1	1.6	0.24
Sulfur %	1.75	3.5 – 7.0	1.34
Chlorine %	0.11	0.02	0.14
Ash %	10.0	0.5 – 1.5	9.9
Moisture %	7.5	3.5 - 12	0.8
Heating Value (HHV) btu/lb	12,500	13,700	15,800
Cadmium	0.09 ppm <sup>a</sup>	0.09 ppm <sup>c</sup>	<5 ppm
Chromium	15 ppm <sup>a</sup>	15 ppm <sup>c</sup>	<5 ppm
Mercury	1.29E-12 lb/Btu <sup>a</sup>	0.0009 – 0.5 ppm <sup>b</sup>	0.006 – 0.33 ppm <sup>b</sup>

<sup>a</sup> USGS COALQUAL Database Trace Elements for the Central Appalachian Region  
<http://energy.er.usgs.gov/coalqual.htm>

<sup>b</sup> EPA– Mercury Content and Selected Fuel Properties of As-Fired Coals and Supplemental Fuels Burned in Coal-fired Electric Utility Boilers Nationwide in 1999.

<sup>c</sup> Assumed to be equal to coal.