STATEMENT OF BASIS

For the issuance of Draft Air Permit # 0263-AOP-R5 AFIN: 35-00110

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Entergy Arkansas, Inc. - White Bluff
1100 White Bluff Road
Redfield, Arkansas 72132

3. PERMIT WRITER:

Joseph Hurt

4. PROCESS DESCRIPTION AND NAICS CODE:

NAICS Description: Fossil Fuel Electric Power Generation
NAICS Code: 221112

5. SUBMITTALS:

April 3, 2007

6. REVIEWER'S NOTES:

Entergy Arkansas, Inc. - White Bluff located in Redfield, Arkansas is a two-unit electric generating station which generates electric energy for sale. With this modification, Entergy is requesting to remove the requirement to use dust suppressant foam at SN-06A. Entergy has completed a project improving the conveyor enclosure seals, installed new seals, and added a dust collector. This dust collector or "Bin-vent" is vented inside the building. Entergy has also submitted the language changes necessary to incorporate Bio-diesel into the permit as fuel for SN-01 or SN-02. Entergy has also submitted the necessary calculations to incorporate their sulfuric acid emissions from SN-01 and SN-02. Additionally, Entergy has determined that Scenario 2 – Fuel Oil Firing, PM/PM_{10} emissions from SN-01 and SN-02 would be more accurate if the control efficiency for the ESP was removed. Revised emissions reflecting this determination were submitted. The total annual permitted emission rate increases due to this permitting action include: 12.3 tons per year PM, 12.7 tpy PM_{10}, and 178.52 tpy H_2SO_4.

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 known enforcement actions against the facility.

8. APPLICABLE REGULATIONS:

PSD Applicability

Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)?	N
Has the facility undergone PSD review in the past?	N
Is the facility categorized as a major source for PSD?	Y
≥ 100 tpy and on the list of 28?	Y
≥ 250 tpy all other?	N/A

PSD Netting

Was netting performed to avoid PSD review in this permit?	N

Source and Pollutant Specific Regulatory Applicability

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
SN-01 SN-02	PM SO_2 NO_X CO_2 Opacity	40 CFR Part 60, Subpart D – Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971
Facility	Asbestos	40 CFR Part 61, Subpart M – National Emission Standard for Asbestos

9. EMISSION CHANGES:

The following table summarizes plantwide emission changes associated with this permitting action.

Plantwide Permitted Emissions (tpy)			
Pollutant	Permit # 0263-AOP-R4	Permit #0263-AOP-R5	Change
PM	6940.2	6952.5	+ 12.3
PM_{10}	6525.5	6528.3	+ 12.7
SO_2	91913.7	91913.7	0
VOC	322.4	322.4	0
CO	28473.1	28473.1	0
NO_X	53488.9	53488.9	0
Lead	2.1	2.1	0
Acenaphthene	0.02	0.02	0
Acenaphthylene	0.02	0.02	0
Acetaldehyde	2.64	2.64	0
Acrolein	1.34	1.34	0
Anthracene	0.02	0.02	0
Arsenic	1.91	1.91	0
Benzene	5.98	5.98	0
Benzyl Chloride	3.22	3.22	0
Beryllium	0.11	0.11	0
Cadmium	0.25	0.25	0
Carbon Disulfide	0.60	0.60	0
2-Chloroacetophenone	0.04	0.04	0
Chloroform	0.28	0.28	0
Chromium	1.21	1.21	0
Chromium VI	0.38	0.38	0
Cobalt	0.46	0.46	0
Cyanide	11.50	11.50	0
Dimethyl Sulfate	0.24	0.24	0
Ethylene Dichloride	0.20	0.20	0
Fluoranthene	0.02	0.02	0
Fluorene	0.02	0.02	0
Formaldehyde	3.37	3.37	0
Hydrogen Chloride	5518.80	5518.80	0
Hydrogen Fluoride	689.86	689.86	0
Isophorone	2.68	2.68	0
Manganese	2.27	2.27	0
Mercury	0.41	0.41	0
Methyl Chloride	2.44	2.44	0
Methyl Ethyl Ketone	1.80	1.80	0
Methyl Hydrazine	0.80	0.80	0
Methylene Chloride	1.34	1.34	0

Plantwide Permitted Emissions (tpy)			
Pollutant	Permit # 0263-AOP-R4	Permit #0263-AOP-R5	Change
Nickel	1.31	1.31	0
Phenanthrene	0.02	0.02	0
Phenol	0.08	0.08	0
Polycyclic Organic Matter	0.24	0.24	0
Propionaldehyde	1.76	1.76	0
Pyrene	0.02	0.02	0
Selenium	6.00	6.00	0
Styrene	0.12	0.12	0
Toluene	1.12	1.12	0
2,3,7,8-TCDD	0.02	0.02	0
N_2O	368.57	368.57	0
Sulfuric Acid	0	178.52	+ 178.52

10. MODELING:

Criteria Pollutants

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu g/m^3$)	Averaging Time	Highest Concentration ($\mu g/m^3$)	% of NAAQS
PM_{10}	1,511.0	50	Annual	34.2*	68.4%
		150	24-Hour	124.4*	83.0%
SO_2	20,984.9	80	Annual	25.0*	31.3%
		1300	3-Hour	1,227.4*	94.5%
		365	24-Hour	245.2*	67.2%
CO	6,500.7	10,000	8-Hour	285.3	2.9%
		40,000	1-Hour	527.9	1.4%
NO_x	12,212.1	100	Annual	94.4**	94.4%

* Includes background concentrations.

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?
Acenaphthene[POM]*	0.2	0.022	0.02	Y
Acenaphthylene[POM]*	0.2	0.022	0.02	Y
Acetaldehyde**	45.04	4.9544	0.60	Y
Acrolein**	0.22	0.0242	0.32	N
Anthracene[POM]*	0.2	0.022	0.02	Y
Arsenic	0.01	0.0011	0.45	N
Benzene	1.59	0.1749	1.38	N
Benzyl Chloride	5.17	0.5687	0.74	N
Beryllium	0.002	0.00022	0.05	N
Cadmium	0.002	0.00022	0.07	N
Carbon Disulfide	31.14	3.4254	0.14	Y
2-Chloroacetophenone	0.31	0.0341	0.02	Y
Chloroform	48.82	5.3702	0.08	Y
Chromium	0.01	0.0011	0.29	N
Chromium VI	0.01	0.0011	0.10	N
Cobalt	0.02	0.0022	0.12	N
Cyanide***	5.19	0.5709	2.64	N
Dimethyl Sulfate	0.51	0.0561	0.06	N
Ethylene Dichloride	40.47	4.4517	0.06	Y
Fluoranthene[POM]*	0.2	0.022	0.02	Y
Fluorene[POM]*	0.2	0.022	0.02	Y
Formaldehyde**	0.36	0.0396	0.79	N
Hydrogen Chloride**	7.45	0.8195	1,260.00	N
Hydrogen Fluoride**	2.45	0.2695	157.5	N
Isophorone**	28.26	3.1086	0.62	Y
Manganese	0.2	0.022	0.53	N
Mercury	0.01	0.0011	0.11	N
Methyl Chloride	103.25	11.3575	0.56	Y
Methyl Ethyl Ketone	589.77	64.8747	0.42	Y
Methyl Hydrazine	0.01	0.0011	0.18	N
Methylene Chloride	173.68	19.1048	0.32	Y
Nickel	0.1	0.011	0.31	N
Phenanthrene[POM]*	0.2	0.022	0.02	Y
Phenol	19.24	2.1164	0.02	Y
Polycyclic Organic Matter*	0.2	0.022	0.07	N
Propionaldehyde	47.52	5.2272	0.40	Y
Pyrene[POM]*	0.2	0.022	0.02	Y

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Selenium	0.2	0.022	1.39	N
Styrene	85.20	9.372	0.04	Y
2,3,7,8-TCDD	0.001****	0.00011	0.02	N
Toluene	188.40	20.724	0.26	Y
Lead	0.05	0.0055	0.7	N
N_2O	90.02	9.90	84.15	N
H_2SO_4	0.2	0.022	25.54	N

* TLV for coal tar pitch volatiles.
**Ceiling Limit TLV.
***Ceiling Limit TLV for hydrogen cyanide.
****Hypothetical value. No TLV was found for 2,3,7,8-TCDD. Thus, the reviewing engineer screened this pollutant based on a hypothetical TLV of 0.001 mg/m^3.

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	2.2	0.0013	Y
Arsenic	0.1	0.022	Y
Benzene	15.9	0.0057	Y
Benzyl Chloride	51.7	0.0031	Y
Beryllium	0.02	0.017	Y
Cadmium	0.02	0.017	Y
Chromium	0.1	0.022	Y
Chromium VI	0.1	0.0005	Y
Cobalt	0.2	0.0005	Y
Cyanide	51.9	0.0108	Y
Dimethyl Sulfate	5.1	0.0003	Y
Formaldehyde	3.6	1.66	Y
Hydrogen Chloride	74.5	5.12	Y
Hydrogen Fluoride	24.5	0.64	Y
Manganese	2.0	0.24	Y
Mercury	0.1	0.022	Y
Methyl Hydrazine	0.1	0.0008	Y
Nickel	1.0	0.24	Y
POM	2.0	0.24	Y
Selenium	2.0	0.24	Y

Pollutant	PAIL ($\mu g/m^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu g/m^3$)	Pass?
2,3,7,8-TCDD	0.01	0.0000812	Y
Lead	0.5	0.22	Y
N_2O	900.2	3.54	Y
H_2SO_4	2.0	.07	Y

Other Modeling:

Odor:

Odor modeling for sources emitting styrene.

Pollutant	Threshold value 1-hour average	Modeled Concentration ($\mu g/m^3$)	Pass?
Styrene	1361 $\mu g/m^3$	0.00143	Y

H_2S Modeling: N/A

11. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
SN-01	Coal Fired: NSPS Limits AP-42 (Tables 1.1-4, 1.1-5, 1.1-13, 1.1-14, 1.1-15, 1.1-17 and 1.1-18) Fuel Oil Fired: NSPS Limits Estimated Emissions AP-42	Coal Fired: AP-42 Lead: 0.00042 lb/ton HAPs: various see AP-42 Fuel Oil Fired: AP-42 SO_2: 1.2 lb/MMBTU NO_X: 0.7 lb/MMBTU Lead: 9 $lb/10^{12}$ BTU HAPs: various see AP-42	ESP	99.5%	---

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
	(Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, and 1.3-10)				
SN-02	Coal Fired: NSPS Limits AP-42 (Tables 1.1-4, 1.1-5, 1.1-13, 1.1-14, 1.1-15, 1.1-17 and 1.1-18) Fuel Oil Fired: NSPS Limits Estimated Emissions AP-42 (Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, and 1.3-10)	Coal Fired: AP-42 Lead: 0.00042 lb/ton HAPs: various see AP-42 Fuel Oil Fired: AP-42 SO_2: 1.2 lb/MMBTU NO_X: 0.7 lb/MMBTU Lead: 9 lb/10^{12} BTU HAPs: various see AP-42	ESP	99.5%	---
SN-03	Permit Limits AP-42 13.2.4-3 Equation 1	See AP-42 13.2.4-3 Equation 1	Enclosure	50%	VOC based on 1.42% with maximum hourly of 91.5 lb/hr and annual of 300,000 lb/yr.
			Chemical Suppressant	90%	
SN-04	Permit Limits AP-42 13.2.4-3 Equation 1	See AP-42 13.2.4-3 Equation 1	Baghouse	99.9% PM 99.8% PM_{10}	Two Silos (North and South)
			Enclosure	80% PM/PM_{10}	

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
SN-05	AP-42 Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, and 1.3-10	Filterable PM/PM_{10}: 2 lb/1000 gal Condensable PM/PM_{10}: 1.3 lb/1000 gal SO_2: 78.5 lb/1000 gal VOC: 0.252 lb/1000 gal CO: 5 lb/1000 gal NO_X: 24 lb/1000 gal Lead: 9 $lb/10^{12}$ BTU HAPs: various see AP-42	N/A	N/A	---
SN-06	AP-42 13.2.4-3 Equation 1 Table 11.9-1 13.2.1.3 Equation 1 13.2.2-2 Equation 1	Various Equations Used See AP-42	Enclosures	Up to 80%	VOC based on 1.42% with maximum hourly of 91.5 lb/hr and annual of 300,000 lb/yr.
			Chemical Suppressant	90%	
			Baghouse	Up to 99.9% PM 99.8% PM_{10}	
SN-07	Tanks	---	N/A	N/A	112,000,000 gal/yr throughput
SN-14	Tanks	---	N/A	N/A	16,000 gal/yr throughput
SN-15	Tanks	---	N/A	N/A	180,000 gal/yr throughput
SN-16	Tanks	---	N/A	N/A	16,000 gal/yr throughput
SN-17	AP-42 Table 13.4-1	PM: 0.073 lb drift/kgal PM_{10}: 0.073 lb drift/kgal	N/A	N/A	Based on 22,125 kgal/hr circulating water flow and a total dissolved solids content of 2,800 ppm.

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
SN-18	AP-42 Table 13.4-1	PM: 0.073 lb drift/kgal PM_{10}: 0.073 lb drift/kgal	N/A	N/A	Based on 22,125 kgal/hr circulating water flow and a total dissolved solids content of 2,800 ppm.
SN-19	AP-42 13.2.4 Equation 1 13.2.1 Equation 1 13.2.2 Equation 1a	Various Equation Used See AP-42	Chemical Suppressant on Unpaved Road	90%	6 transfer points: 320 tons coal/hr and 2,733,120 tons coal/yr Paved Roads: 1.9 miles; 12 trips/hr (haul trucks); 2 trips/hr (control equipment) 259,019.4 VMT/yr; 0.99 g silt/m^2 (uncontrolled) Unpaved Roads: 0.25 miles; 12 trips/hr (haul trucks); 1 trip/hr (control equipment) 34,081.5 VMT/yr; 6.8% silt
			Wetting and Sweeping Paved Road	95%	
SN-20	MSDS	6.8 lb VOC/gal	N/A	N/A	1 gal/hr 3,000 gal/yr

12. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
01 and 02	CO	10	Every 5 years	To demonstrate compliance with CO emission rates.
01 and 02	PM	5 and 202	Every 5 years	To demonstrate compliance with PM emission rates.
01 and 02	PM_{10}	201A and 202	Every 5 years	To demonstrate compliance with PM_{10} emission rates.

13. 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 & 02	SO_2 CO_2 NO_X Opacity	CEMS	Continuously	Y

14. RECORD KEEPING 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, 02	SO_2 hourly emissions	10,440.0 lb/hr	Continuously	Y
01, 02	SO_2 Emissions	1.2 lb/MMBtu	Continuously	Y
01, 02	NO_X hourly emissions	6,090.0 lb/hr	Continuously	Y
01, 02	NO_X Emissions	0.7 lb/MMBtu	Continuously	Y
01, 02	Opacity	20%	Continuously	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
01, 02	Quarterly Reports	N/A	Quarterly	Y
01, 02	Operating Scenario Log	N/A	As Needed	N
01, 02	SO_2 annual emissions	91,454.4 tpy	Monthly	Y
01, 02	NO_X annual emissions	53,348.4 tpy	Monthly	Y
01, 02	Heat Input	N/A	Hourly	N
01, 02	Coal Sulfur and Ash Contents Documentation and (if needed) Calculations	See Specific Condition #26	Annually	N
01, 02, & 05	Sulfur Content of fuel oil	0.5% by weight	Per shipment	N
05	Opacity	20%	Weekly	N
05	Record of when this source is operated	N/A	As Needed	N
06A	Opacity	20%	Weekly	N
06B	Opacity	5% off-site	Weekly	N
03	Dust Suppressant Chemical Foam Spray Usage	300,000 lb/yr	monthly	Y
03	MSDS for VOC Content of Chemical Foam Spray	1.42% by weight	as needed	N
03	MSDS for HAP Content of Chemical Foam Spray	no HAPs	as needed	N
06	Fly ash trucks vehicle miles traveled on paved roads	19,440 VMT/yr	Monthly	Y
06	Fly ash trucks vehicle miles traveled on	9,720 VMT/yr	Monthly	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
	unpaved roads			
06	Operation of Coal Yard Dozers	12,000 hours per yr (combined)	Monthly	Y
06	Water wagon hours of operation	4,000 hours/yr	Monthly	Y
06	Cat Scraper hours of operation	1,500 hours/yr	Monthly	Y
04	Opacity	20%	Daily	Y
04	Log of baghouse maintenance inspections	N/A	Semi-annually	N
07	Fuel Oil Throughput	112,000,000 gal/yr	Monthly	Y
14	Fuel Throughput	16,000 gallons/yr	Monthly	Y
15	Fuel Throughput	180,000 gallons/yr	Monthly	Y
16	Fuel Throughput	16,000 gallons/yr	Monthly	Y
17, 18	Total dissolved solids	2,800 ppm	Weekly	N
17, 18	Circulating water	22,125 kgal/hr	Annually	N
19	Coal Throughput	2,733,120 tons/yr	Monthly	Y
19	Vehicle miles traveled on paved roads from barge to coal pile	259,019.4 VMT/yr	Monthly	Y
19	Vehicle miles traveled on unpaved roads from barge to coal pile	34,081.5 VMT/yr	Monthly	Y
19	MSDS for VOC Content of chemical suppressant	No VOC	As Needed	N
19	MSDS for HAP Content of	No HAP	As Needed	N

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
	chemical suppressant			
20	MSDS for VOC content	6.8 lb/gal	As Needed	N
20	Solvent Throughput	3,000 gal/yr	Monthly	Y
Plant wide	Coal Throughput	9.2 million tons/yr	Monthly	Y

15. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
01, 02	20%, 27%	NSPS limit, Department Guidance	COM
01, 02	20%, 60%	State limit	COM
01, 02	20%	CAM (1-hr and 3-hr averages)	COM
03	20%	Department Guidance	Water/Chemical Foam Spray
04	20%	Department Guidance	Daily Observation
05	20%	Department Guidance	Weekly Observation
06A	20%	Department Guidance	Weekly Observation
06B	5% off-site	Department Guidance	Weekly Observation
17, 18	20%	Department Guidance	Operate within Design Specification
19	5% off-site	Department Guidance	Inspections

16. DELETED CONDITIONS:

Former SC	Justification for removal
SC 37	Boiler MACT rule has been vacated, and all conditions relate to the rule where removed from the permit.
PWC 7	This acid rain condition has been updated to reference the acid rain permit application in the appendix.

17. VOIDED, SUPERCEDED, OR SUBSUMED PERMITS:

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

Permit #
0263-AOP-R4

18. CONCURRENCE BY:

The following supervisor concurs with the permitting decision.

David Triplett, P.E.