

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1842-AOP-R5 AFIN: 60-01380

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Arkansas Electric Cooperative Corporation - Harry L. Oswald Generating Station
17400 Highway 365 South
Wrightsville, Arkansas 72183

3. PERMIT WRITER:

Siew Low

4. PROCESS DESCRIPTION AND NAICS CODE:

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

5. SUBMITTALS:

9/21/2009

6. REVIEWER'S NOTES:

There is no change in this Title V renewal. The permittee requested to remove stack testing requirements of PM and VOC for SN-01 thru SN-07. The Department cannot agree to the request as these testing requirements are required to assure continuous BACT compliance for these sources.

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 enforcement actions against the facility.

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? Y
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? There are no emissions changes in this modification.

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
SN-01 thru SN-07 Turbine w/duct burner	PM ₁₀ VOC CO NO _x	BACT
SN-01 thru SN-07 Turbine w/duct burner	NO _x	NSPS Db
SN-01 thru SN-07 Turbine w/duct burner	SO ₂ NO _x	NSPS GG

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. MODELING:

Criteria Pollutants

Pollutant	Emission Rate (lb/hr)	NAAQS Standard (µg/m ³)	Averaging Time	Highest Concentration (µg/m ³)	% of NAAQS
PM ₁₀	42	50	Annual	0.15	0.3
		150	24-Hour	1.75	1.2
SO ₂	3.8	80	Annual	0.014	1.1
		1300	3-Hour	0.35	0.02
		365	24-Hour	0.158	0.004
CO	612.9	10,000	8-Hour	53.1	0.53
		40,000	1-Hour	77.7	0.2

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
NO _x	418.1	100	Annual	1.51	1.5

Modeling results from the following table was conducted during the PSD process. Maximum Predicted Concentrations in Comparison with Modeling Significance Levels (MSL) and Monitoring De Minimis Concentrations:

Pollutant	Averaging Period	Concentration ($\mu\text{g}/\text{m}^3$)	Modeling Significance Level ($\mu\text{g}/\text{m}^3$)
PM10	24-hour	4.88	5
	Annual	0.28	1
CO	1-hour	342.31	2000
	8-hour	140.16	500
SO ₂	3-hour	1.41	25
	24-hour	0.77	5
	Annual	0.057	1
NO _x	Annual	0.73	1

The maximum impacts of NO_x, PM₁₀ and SO₂ occurred under the worst-case load scenario (60 percent turbine load), and maximum impacts of CO occurred during the startup scenario. All off-site ambient impacts associated with operations of the proposed facility are below the respective MSL, and the facility is thus compliant with all corresponding National Ambient Air Quality Standards (NAAQS) and Class II PSD increment analysis.

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/m3)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Formaldehyde	0.36	0.0396	2.24	N
Acrolein	0.22	0.0242	0.07	N
PAH**	52.4	5.764	0.07	Y
1,3-butadiene	4.42	0.4862	0.07	Y
Benzene	1.59	0.1749	0.14	Y
Propylene oxide	4.75	0.5225	0.16	Y
Toluene	75.36	8.2896	0.63	Y
Xylene	434	47.74	0.57	Y

*** PAH is modeled as naphthalene

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 ($\mu\text{g}/\text{m}^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Pass?
Formaldehyde	15	0.093	Y
Acrolein	2.2	0.0029	Y

Other Modeling: N/A

12. CALCULATIONS:

SN	Emission Factor Source	Emission Factor and units	Control Equipment Type and Efficiency	Comments
01-06	Vendor Data Test Data AP-42 Chapter 3.1	PM 0.0052 lb/MMBTU VOC 0.0005 lb/MMBTU CO 66 ppmvd@15% O ₂ NO _x 25 ppmvd@15% O ₂ Formaldehyde, acrolein, and PAH All other HAPs	None	Uses steam injection to limit NO _x emissions
07	Vendor Data	PM 0.0061 lb/MMBTU VOC 0.0006 lb/MMBTU CO 50 ppmvd@15% O ₂ NO _x 9 ppmvd@15% O ₂	None	Facility uses Dry Low NO _x
08	AP-42	PM ₁₀ 0.0007 lb/hp-hr SO ₂ 4E-4 lb/hp-hr VOC 6E-4 lb/hp-hr CO 5.5E-3 lb/hp-hr NO _x 0.024 lb/hp-hr	None	
09-18	EPA Report	31.3% dispersion factor 4000 lb PM/1E6 lb water	None	

13. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
01-07	PM ₁₀ VOC	5 25A	5 yrs	To confirm BACT limits

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 of Monitoring	Frequency	Report
01-07	SO ₂	CEMS	na	na
	CO	CEMS	Continuously	na
	NO _x	CEMS	Continuously	na
	Sulfur content of fuel	na*	na	na
	fuel nitrogen content	na*	na	na

* EPA allowed the permittee to use Part 75 CEMS and data gathering methods in place of the requirements of these Part 60 requirements.

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)
01-07	Firing Natural Gas only	No limit, will be at capacity	Monthly	N

16. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
01-07	5%	Natural gas use	natural gas only
08	20%	Department standards	method 9 readings
09	20%	Department standards	dissolved solids limit along with annual inspections

17. DELETED CONDITIONS:

Former SC	Justification for removal
N/A	

18. GROUP A INSIGNIFICANT ACTIVITIES

Source Name	Group A Category	Emissions (tpy)						
		PM/PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs	
							Single	Total
9.9 MMBtu/hr natural gas fired fuel heater	A-1	0.4	0.1	0.5	3.7	4.4		
EDG Diesel Fuel Storage Tank (500 Gallons)	A-3			0.4				
Diesel Storage Tank (70 gallons)	A-3			0.4				
Fire Suppression System consist of a Emergency Fire Pump Fuel Tank (360 gallons) and 0.67 MMBtu/hr Emergency Fire Pump	B-47							

19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

Permit #
1842-AOP-R4

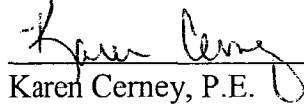
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20. CONCURRENCE BY:

The following supervisor concurs with the permitting decision.



Karen Cerney, P.E.

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

