

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 2420-AOP-R1 AFIN: 27-00385

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Arkansas BioEnergy, LLC - Leola
15964 Highway 46 South
Leola, Arkansas 72084

3. PERMIT WRITER:

Thamoda Crossen

4. NAICS DESCRIPTION AND CODE:

NAICS Description: All Other Miscellaneous Wood Product Manufacturing
NAICS Code: 321999

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
6/15/2023	Significant Modification	Addition to Fiber Shavings and fines material return lines. Removal of the propane fired package boiler and diesel fired emergency fire pump engine. Replacement of diesel storage tank with diesel storage cube.

6. REVIEWER'S NOTES:

The Significant Modification for this update as follows: VOC and HAPs emission limits of SN-02 and SN-05. Addition to Fiber Shavings storage as an Insignificant activity. Addition of fines material return lines from the SN-01 baghouse and SN-02 cyclone to pellet mill feed line in the process description. Removal of the propane fired package

boiler and diesel fired emergency fire pump engine. Replacement of diesel storage tank with diesel storage cube.

7. COMPLIANCE STATUS:

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

This facility was last inspected on March 23, 2023 and was found to be in compliance. EPA ECHO shows “No Violation Identified” for Clean Air Act compliance

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.

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
N/A		

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? Y

(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? Y
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
Facility	NESHAP Subpart DDDD	Facility is an area source of HAP

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

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:

The non-criteria pollutants listed below were evaluated. Based on Department 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 Department has deemed the PAER to be the product, in lb/hr, of 0.11 and the Threshold Limit Value

(mg/m³), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV (mg/m ³)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Methanol	262.086	28.83	0.1199	Yes
Acetaldehyde	45.041	4.955	0.2023	Yes
Acrolein	0.229	0.02519	0.1199	No
Formaldehyde	1.5	0.165	0.2770	No
Phenol	19	2.09	0.2763	Yes
Propionaldehyde	47.526	5.22878	0.1593	Yes

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 (µg/m ³) = 1/100 of Threshold Limit Value	Modeled Concentration (µg/m ³)	Pass?
Acrolein	2.29	1.7677	Yes
Formaldehyde	15.0	3.7921	Yes

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: The facility does not emit H₂S

15. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
01	<p>Manufacturer data</p> <p>Wood Products Protocol 1 from EPA's "Interim VOC Measurement Protocol for the Wood Products Industry – July 2007"</p> <p>Previous stack test data</p>	<p><u>lb/ton</u></p> <p>PM/PM₁₀: 0.045</p> <p><u>lb/ODT</u></p> <p>VOC: 2.2125</p> <p>Methanol: 0.0042</p> <p>Acetaldehyde: 0.0078</p> <p>Acrolein: 0.0042</p> <p>Formaldehyde: 0.0095</p> <p>Propionaldehyde: 0.0030</p>	Baghouse	-	Safety factor of 1.5 on all pollutants
02	<p>Manufacturer data</p> <p>Wood Products Protocol 1 from EPA's "Interim VOC Measurement Protocol for the Wood Products Industry – July 2007"</p> <p>Previous stack test data</p>	<p><u>lb/ton</u></p> <p>PM/PM₁₀: 0.560</p> <p><u>lb/ODT</u></p> <p>VOC: 4.347</p> <p>Methanol: 0.0083</p> <p>Acetaldehyde: 0.0159</p> <p>Acrolein: 0.0083</p> <p>Formaldehyde: 0.0203</p> <p>Penol: 0.0228</p> <p>Propionaldehyde: 0.0119</p>	Cyclone	-	Safety factor of 1.25 on VOC, 1.5 on all other pollutants
03	AP-42 13.2.2.2	<p><u>Shavings lb/VMT</u></p> <p>PM: 7.078</p> <p>PM₁₀: 2.018</p> <p><u>Shavings Reject lb/VMT</u></p> <p>PM: 7.078</p> <p>PM₁₀: 2.018</p> <p><u>Pellets lb/VMT</u></p> <p>PM: 7.138</p> <p>PM₁₀: 2.035</p>	-	-	<p><u>VMT/yr</u></p> <p>Shavings: 761</p> <p>Shavings Reject: 22</p> <p>Pellets: 711</p>

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
05	<p>Manufacturer data</p> <p>Wood Products Protocol 1 from EPA's "Interim VOC Measurement Protocol for the Wood Products Industry – July 2007"</p> <p>Previous stack test data</p>	<p><u>gr/scf</u> PM/PM₁₀: 0.015</p> <p><u>gr/scf</u> VOC: 0.7207</p> <p>Methanol: 0.0027</p> <p>Acetaldehyde: 0.0027</p> <p>Acrolein: 0.0027</p> <p>Formaldehyde: 0.0051</p> <p>Phenol: 0.0027</p> <p>Propionaldehyde: 0.0027</p>	Baghouse	-	Safety factor of 1.25 on VOC, 1.5 on all other pollutants

16. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Results	Permit Limits	Production Rate	Results
01	PM ₁₀	1-2, 3A, 4,	0.022 lb/hr *0.044 lb/hr	0.40 lb/hr	5.82 tons/hr, or 80.8% of 7.2 tons/hr	Pass
	VOC	5, 202, 25A	2.0 lb/hr *2.5 lb/hr	14.2 lb/hr		
02	PM ₁₀	1-2, 3A, 4,	0.082 lb/hr *0.12 lb/hr	6.1 lb/hr	5.82 tons/hr, or 80.8% of 7.2 tons/hr	Pass
	VOC	5, 202, 25A	0.084 lb/hr *0.10 lb/hr	25.8 lb/hr		
05	PM ₁₀	1-2, 3A, 4,	0.080 lb/hr * 0.10 lb/hr	1.5 lb/hr	N/A	Incomplete (2Runs)
	VOC	5, 202, 25A	1.5 lb/hr	2.50 lb/hr		

*Extrapolated to 100%

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)
SN-01	PM, CPM	Air pollution control device		Y
SN-02	PM, CPM	Air pollution control device		Y
SN-05	PM, CPM	Air pollution control device		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)
Facility	Tons of finished pellets	62,765 tons per rolling 12 month period	Monthly	Y
01, 02, 05	Opacity	20%	Monthly	N

19. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
01, 02	20%	§19.503 and 40 C.F.R. Part 52, Subpart E	Weekly Observations
03	5%	Reg.18.501 and Ark. Code Ann. § 8-4-203 as referenced by Ark. Code Ann. §§ 8-4-304 and 8-4-311	Inspector Observation
05	20%	§19.503 and 40 C.F.R. Part 52, Subpart E	Weekly Observations

20. DELETED CONDITIONS:

Former SC	Justification for removal
11 through 30	Emergency fire pump Engine SN-04 is 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
Shavings Storage and Loading	A-13	0.074	-	-	-	-	-	-
Shavings Handling	A-13	0.139	-	-	-	-	-	-
Reject Storage Pile	A-13	0.629	-	-	-	-	-	-
Diesel Cube	A-2	-	-	3.0E-04	-	-	-	3.58E-05

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 #
2420-AOP-R0

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-11-16

Facility Name: Arkansas BioEnergy, LLC - Leola

Permit Number: 2420-AOP-R1

AFIN: 27-00385

\$/ton factor	28.14	Annual Chargeable Emissions (tpy)	259.6
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) 32.3

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		39.8	39.7	-0.1	-0.1	39.7
PM ₁₀		36	35.9	-0.1		
PM _{2.5}		0	0	0		
SO ₂		0.3	0	-0.3	-0.3	0
VOC		186.3	219.9	33.6	33.6	219.9
CO		0.8	0	-0.8		
NO _x		0.9	0	-0.9	-0.9	0
Total HAP	<input type="checkbox"/>	2.89	5.35	2.46		