STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1842-AOP-R6 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:

John Mazurkiewicz

4. NAICS DESCRIPTION AND CODE:

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

5. SUBMITTALS:

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
9/16/2014	Renewal	Move the existing emergency fire pump engine (EFPE) from the insignificant activities list to a permitted source.

6. REVIEWER'S NOTES:

The Wrightsville Power Facility operates a 510 megawatt (MW) combined-cycle natural gas combustion turbine plant located in Pulaski County, 0.5 miles south of Wrightsville, Arkansas. The plant consists of six (6) General Electric LM6000 aeroderivative turbines, one (1) General Electric Frame 7EA turbine, seven duct burners, steam turbines, an emergency diesel generator, and a cooling tower. The permittee has requested the following changes to the permit:

- Move the existing emergency fire pump engine (EFPE) from the insignificant activities list to a permitted source;
- Change the averaging time of NOx and CO measured emissions to be more consistent with other combined cycle facilities in Arkansas;
- Combine individual hazardous air pollutants (HAPs) into one category titled, "HAPS;"
- Remove the stack testing requirement for PM and VOC emissions;
- Remove permit conditions associated with the Clean Air Interstate Rule (CAIR), and incorporate appropriate requirements for the Cross-State Air Pollution Rule (CSAPR).

Specific Conditions 23 and 24 have been updated to combine HAP emission rates. The request to change averaging time of NOx and CO measured emissions was withdrawn. The Department cannot agree to the request to remove stack testing requirements of PM and VOC (for SN-01 thru SN-07) 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.)?
No

b) Is the facility categorized as a major source for PSD?
- *Single pollutant ≥ 100 tpy and on the list of 28 or single pollutant ≥ 250 tpy and not on list*

Yes

If yes, explain why this permit modification is not PSD.
No emission changes are associated with this renewal.

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 NOx	BACT
SN-01 thru SN-07	NOx	NSPS Db

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
Turbine w/duct burner		
SN-01 thru SN-07 Turbine w/duct burner	SO_2 NOx	NSPS GG
SN-08	HAPs	NESHAP ZZZZ
SN-10		

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. AMBIENT AIR EVALUATIONS:

a) Reserved.

b) 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?
Acrolein	0.23[a]	0.0253	0.07097	No
Benzene	1.59	0.1749	0.08973	Yes
1,3-Butadiene	4.42	0.4862	0.07043	Yes
Formaldehyde	1.5	0.165	3.3623	No
PAH	0.2	0.022	0.07283	No
Propylene Oxide	4.75	0.5225	0.18683	Yes
Toluene	75.4	8.294	0.63408	Yes

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = 0.11*TLV	Proposed lb/hr	Pass?
Xylene	434.19	47.7609	0.573	Yes

[a.] STEL ceiling Value

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	2.3	0.0036	Yes
Formaldehyde	15	0.1796	Yes
PAH	2	0.0334	Yes

c) H_2S Modeling: N/A

12. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment 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	N/A	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	N/A	Facility uses Dry Low NO_x
08	AP-42	PM10 0.0007 lb/hp-hr SO2 4E-4 lb/hp-hr VOC 6E-4 lb/hp-hr CO 5.5E-3 lb/hp-hr NOx 0.024 lb/hp-hr HAPs – table 3.4-4	None	N/A	
09	EPA Report	31.3% dispersion factor 4000 lb PM/1E6 lb water	None		
10	AP-42	PM 0.1 lb/MMBTU SO2 0.084 lb/MMBTU VOC 2.1 lb/MMBtu CO 0.99 lb/MMBTU NOx 1.63 lb/MMBTU	None	N/A	

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 continuous monitoring systems or other monitoring equipment (temperature, pressure differential, etc.)

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
01-07	SO_2	continuous monitoring systems	N/A	N/A
	CO	continuous monitoring systems	Continuously	N/A
	NOx	continuous monitoring systems	Continuously	N/A
	Sulfur content of fuel	N/A*	N/A	N/A
	fuel nitrogen content	N/A*	N/A	N/A

* 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
08	Hours of Operation	800	Monthly	Y
09	Total Dissolved Solids	4000 ppm	Monthly	N
10	Hours of Operation	500	Monthly	Y

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
10	20%	Department standards	method 9 readings

17. DELETED CONDITIONS:

Former SC	Justification for removal
23	Compliance is demonstrated only by burning pipeline quality natural gas
24	Compliance is demonstrated only by burning pipeline quality natural gas

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	N/A	
EDG Fuel Storage Tank (500 gallons)	A-3/A-13	-	-	-	-	-	-	-
Emergency Fire Pump Fuel Tank (360 gallons)	A-3/A-13	-	-	-	-	-	-	-

19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

Permit #
1842-AOP-R5

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 08-25-14

Facility Name:Arkansas Electric Cooperative Corporation
- Harry L. Oswald Generating Station
Permit Number:1842-AOP-R6
AFIN:60-01380

$/ton factor	23.89	Annual Chargeable Emissions (tpy)	892.4
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)	0.9
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		185.3	185.4	0.1	0.1	185.4
PM_{10}		180.2	180.3	0.1		
SO_2		13.2	13.3	0.1	0.1	13.3
VOC		74	74.4	0.4	0.4	74.4
CO		818.6	818.8	0.2		
NO_X		619	619.3	0.3	0.3	619.3
Total HAPs	☐	0	19.6	19.6		
Formaldehyde	☐	9.8	0	-9.8		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Acrolein	☐	0.15	0	-0.15		
PAH	☐	0.06	0	-0.06		
1,3-butadiene	☐	0.01	0	-0.01		
Benzene	☐	0.26	0	-0.26		
Propylene oxide	☐	0.59	0	-0.59		
Toluene	☐	2.65	0	-2.65		
Xylene	☐	1.3	0	-1.3		
	☐	0	0	0		
	☐	0	0	0		
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