STATEMENT OF BASIS

For the issuance of Draft Air Permit # 2305-AOP-R2   AFIN: 47-00991

1.   PERMITTING AUTHORITY:

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

2.   APPLICANT:

Big River Steel LLC
2027 E. State Hwy 198
Osceola, Arkansas 72370

3.   PERMIT WRITER:

Jesse Smith

4.   NAICS DESCRIPTION AND CODE:

NAICS Description: Iron and Steel Mills and Ferroalloy Manufacturing
NAICS Code: 33111

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
12/29/2017	Modification	Update to the size of many sources to reflect the as installed sized compared to the originally permitted.
3/16/2018	Renewal	Update to the emission limits on some sources due to stack test results. Addition of a gasoline tank and dispensing facility (SN-100)

6.   REVIEWER'S NOTES:

Big River Steel, LLC owns and operates a steel mill located at 2027 E. State Hwy 198 in Osceola, AR. This permitting action is necessary to renew the permit and update the specifications on some of the equipment installed in the initial application. This modification also adds a gasoline dispensing operation and three insignificant activities. The permitted emission changes from this modification are as follows: increase of 3.2 tpy PM, increase of 2 tpy PM_{10}, increase of 1.4 tpy $PM_{2.5}$, increase of 0.4 tpy SO_2, increase of 0.5 tpy VOC, decrease of 7.7 tpy CO, decrease of 8.8 tpy NO_X, decrease of 0.00012 tpy Lead, and a decrease of 8,975 tpy CO_2e.

The following are requests made during this permit modification that were not granted:

The permittee has requested that the BACT limit for SN-20 for $PM/PM_{10}/PM_{2.5}$ be modified from 0.00052 lb/MMBTU to 0.0027 lb/MMBTU. This change is requested solely based on compliance testing results. However, the facility failed to test SN-20 under the appropriate methods due to a stack sampling port that was too small to support the method. The requested change in the limit is based on test results from a Method 5 test which only measures total PM and is not a valid test result to base BACT emissions, especially PM_{10} and $PM_{2.5}$. Further, the requested change does not meet the requirements of a BACT analysis. The condition remains as in the permit and has not been modified. The hourly and yearly emissions limits have also not been changed as the requested change was solely based on the new BACT limit. The test methods were, however, clarified.

The permittee has requested testing conditions of Specific Condition #53 and #70 be removed due to an inability to enclose the sources mentioned for stack testing. These sources were required to test to verify compliance with the BACT emission rate which is significantly lower than comparable sources. Based on other requests in this application, the evidence is that these sources will also have issues with demonstrating compliance with the permitted emission rates. Simply removing the test condition ignores this fact. Further, this requirement was in the initial permit and the permittee has been aware of this requirement since before construction. These conditions remain as-is in the permit and have not been modified.

The permittee has requested Specific Condition #58 and #69 to be modified to repeat testing for only NO_X emissions and not $PM_{2.5}$ and CO emissions. There were no alternative compliance mechanisms given to verify compliance with the BACT limits and therefore, these conditions remain as is in the permit and have not been modified.

The permittee has requested Specific Condition #75 to be modified to only repeat the testing required every 5 years instead of annually. There is no reasoning on why this testing should be relaxed, and therefore this condition remains as is in the permit and has not been modified.

The permittee requested a Plantwide Condition #7 to be modified. The request asks that the condition state that the permittee may petition the Department to cease operation of

the ambient air monitors after 12 months of operation. If this was determined acceptable by the Department, a written letter must be provided to the permittee granting the petition to cease the ambient monitoring. Removal of the monitoring condition would require a modification to the actual permit and therefore a permit application. The facility may request a cessation of the ambient monitors through a modification to the permit, so the request would be an unnecessary change. This condition remains as is in the permit and has not been modified.

7.   COMPLIANCE STATUS:

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

The facility has some active/pending compliance issues for the air permit in regards to testing, reporting, and recordkeeping. This permitting action addresses some of the enforcement concerns by updating some sources limits due to testing results and adding the gasoline storage tank and dispensing operation to the permit.

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? N

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	MACT YYYYY
All Boilers	None	NSPS Dc
SN 53	VOC	NSPS TT
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
100	HAP	NESHAP CCCCCC

10.   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.)

11.   EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

12.   AMBIENT AIR EVALUATIONS:

The following are results for ambient air evaluations or modeling.

a) NAAQS

The facility was required to do PSD modelling for all criteria pollutants in the initial application. The facility performed modelling again during this modification for PM_{10} and $PM_{2.5}$. Refer to the permit for the results of the modeling.

b) Non-Criteria Pollutants:

Non-Criteria Pollutant evaluation based off the R0 results as all HAP emission rates have either remained the same or decreased.

1st Tier Screening (PAER)

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The Department 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) = $0.11 \times$ TLV	Proposed lb/hr	Pass?
Formaldehyde	15	1.65	0.1236	Yes
Arsenic	0.01	0.0011	0.0043	No
Cadmium	0.01	0.0011	0.00583	No
HCl	3	0.33	1.0	No
Manganese	0.2	0.022	0.161	No
Mercury	0.01	0.0011	0.061	No

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 Department to be one one-hundredth of the Threshold Limit Value as listed by the ACGIH.

Pollutant	PAIL ($\mu g/m^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu g/m^3$)	Pass?
Arsenic	0.1	0.049	Yes
Cadmium	0.1	0.0003	Yes
HCl	30	0.0007	Yes
Manganese	2	0.012	Yes
Mercury	0.1	0.0043	Yes

c) H_2S 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 H_2S Standards   Y
If exempt, explain: No H_2S emissions _____

Pollutant	Threshold value	Modeled Concentration (ppb)	Pass?
H_2S	20 parts per million (5-minute average*)	0	Y
	80 parts per billion (8-hour average) residential area	0	Y
	100 parts per billion (8-hour average) nonresidential area	0	Y

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

$Cp = Cm\ (t_m/t_p)^{0.2}$ where

Cp = 5-minute average concentration
Cm = 1-hour average concentration
t_m =   60 minutes
t_p = 5 minutes

13.   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 HCl	Manufacturer Estimates	Varied	Scrubbers		
100	TANKS 4.0 software				

14.   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 032	Lead	12	Annually	To verify BACT limits
04, 22, 26, 27	$PM_{2.5}$, CO, NO_x	202, 10, 7E	Initial and 5 years	Verification of BACT emission limits
03	Flare design	40 CFR 60.18(b) through (f)	Initial only	To verify flare is design is capable of achieving BACT limits
03	CO_2	Material analysis	Semi Annually	To show compliance with BACT limits
05-09 10-11	$PM_{2.5}$ and PM_{10}	202, 10, and 7E	Initial	To show compliance with

SN	Pollutants	Test Method	Test Interval	Justification
12-13 16-19 20-21 28-29 39 51, 58, 60 53 54-56				BACT limits
~~52~~53	VOC	25A	Initial	NSPS TT Requirement
Cooling Towers	TDS	TDS testing	6 months	Verification of BACT limits
Pickling Line Scrubbers	HCl	26	Initial	Verification of permit limits and ensure facility is not a Major Source of HAPs

15. 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
52	RTO temperature	Thermocouple	Continuous (3hr averages)	Y

16. 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	Steel Throughput	3.4 ~~or 6.8~~ million	Monthly	Y
01 and 02	AAa Records	None	Vary	Y
01 and 02	YYYYY Records	None	Vary	Y
03	Degasser steel throughput	1,500,000 tons per 12 months	Monthly	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
52	Subpart TT Records	None	Vary	Y
25, 38, 44, 45, 46	Hours of operation	6080	monthly	Y
Emergency Engines	Hours of operation	100	Monthly	Y
Cooling Towers	TDS readings	Vary per tower	Semi annually	Y
82, 84, 86, 88, 90	Materials received	175,830 49,210 175,830 680,000 680,000	Monthly	Y
100	Gasoline Throughput	Less than 10,000 gallons per month	Monthly	Y

17. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
01 and 02	3%	NSPS/BACT	Daily observations
01 and 02 Meltshop	6%	NSPS/BACT	Daily observations
All natural gas burners	5%	BACT/Department Guidance	Combustion of natural gas only
91	5%	BACT/Department Guidance	Weekly Observation
Rolling Mill sources	5%	BACT/Department Guidance	Weekly Observation on building

18. DELETED CONDITIONS:

Former SC	Justification for removal
18	The facility installed a bag leak detection system that does not require this visual inspection to occur. To perform this inspection, they must shut down SN-01 and SN-02 and manually climb into and inspect each chamber of the baghouse.
29 and 30	The facility has elected not to install CEMs and has requested that the conditions giving the option to install them be removed.

19.   GROUP A INSIGNIFICANT ACTIVITIES:

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

| Source Name | Group A Category | Emissions (tpy) | | | | | HAPs | | Lead |
		PM/PM$_{10}$	SO$_2$	VOC	CO	NO$_x$	Single	Total	
Reformer Furnace (PHG250)	A-1	0.08	0.003	0.06	0.03	0.09	8.37 E-04	0.001	5.50 E-06
Water Bath Vaporizer	A-1	0.30	0.02	0.22	4.37	2.39	2.90 E-03	0.004	1.93 E-06
Tundish Dryer	A-1	0.30	0.02	0.21	1.46	3.19	2.90 E-03	0.004	1.93 E-05
Continuous Galvanizing Line Dryer	A-1	0.20	0.02	0.15	2.99	4.26	2.00 E-03	0.003	1.33 E-05
Diesel Fuel Tank	A-3	-	-	0.0013	-	-	-	-	-
Engine Oil Tank	A-3	-	-	1.3 E-05	-	-	-	-	-
Steel Cutting	A-7	0.4	-	-	-	-	0.001	0.002	-
Induced Draft Mechanical Cooling Tower	A-13	0.56	-	-	-	-	-	-	-

20.   VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

Permit #
2305-AOP-R1

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-11-16

Big River Steel LLC
Permit #: 2305-AOP-R2
AFIN: 47-00991

$/ton factor	23.93	Annual Chargeable Emissions (tpy)	1935.1
Permit Type	Modification	Permit Fee $	1000

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	☐
If Hold Active Permit, Amt of Last Annual Air Permit Invoice $	0
Total Permit Fee Chargeable Emissions (tpy)	-2.4
Initial Title V Permit Fee Chargeable Emissions (tpy)	

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 condensible 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		238.1	244.7	6.6		
PM_{10}		321.3	326.8	5.5	5.5	326.8
$PM_{2.5}$		315.9	320.8	4.9		
SO_2		350.3	350.7	0.4	0.4	350.7
VOC		194.1	194.6	0.5	0.5	194.6
CO		3949.7	3942	-7.7		
NO_X		1067.7	1058.9	-8.8	-8.8	1058.9
Lead	☐	0.963618	0.963498	-0.00012		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Arsenic	☐	0.013419	0.013346	-7.3E-05		
Cadmium	☐	0.017776	0.017696	-8E-05		
Formaldehyde	☐	0.4523	0.4383	-0.014		
HCl	☑	3.5	3.5	0	0	3.5
Manganese	☐	0.602735	0.602715	-2E-05		
Mercury	☐	0.201912	0.201755	-0.000157		
H_2SO_4	☑	0.6	0.6	0	0	0.6
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		