STATEMENT OF BASIS

For the issuance of Draft Air Permit # 2227-A AFIN: 69-00298

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Sparkman Wood Pellet Company
4004 Blue Collar Lane
Mountain View, Arkansas 72560

3. PERMIT WRITER:

Travis Porter

4. PROCESS DESCRIPTION AND NAICS CODE:

Sparkman receives green raw hardwood sawdust in trucks, which are weighed and unloaded into a partially covered bunker (SN-01). The green sawdust is loaded on conveying equipment which feeds a rotary dryer. A sawdust burner (Webb burner) is used to provide hot gases to dry the sawdust. The dryer and web burner are a system and are considered one source (SN-02). Products of combustion (POC), moisture, and dry sawdust are drawn through the dryer by an induced draft fan which routes the stream to a cyclone which controls emissions from the burner and dryer. Dry sawdust collected at the cyclone is conveyed to a Hammermill (SN-03) where product is collected and emissions are controlled by a cyclone. The cyclone exhaust reports to the inlet of the cyclone at SN-02 and does not directly exhaust to the atmosphere. Milled sawdust collected at the cyclone is transported to a pellet mill feed bin, from where it is fed to the pellet mill. Wood pellets are then conveyed to a pellet cooler. Cooled pellets report to a shaker screen where fines are removed. An induced draft fan draws air through the cooler and routes it to a cyclone which exhausts to the atmosphere. As well, a fan below the shaker screen draws air and fines from the screen and routes its exhaust to the inlet of the cooler fan. The cooler and shaker screen are considered one source (SN-04) whose emissions are controlled by a cyclone. Screened pellets are conveyed to a bagging station where they are packaged in bags. Packaged product is stored until shipment from the warehouse. These operations are considered one source, SN-05).

NAICS Description: Sawmills
NAICS Code: 321113

5. SUBMITTALS:
1/25/2010

6. REVIEWER'S NOTES:

This is the initial permit for 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. On January 12, 2009, Sparkman contacted the business Assistance Program (BAP) for assistance regarding permit needs for their wood pellet manufacturing business. A site visit took place on February 18, 2009 by representatives of ADEQ's BAP. The BAP issued a report which, among other recommendations suggested that, based on initial estimates of emissions by BAP, Sparkman would need a Minor Source Permit. BAP helped to develop an initial application with emission calculations.

8. PSD APPLICABILITY:

a. Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? 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, explain why this permit modification not PSD?

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

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

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. MODELING:

Criteria Pollutants

Examination of the source type, location, plot plan, land use, emission parameters, and other available information indicate that modeling is not warranted at this time.

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu g/m^3$)	Averaging Time	Highest Concentration ($\mu g/m^3$)	% of NAAQS
PM_{10}		150	24-Hour	N/A	
SO_2		80	Annual	N/A	
		1300	3-Hour	N/A	
		365	24-Hour	N/A	
CO		10,000	8-Hour	N/A	
		40,000	1-Hour	N/A	
NO_x		100	Annual	N/A	
Pb		0.15	Rolling 3-month Period over 3 years (not to be exceeded in any 3 month period)	N/A	

Non-Criteria Pollutants:

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 × TLV	Proposed lb/hr	Pass?
MEOH	262.1	28.8	0.176	Y
Formaldehyde	1.5	0.165	0.0673	Y
Acrolein	0.2	0.0252	0.0531	N
Acetaldehyde	45	5.0	0.0428	Y
Benzene	1.6	0.176	0.0504	Y
HCl	2.98	0.33	0.228	Y
Styrene	85.2	9.4	0.0228	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 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?
Acrolein	2.0	0.2530*	Y

*1st high 24-hour averaging time

Other Modeling: N/A

Odor:

Odor modeling for sources emitting styrene.

Pollutant	Threshold value 1-hour average	Modeled Concentration ($\mu g/m^3$)	Pass?
Styrene	1361 $\mu g/m^3$	0.6675*	Y

*1st high one-hour averaging time

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 N/A
If exempt, explain:_____

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

*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

12. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
01	Factors from ADEQ memo dated 8/22/2003 from C. Hurt to T. Rheaume titled *Updated PM and PM_{10} emissions from bins and loadouts of wood chips, wood shavings, and bark*	Lb/ton PM Storage 0.0022 PM Loading 0.00044 PM Load—0.00022 PM Total—0.011 PM_{10} Stor—0.00017 PM_{10} Load –0.00034 PM_{10} Load—0.00034 PM_{10} Total—0.00085	None	N/A	Basis is 33280 tons/year of raw green sawdust. Processing rate is 8 tons/hr.

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
02	Wood Drying National Council for Air and Stream Improvement Table BB.1—*Phase I and II Speciated Organic Compound Mass Emission Rate Results*	Lb/MBF VOC—3.5 MEOH—0.205 Formaldehyde—0.016 Acrolein—0.006 Acetaldehyde—0.039	Cyclone	Not known	16000 lb/hr 19000 lb/MBF
	Webb Burner Combustion AP-42 Table 1.6-1, 1.6-2, 1.6-3	Lb/MMBtu PM—0.4* PM_{10}—0.36* NO_x—0.49** SO_2—0.025** CO—0.6** VOC—0.17[3*] Formaldehyde—4.40E-03[3*] Acrolein—4.00E-03[3*] Acetaldehyde—8.30E-04[3*] Benzene—4.20E-03[3*] HCl—1.90E-02[3*] Styrene—1.90E-03[3*]			12 MM Btu/hr from Webb Burner manual
	Cyclone as product collector PM from Obsolete AP-42 factors Table 10.4.1 dated 2/1980 PM_{10}=0.36*(PM)—Basis is FIRE version 6.23—SCC30700803. In this reference PM_{10} is 36% of PM. Use this ratio and apply it to PM from AP-42	Grains/SCF PM—0.03 PM_{10}—0.0108			12075 SCFM From Webb Burner Manual
03	PM from Old AP-42 factors Table 10.4.1 dated 2/1980 PM_{10}=0.36*(PM)—Basis is FIRE	PM—2.0 lb/hr PM_{10}—0.72 lb/hr	Cyclone	Not known	Emissions from SN-03 captured at SN-02

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
	version 6.23—SCC30700803. In this reference PM_{10} is 36% of PM. Use this ratio and apply it to PM from AP-42				
04	PM from Obsolete AP-42 factors Table 10.4.1 dated 2/1980 PM_{10}=0.36*(PM)—Basis is FIRE version 6.23—SCC30700803. In this reference PM_{10} is 36% of PM. Use this ratio and apply it to PM from AP-42	PM—2.0 lb/hr PM_{10}—0.72 lb/hr	Cyclone	Not known	
05	Factors from ADEQ memo dated 8/22/2003 from C. Hurt to T. Rheaume titled *Updated PM and PM_{10} emissions from bins and loadouts of wood chips, wood shavings, and bark*	Dried Shavings lb/ton PM Storage—0.0011 PM Loading—0.0022 PM_{10} Stor—0.0009 PM_{10} Load—0.00018	None	N/A	8760 hrs/yr

*AP-42 Table 1.6-1; **AP-42 Table 1.6-2; 3* AP-42 Table 1.6-3

13. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
None				

14. 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)
None				

15. 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	Tons of raw green hardwood sawdust	33280 tons per rolling twelve month period	Monthly	N

16. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
01, 02, 04	20%	[Regulation No. 19 §19.503 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]	Inspector Observation
05	5%	[Regulation No. 18 §18.501 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]	Inspector Observation

17. DELETED CONDITIONS:

Former SC	Justification for removal
N/A	Initial Permit

18. GROUP A INSIGNIFICANT ACTIVITIES

Source Name	Group A Category	Emissions (tpy)						
		PM/PM_{10}	SO_2	VOC	CO	NO_x	HAPs	
							Single	Total
None								

19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

List all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
N/A

20. CONCURRENCE BY:

The following supervisor concurs with the permitting decision.

Phillip Murphy, P.E.