

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 0693-AOP-R15 AFIN: 66-00274

1. PERMITTING AUTHORITY:

Division of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

2. APPLICANT:

Gerdau MacSteel Inc.
5225 Planters Road
Fort Smith, Arkansas 72916

3. PERMIT WRITER:

Shawn Hutchings

4. NAICS DESCRIPTION AND CODE:

NAICS Description: Iron and Steel Mills and Ferroalloy Manufacturing
NAICS Code: 331110

5. ALL SUBMITTALS:

The following is a list of ALL permit applications included in this permit revision.

Date of Application	Type of Application (New, Renewal, Modification, Deminimis/Minor Mod, or Administrative Amendment)	Short Description of Any Changes That Would Be Considered New or Modified Emissions
11/18/2024	Modification	Replacing 2 EAFs with a single EAF (SN-01 and 12)

6. REVIEWER'S NOTES:

Gerdau MacSteel operates a scrap steel recycling mill near Fort Smith, in Sebastian County, Arkansas. MacSteel produces approximately 250 grades of steel including alloy, carbon, and resulfurized steels primarily from steel scrap using the electric arc furnace (EAF) process.

This permit is to replace the two existing EAFs with one new EAF. The new EAF will be subject to NSPS Subpart AAb. SN-30 and SN-38 were removed from the permit. Permitted emission rates...

The facility also requested to bubble limits for natural gas sources. This was not done. Those sources have PSD limits and should remain separate.

The facility also requested to lower the testing for SN-01 and 12 to every 5 years. Subpart AAb requires 5-year testing. However, testing time frames for other steel mills in the state is typically every 6 months or 1 year. The facility's testing timeline is already less restrictive at every 2 years. The testing timeline was left at 2 years.

7. COMPLIANCE STATUS:

The following summarizes the current compliance of the facility including active/pending enforcement actions and recent compliance activities and issues.

There are no known enforcement actions against the facility.

8. PSD/GHG APPLICABILITY:

a) Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? N
If yes, were GHG emission increases significant? N

b) Is the facility categorized as a major source for PSD? /N

- *Single pollutant ≥ 100 tpy and on the list of 28 or single pollutant ≥ 250 tpy and not on list*

If yes for 8(b), explain why this permit modification is not PSD. Project emission were below PSD modification thresholds assuming the new EAF is a replacement unit.

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
01 and 12	PM	NSPS AAa or AAb
01	HAPs	YYYYY
33, 34, 35, 36 and 39	HAPs	ZZZZ
01 and 12	PM	CAM (old EAFs only)

10. UNCONSTRUCTED SOURCES:

Unconstructed Source	Permit Approval Date	Extension Requested Date	Extension Approval Date	If Greater than 18 Months without Approval, List Reason for Continued Inclusion in Permit
None				

11. PERMIT SHIELD – TITLE V PERMITS ONLY:

Did the facility request a permit shield in this application? N

(Note - permit shields are not allowed to be added, but existing ones can remain, for minor modification applications or any Rule 18 requirement.)

If yes, are applicable requirements included and specifically identified in the permit?/N
If not, explain why.

For any requested inapplicable regulation in the permit shield, explain the reason why it is not applicable in the table below.

Source	Inapplicable Regulation	Reason
N/A		

12. COMPLIANCE ASSURANCE MONITORING (CAM) – TITLE V PERMITS ONLY:

List sources potentially subject to CAM because they use a control device to achieve compliance and have pre-control emissions of at least 100 percent of the major source level. List the pollutant of concern and a brief summary of the CAM plan (temperature monitoring, CEMs, opacity monitoring, etc.) and frequency requirements of § 64.

Source	Pollutant Controlled	Cite Exemption or CAM Plan Monitoring and Frequency
01 and 12	Particulate	AAb will make the source exempt for the new EAF. Current EAFs have CAM for particulate.

13. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

14. AMBIENT AIR EVALUATIONS:

The following are results for ambient air evaluations or modeling.

a) NAAQS

A NAAQS evaluation is not required under the Arkansas State Implementation Plan, National Ambient Air Quality Standards, Infrastructure SIPs and NAAQS SIP per Ark. Code Ann. § 8-4-318, dated March 2017 and the DEQ Air Permit Screening Modeling Instructions.

b) Non-Criteria Pollutants:

HAP emissions remained the same or lowered. No analysis was performed.

c) H₂S Modeling:

A.C.A. §8-3-103 requires hydrogen sulfide emissions to meet specific ambient standards. Many sources are exempt from this regulation, refer to the Arkansas Code for details.

Is the facility exempt from the H₂S Standards N

If exempt, explain: The facility is not permitted to Emit H₂S

*To determine the 5-minute average use the following equation

$$C_p = C_m (t_m/t_p)^{0.2} \text{ where}$$

C_p = 5-minute average concentration

C_m = 1-hour average concentration

t_m = 60 minutes

t_p = 5 minutes

15. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
Natural Gas Fired Sources	Established BACT limits or AP-42 emission factors	Varied	None		
22	AP-42	Equation	Water sprays		
23, 24	Actual VOC usage	None	None		
37	AP-42 for Roadway	Equation	Dust Suppressant		
10	Trial at Gerdau JXN Michigan Mill	Uncontrolled PM Emission Rate: 0.103 lb PM/ton Laser Diffraction of Collectate: 4.06% PM _{2.5} 11.40% of PM	None		
13	Established BACT limits	Varied	None		
21	AP-42 for metal scarfing	0.1 lb/ton	Baghouse		

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
15, 25, 27	Process study at facility	0.0532 lb/ton	None		
14, 29	Testing	0.015 lb/ton	None		
31	Manufacture's emission rate	0.01 gr/dscf	Baghouse		
33, 34, 35, 36	AP-42 for Diesel Rice	Varied	None		
39	AP-42 Table 3.2-3, Uncontrolled 4-stroke rich-burn engines	<u>lb/MMBtu</u> PM ₁₀ : 9.5E-03 PM _{2.5} : 9.5E-03 PM: 1.9E-02 SO ₂ : 5.88E-04 NO _x : 2.21 CO: 3.72 VOC: 2.96E-02 Lead: 0.0005	None		
01 and 12	NSPS AAb Vendor guarantee Tested values on old EAFs	<u>PM 0.16 lb/ton</u> <u>SO₂, CO, NO_x</u> <u>VOC and Lead</u>	Baghouse		
01 and 12	PM PM ₁₀ condensable and alternative filterable VOC lead	5D 202 and 201 or 201A 25A EAF dust sample or Method 12	6 months	Show Compliance with limits.	

16. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
01 and 12	PM PM ₁₀ condensable and alternative filterable VOC lead	5D 202 and 201 or 201A 25A EAF dust sample or Method 12	24 months	Show Compliance with limits.

17. MONITORING OR CEMS:

The permittee must monitor the following parameters with CEMS or other monitoring equipment (temperature, pressure differential, etc.)

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
01 and 12	AAa or AAb monitoring	Air flow etc or COMs	Continuous	Y
01 and 12	CO NO _x and SO ₂	CEM	Continuous	Y

18. RECORDKEEPING REQUIREMENTS:

The following are items (such as throughput, fuel usage, VOC content, etc.) that must be tracked and recorded.

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
01/12	Production	688,000 tons of steel	Monthly	Y
01/12	Turnings per heat of steel	15,000 lbs or turnings	monthly	Y
01/12	AAa and AAb Records	Vary	As needed	Y
01/12	YYYYY Records	Vary	As needed	Y
22	Slag Processed	158,240 tons	Monthly	Y
23	VOC	15.8 tpy	Monthly	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
24	VOC and HAP	7.5lb/hr 3.8 tpy VOC 6.3 lb/hr 3.2 tpy HAP	Daily/Monthly	Y
33, 34, 35, 36	Hours	500	Monthly	Y
33, 34, 35, 36	ZZZZ Records	None	Monthly	Y
39	Hours	500	Monthly	Y
39	ZZZZ Records	None	Monthly	Y
1 and 12 (old EAFs)	CAM Records	None	As AAa Records	Y

19. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
01/12	3/6/10%	NSPS and Department Guidance	COMs NSPS Compliance
02, 03, 04, 05, 11, 21, 26, 39	5%	Department Guidance for Natural Gas Combustion	Natural Gas Combustion only
10	5%	Department Guidance	Weekly Observation
33, 34, 35, 36	20%	Diesel Engines	
13	20%		
22	20%	Department Guidance	Water Spray operation
14 and 29	20%		
31	5%	Department Guidance for a Baghouse source	Weekly observation

20. DELETED CONDITIONS:

Former SC	Justification for removal
SN-30 Conditions	Source removed.

21. GROUP A INSIGNIFICANT ACTIVITIES:

The following is a list of Insignificant Activities including revisions by this permit.

Source Name	Group A Category	Emissions (tpy)						
		PM/PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs	
							Single	Total
Kerosene Tank (500 gal)	A-3			0.0004				
Used (waste) Oil Tank (1,500 gal)	A-3			0.0004				
2 Used (waste) Oil Tanks (5,000 gal each)	A-3			0.0012				
Diesel Fuel Tank (10,000 gal)	A-3			0.0004				
Diesel Fuel Tank (2,000 gal)	A-3			0.001				
Diesel Fuel Tank (500 gal)	A-3			0.0004				
2 Petroleum Resin Tanks (5,000 gal each)	A-3			0.00001				
Petroleum Resin Tank (1,500 gal)	A-3			0.000005				
Cationic Polymer Tank (2,200 gal)	A-3			0.000005				
Total	A-3			0.004				
Lab Etch Room	A-5			0.075				
SPARCS Cutting Enclosure	A-7			0.5				
Outdoor Slicing/Cutting	A-7			0.2				
Total	A-7			0.7				

Scale Water Cooling Tower	A-13			0.02				
Clean Water Cooling Tower #1	A-13			0.03				
Clean Water Cooling Tower #2	A-13			0.04				
Caster Water Cooling Tower	A-13			0.008				
EMS Water Cooling Tower	A-13			0.00001				
Rolling Mill Operations	A-13			0.4				
Hot Saw for Rolled Product	A-13			0.003				
Ladle Refractory Reline	A-13			0.03				
Tundish Refractory Reline	A-13			0.03				
Scrap Handling	A-13			0.06				
Raw Material Handling	A-13			0.002				
Parts Washers	A-13				0.7			
Scale Pits	A-13							
Settling Ponds	A-13							
Total	A-13			0.6	0.7			

22. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

The following is a list of all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
0693-AOP-R14

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Gerdau MacSteel Inc.

Permit #: 0693-AOP-R15

AFIN: 66-00274

\$/ton factor

28.14

Permit Type

Modification

Annual Chargeable Emissi

Permit Fee \$

Minor Modification Fee \$

500

Minimum Modification Fee \$

1000

Renewal with Minor Modification \$

500

Check if Facility Holds an Active Minor Source or Minor

If Hold Active Permit, Amt of Last Annual Air Permit Invoice \$

O

Total Permit Fee Chargeable Emissions (tpy)

-28.7

Initial Title V Permit Fee Chargeable Emissions (tpy)

HAPs not included in VOC or PM:

Chlorine, Hydrazine, HCl, HF, Methyl Chloroform, Methylene C

Air Contaminants:

All air contaminants are chargeable unless they are included in a

[illegible]