

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 2445-AOP-R2 AFIN: 47-01073

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Exploratory Ventures, LLC
2027 E State Highway 198
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
4/10/2023	Modification	New preheater furnace

6. REVIEWER'S NOTES:

Exploratory Ventures, LLC (EV) owns and operates a steel mill located at 1000 East County Road 860 in Osceola, AR (Facility). This steel mill is contiguous to an existing Big River Steel (BRS) steel mill, AFIN: 47-00991, and both are under common control of BRS or its parent company. Thus the EV and BRS steel mills constitute a single stationary source under the Clean Air Act. At the request of BRS and for administrative convenience, this permit is issued specific to the equipment located at the EV Facility.

This permit modification renames the existing galvanizing line process to the advanced high strength steel (AHSS) continuous galvanizing line process and adds a preheater

furnace (SN-142) to the existing operations. Emissions increases due to this modification are as follows: 0.8 tpy PM/PM₁₀/PM_{2.5}, 0.4 tpy SO₂, 3.4 tpy VOC, 50.5 tpy CO, 21.5 tpy NO_x, 3.00E-04 tpy Lead, and 71,747 tpy CO_{2e}.

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 current compliance issues noted for the facility for E&E or through EPA's ECHO database.

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
SN-24, SN-27, SN-28, and SN-37	HAP	NESHAP DDDDD
All sources except SN-137a through SN-141b	NO _x , CO, PM, PM ₁₀ , PM _{2.5} , SO ₂ , VOC, lead, and greenhouse gasses.	PSD
Generators	Criteria and HAPs	NSPS IIII, NSPS JJJJ, and NESHAP 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
SN-01 through SN-136	1/31/2022	-	-	-
SN-137a through SN-141b	11/9/2022	-	-	-

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.)

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 ($\mu\text{g}/\text{m}^3$)	Averaging Time	Highest Concentration ($\mu\text{g}/\text{m}^3$)	% 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 exceeded in any 3 month period)	0.01154	7.70%

b) Non-Criteria Pollutants:

The non-criteria pollutants listed below were evaluated during Revision 1 of the permit. HAP emissions remain largely unchanged and so this evaluation is still representative. 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
Chlorine	0.29	0.0319	1.36	N
Chromium	0.50	5.50E-02	7.30E-02	N

Pollutant	TLV (mg/m ³)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Cobalt	0.02	2.20E-03	9.20E-05	Y
Hydrogen Chloride	2.99	0.3289	3.14	N
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 (µg/m ³) = 1/100 of Threshold Limit Value	Modeled Concentration (µg/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
Chlorine	2.9	1.07	Y
Chromium	5.00E-03	1.40E-04	Y
Hydrogen Chloride	29.9	2.14	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
SN-01 through SN-136, SN-142	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	-	-
SN-137a, b, and c	AP-42 13.2.4	0.03 gr/scf PM/PM ₁₀ /PM _{2.5}	Baghouse	99%	-
SN-138	AP-42 13.2.4	0.03 gr/scf PM/PM ₁₀ /PM _{2.5}	Venturi, Cyclone, Absorber, Scrubber per each Roaster system	99%	-
SN-138 SN-140	NESHAP CCC	12 ppmv HCl 6 ppmv Cl ₂			

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

SN	Pollutants	Test Method	Test Interval	Justification
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 BACT limits
138 and 140	HCl and Cl ₂	40 CFR § 63.1161(d)	Initial Only	Demonstration of Compliance with Applicable provisions of NESHAP Subpart CCC
142	NO _x	Method 7E	Initial and annual	To verify compliance with BACT emission rates

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, 38, 138, and 140	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
139	Throughput of Natural Gas	752.24 MMcf/yr	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
137a-c 139	5%	Rule 19.705 <i>et seq.</i> and 40 C.F.R. § 52 Subpart E	Weekly observations
138 140	20%	Rule 19.705 <i>et seq.</i> and 40 C.F.R. § 52 Subpart E	Weekly observations
141a, 141b	20%	Rule 19.705 <i>et seq.</i> and 40 C.F.R. § 52 Subpart E	Combustion of natural gas only

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								

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 #
2445-AOP-R1

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-11-16

Exploratory Ventures, LLC
 Permit #: 2445-AOP-R2
 AFIN: 47-01073

\$/ton factor	27.27	Annual Chargeable Emissions (tpy)	2848.92
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	<input type="checkbox"/>
If Hold Active Permit, Amt of Last Annual Air Permit Invoice \$	0
Total Permit Fee Chargeable Emissions (tpy)	26.1
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 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		367.1	367.9	0.8		
PM ₁₀		433.6	434.4	0.8	0.8	434.4
PM _{2.5}		424.8	425.6	0.8		
SO ₂		452.2	452.6	0.4	0.4	452.6
VOC		409	412.4	3.4	3.4	412.4
CO		5288.9	5339.4	50.5		
NO _x		1508.4	1529.9	21.5	21.5	1529.9
Lead	<input type="checkbox"/>	1.455494	1.455794	0.0003		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
CO2e	<input type="checkbox"/>	3029225	3100972	71747		
Single HAP	<input type="checkbox"/>	28.44	28.49	0.05		
Total Other HAPs	<input type="checkbox"/>	60.32	60.38	0.06		
Cl ₂	<input checked="" type="checkbox"/>	5.93	5.93	0	0	5.93
HCl	<input checked="" type="checkbox"/>	13.69	13.69	0	0	13.69