

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 2445-AOP-R0 AFIN: 47-01073

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Big River Steel LLC
1000 East County Road 860
Osceola, Arkansas 72370-0248

3. PERMIT WRITER:

Jesse Smith

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
9/22/2021	New	Steel Mill with two EAFs and supporting equipment and process lines

6. REVIEWER'S NOTES:

Big River Steel, LLC (BRS) is proposing to construct and operate a steel mill located at 1000 East County Road 860 in Osceola, AR (Facility). This new steel mill will be contiguous to an existing BRS steel mill, AFIN: 47-00991 (Existing Mill), and both are under common control of BRS or its parent company, and thus this new facility and the Existing Mill constitute a single stationary source under the Clean Air Act, and the Facility constitutes a major modification to the Existing Mill. At the request of BRS and for administrative convenience, this permit is being issued specific to the equipment located at the new Facility. This permit will include all the sources at the Facility. The

Facility required a Prevention of Significant Deterioration (PSD) review to ensure the new emission sources associated with this major modification will not cause a significant deterioration of the local ambient air quality. PSD review was performed for NO_x, CO, PM, PM₁₀, PM_{2.5}, SO₂, VOC, lead, and greenhouse gasses from the Facility.

7. COMPLIANCE STATUS:

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

This is a new facility and there are no previous/current compliance issues.

8. PSD/GHG APPLICABILITY:

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

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

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

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
01 and 02	Particulate	NSPS AAa
01 and 02	HAPs	Case by Case, 42 USC § 7412
All Boilers	None	NSPS Dc
SN 40 through SN-46	VOC	NSPS TT
SN 40 through SN-46	HAP	NESHAP SSSS
SN-23b, SN-26, and SN-38	HAP	NESHAP CCC
All	NO _x , CO, PM, PM ₁₀ , PM _{2.5} , SO ₂ , VOC, lead, and greenhouse gasses.	PSD
Generators	Criteria and HAPs	NSPS IIII, and MACT ZZZZ

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
N/A				

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 Regulation 18 requirement.)

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

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
N/A		

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

The results of dispersion modeling are summarized below.

Pollutant	Emission Rate (lb/hr)	NAAQS Standard (µg/m ³)	Averaging Time	Highest Concentration (µg/m ³)	% of NAAQS
PM ₁₀	122.3	150	24-Hour	99.20	66.13%
PM _{2.5}	119.9	12.0	Annual	11.50	95.84%
		35	24-Hour	30.58	87.37%
SO ₂	121.9	196	1-Hour	53.76	27.43%
NO _x	983.4	100	Annual	16.66	16.66%
		188	1-Hour	177.72	94.54%
Pb	0.352741	0.15	Rolling 3-month Period over 3 years (not to be	0.01154	7.70%

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu\text{g}/\text{m}^3$)	Averaging Time	Highest Concentration ($\mu\text{g}/\text{m}^3$)	% of NAAQS
			exceeded in any 3 month period)		

b) Non-Criteria Pollutants:

The non-criteria pollutants listed below were evaluated. Based on Division of Environmental Quality procedures for review of non-criteria pollutants, emissions of all other non-criteria pollutants are below thresholds of concern.

1st Tier Screening (PAER)

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The Division of Environmental Quality has deemed the PAER to be the product, in lb/hr, of 0.11 and the Threshold Limit Value (mg/m^3), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = $0.11 \times \text{TLV}$	Proposed lb/hr	Pass?
Formaldehyde	0.12	1.32E-02	8.30E-02	N
Arsenic	0.01	1.10E-03	3.12E-03	N
Beryllium	0.00005	5.5E-06	1.44E-04	N
Cadmium	0.01	1.10E-03	4.24E-03	N
Chromium	0.50	5.50E-02	7.30E-02	N
Cobalt	0.02	2.20E-03	9.20E-05	Y
Manganese	0.10	1.10E-02	8.81E-01	N
Mercury	0.01	1.10E-03	5.19E-02	N
Nickel	0.10	1.10E-02	4.24E-01	N
Selenium	0.20	2.20E-02	2.63E-05	Y
Toluene	75.37	8.29	2.7	Y
MIBK	81.93	9.01	2.69	Y
Isophorone	43.8	4.82	6.98	Y

2nd Tier Screening (PAIL)

AERMOD air dispersion modeling was performed on the estimated hourly emissions from the following sources, in order to predict ambient concentrations beyond the property boundary. The Presumptively Acceptable Impact Level (PAIL) for each compound has been deemed by the Division of Environmental Quality to be one one-hundredth of the Threshold Limit Value as listed by the ACGIH.

Pollutant	PAIL ($\mu\text{g}/\text{m}^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Pass?
Formaldehyde	1.20E-03	1.59E-04	Y
Arsenic	1.00E-04	5.97E-06	Y
Beryllium	5.00E-07	2.76E-07	Y
Cadmium	1.00E-04	8.12E-06	Y
Chromium	5.00E-03	1.40E-04	Y
Manganese	1.00E-03	1.66E-04	Y
Mercury	1.00E-04	9.94E-05	Y
Nickel	1.00E-03	8.01E-05	Y

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 Y

If exempt, explain: No H2S emissions.

15. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
All	All criteria pollutants based on BACT limits				
01 and 02 HAPs	AP-42	Varied	Baghouse	99%+	
Natural Gas HAPs	AP-42	Varied	None		
Pickling Lines	Manufacturer	Varied	Scrubbers		

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
HCl	Estimates				

16. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
01 and 02	PM, PM ₁₀ , PM _{2.5}	5D and 201 or 201A	Initial and annual	NSPS and PSD limit verification
01 and 02	AAa required information (fan motor amps, etc.)	None specified	Initial and annual	NSPS requirement
01 and 02	NO _x , SO ₂ , CO, CO ₂ , VOC	7E, 6C, 3A, 10, 25A	Semi annually	To verify compliance with BACT emission rates
01 and 02	Lead	12	Annually	To verify BACT limits
03 and 04	PM _{2.5} , CO, and NO _x	EPA Reference Method 201 with 202, 10, and 7E	Initial and every 5 years	To show compliance with BACT limits
03 and 04	Flare design	40 CFR 60.18(b) through (f)	Initial only	To verify flare is design is capable of achieving BACT limits
24, 27, 28, and 37	PM _{2.5} , CO, and NO _x	Method 202, 10, and 7E	Initial and every 5 years	To show compliance with BACT limits
23b, 26, and 38	HCl	Method 26	Initial	Demonstration of Compliance with Applicable provisions of NESHAP Subpart CCC
40 through 46	VOC	40 C.F.R. § 60.463	Monthly	40 C.F.R. § 60 Subpart TT
Cooling Towers	TDS	TDS Testing	Initial and every 6 months	Verification of BACT Limits
125	Flare design	40 CFR 60.18(b) through (f)	Initial only	To verify flare is design is capable of achieving

SN	Pollutants	Test Method	Test Interval	Justification
				BACT 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 02	AAa required monitoring	Fan amps, damper positions, etc.	Vary according to reading	Y
46	RTO temperature	Thermocouple	Continuous (3hr averages)	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 and 02	AAa Records	None	Vary	Y
03 and 04	Steel Throughput	2,050,000 tons/rolling twelve months	Monthly	Y
40 through 46	TT Records	None	Vary	Y
40 through 46	SSSS Records	None	Vary	Y
23b, 26, and 38	CCC Records	None	Vary	Y
24, 27, 28, and 37	DDDDD Records	None	Vary	Y
Emergency Generators and Water Pumps	Hours of Operation	100 hours/year	Monthly	Y
93, 95, 97, 99, 103, 116, 130, 131	Materials Received per Rolling Twelve Months	175,830 79,204 175,830 680,00 210,240 9,591,750 2,830,033 273,014	Monthly	Y

19. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
01 and 02 Exhaust Stacks	3%	NSPS/BACT	Daily observations
01 and 02 Meltshop	6%	NSPS/BACT	Daily observations
03 and 04	5%	BACT/Department Guidance	Weekly observations
Natural Gas Burners	5%	BACT/Department Guidance	Combustion of natural gas only
Cold Mill Operations	5%	BACT/Department Guidance	Weekly observations
93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 113, 114, 115	5%	BACT/Department Guidance	Weekly observations
91, 92, 104, 105, 106, 107, 108, 109, 110	20%	BACT/Department Guidance	Weekly observations
117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129	5%	BACT/Department Guidance	Weekly observations
116, 130, 131	20%	BACT/Department Guidance	Weekly observations

20. DELETED CONDITIONS:

Former SC	Justification for removal
	N/A

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
N/A								

Permit #: 2445-AOP-R0

AFIN: 47-01073

Page 9 of 9

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 #
N/A

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-11-16

Big River Steel LLC
 Permit #: 2445-AOP-R0
 AFIN: 47-01073

\$/ton factor	25.13	Annual Chargeable Emissions (tpy)	<u>2755.7953</u>
Permit Type	Initial Permit	Permit Fee \$	<u>69253.136</u>

Minor Modification Fee \$	500
Minimum Modification Fee \$	1000
Renewal with Minor Modification \$	500
Check if Facility Holds an Active Minor Source or Minor Source General Permit	<input type="checkbox"/>
If Hold Active Permit, Amt of Last Annual Air Permit Invoice \$	0
Total Permit Fee Chargeable Emissions (tpy)	2755.795309
Initial Title V Permit Fee Chargeable Emissions (tpy)	2755.795309

HAPs not included in VOC or PM: Chlorine, Hydrazine, HCl, HF, Methyl Chloroform, Methylene Chloride, Phosphine, Tetrachloroethylene, Titanium Tetrachloride

Air Contaminants: All air contaminants are chargeable unless they are included in other totals (e.g., H2SO4 in condensable PM, H2S in TRS, etc.)

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
PM		0	357.2	357.2		
PM ₁₀		0	423.7	423.7	423.7	423.7
PM _{2.5}		0	414.9	414.9		
SO ₂		0	451.7	451.7	451.7	451.7
VOC		0	406.7	406.7	406.7	406.7
CO		0	5250.2	5250.2		
NO _x		0	1470.4	1470.4	1470.4	1470.4
Lead	<input checked="" type="checkbox"/>	0	1.455309	1.455309	1.455309	1.455309

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
CO2e	<input type="checkbox"/>	0	2984214	2984214		
Single HAP	<input type="checkbox"/>	0	27.75	27.75		
Total Other HAPs	<input type="checkbox"/>	0	59.6	59.6		
HCl	<input checked="" type="checkbox"/>	0	1.84	1.84	1.84	1.84