

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 2421-AOP-R1 AFIN: 58-00891

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Arkansas BioEnergy, LLC - Russellville
3318 Bernice Avenue
Russellville, Arkansas 72802

3. PERMIT WRITER:

Jacob Allen

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
6/27/2023	Modification	Removal of SN-04 and increase VOC limits for SN-02 and SN-05

6. REVIEWER'S NOTES:

Arkansas BioEnergy – Russellville is applying for a modification to the Title V permit to modify and approve the following items. Updating the VOC emission limit of SN-02 as well as SN-05. Revising the process description of SN-05 to include all units and conveyors whose air emissions are routed to and controlled by SN-05. Addition fines material return lines from the SN-01 baghouse and SN-02 cyclone to pellet mill feed line in the process description, and adding the Fiber Shavings storage as an insignificant activity. Removal of the propane-fired package boiler as well as the diesel-fired

emergency fire pump engine. Replacement of diesel storage tank with diesel storage cube. Update the facility's facility address as indicated in the application forms.

7. COMPLIANCE STATUS:

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

Stack testing of SN-05 was observed by DEQ on 12/01/2022. As indicated in a stack test, SN-05 exceeded its permitted emission rate of 2.5 lb VOC/hr resulting in an emission rate of 3.2 lb VOC/hr. The facility requested a modification to its permit to reflect the increase in emissions.

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/A

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*

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? 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/A
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

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 SN-02 and SN-05 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	262.09	28.83	0.12	Yes
Acetaldehyde	45.04	4.95	0.202	Yes
Acrolein	0.229	0.0253	0.12	No
Formaldehyde	1.5	0.165	0.277	No
Phenol	19.25	2.12	0.276	Yes
Propionaldehyde	47.53	5.23	0.159	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	1.82	Yes
Formaldehyde	15.0*	3.85	Yes

*ADEQ approved alternate PAIL

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	Manufacturer data Wood Products Protocol 1 from EPA's "Interim VOC Measurement Protocol for the Wood Products Industry – July 2007" Previous stack test data	lb/ton PM/PM10: 0.045 lb/ODT VOC: 2.2125 Methanol: 0.0042 Acetaldehyde: 0.0078 Acrolein: 0.0042 Formaldehyde: 0.0095 Propionaldehyde: 0.0030	Baghouse	-	Safety factor of 1.5 on all pollutants
02	Manufacturer data Wood Products Protocol 1 from EPA's "Interim VOC Measurement Protocol for the Wood Products Industry – July 2007" Previous stack test data	lb/ton PM/PM10: 0.56 lb/ODT VOC: 4.35 Methanol: 0.0083 Acetaldehyde: 0.0159 Acrolein: 0.0083 Formaldehyde: 0.0203 Propionaldehyde: 0.0119	Cyclone	-	Safety factor of 25% on VOC, 1.5 on all other pollutants
03	AP-42 13.2.2.2	Shavings lb/VMT PM: 7.078 PM10: 2.018 Shavings Reject lb/VMT PM: 7.078 PM10: 2.018 Pellets lb/VMT PM: 7.138 PM10: 2.035	-	-	VMT/yr Shavings: 761 Shavings Reject: 22 Pellets: 711
05	Manufacturer data	gr/scf PM/PM10: 0.015 lb/ODT	Baghouse	-	Safety factor of 25% on VOC, 1.5 on

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
	Wood Products Protocol 1 from EPA's "Interim VOC Measurement Protocol for the Wood Products Industry – July 2007" Previous stack test data	VOC: 0.721 Methanol: 0.0027 Acetaldehyde: 0.0027 Acrolein: 0.0027 Formaldehyde: 0.0051 Phenol: 0.0027 Propionaldehyde: 0.0027			all other pollutants.

16. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
01	PM ₁₀	Method 201A with 202	Initial test then subsequent test once every 12 months until 3 tests are passed, then every 60 months	Verify Emission Rates
	VOC	Method 25A		
02	PM ₁₀	Method 201A with 202	Initial test then subsequent test once every 12 months until 3 tests are passed, then every 60 months	Verify Emission Rates
	VOC	Method 25A		

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)
N/A				

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 Observation

20. DELETED CONDITIONS:

Former SC	Justification for removal
11 through 30	SN-04 was removed which in turn removes the specific conditions

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
Diesel Cube (250 Gal)	A-3			3.0E-04				
Shaving Storage	A-13	0.074						

and Loading*								
Shaving Handlings*	A-13	0.139						
Reject Pile – Wind Errosion*		0.629						

*Note – The facility does not believe there are quantifiable VOC or HAP emissions from the purchased dry shavings prior to the Hammer Mill. Other than storage and conveyance there is no processing of the shavings. Additionally, VOC or HAP emissions are typically not permitted from planer shavings conveyance or storage from lumber mills.

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 #
2421-AOP-R0

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-11-16

Facility Name: Arkansas BioEnergy, LLC - Russellville
 Permit Number: 2421-AOP-R1
 AFIN: 58-00891

\$/ton factor	27.27	Annual Chargeable Emissions (tpy)	259.5
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)	32.2
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	219.8	33.5	33.5	219.8
CO		0.8	0	-0.8		
NO _x		0.9	0	-0.9	-0.9	0
Total HAP	☐	2.89	5.38	2.49		