STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1861-AOP-R9 AFIN: 70-00543

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Entergy Arkansas, Inc. - Union Power Station
6497 Calion Highway
El Dorado, Arkansas 71730

3. PERMIT WRITER:

Elliott Marshall

4. NAICS DESCRIPTION AND CODE:

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

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
11/1/2017	Modififcation	Replace 1,000 gallon gasoline storage tank with a new 500 gallon gasoline storage tank.

6. REVIEWER'S NOTES:

Union Power Station (UPS) is operated by Union Power Partners L.P. (UPP). The facility is a natural gas-fired combined-cycle power generation facility in southern Arkansas approximately 11 kilometers (km) northeast of El Dorado and 6 km southwest of Calion. The site is approximately 33 km north of the Arkansas/Louisiana border in Union County. This is a permit modification to:

1. Allow for the replacement of the existing 1000 gallon gasoline storage tank (SN-17) with a new 500 gallon gasoline storage tank (SN-19).
2. Allow for the replacement the existing 450 gallon diesel fuel storage tank (Insignificant Activity) with a new 500 gallon diesel fuel storage tank (Insignificant Activity).
3. Request to remove the periodic PM testing requirement for the combustion turbines (Specific Condition #5 of permit #1861-AOP-R8).

The permitted emissions are decreasing by 0.4 tpy VOC and 0.03 tpy Total HAP.

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 pending or active enforcement actions.

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

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 for 8(b), explain why this permit modification is not PSD.
There is not a net increase in any regulated pollutant that exceeds the significance level that will cause this modification to be subject to PSD review.

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
SN-01 through SN-08	PM_{10} VOC SO_2 CO NO_X Lead Sulfuric Acid	PSD
SN-01 through SN-08	NO_X	NSPS Subpart Da
SN-01 through SN-08	NO_X SO_2	NSPS Subpart GG
15 & 18	HAPs	NESHAP ZZZZ

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
16	CO NOx	NSPS Subpart JJJJ
19	HAPs	NESHAP Subpart CCCCCC

10. 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 Regulation 18 requirement.)

If yes, are applicable requirements included and specifically identified in the permit? N
If not, explain why.

For any requested inapplicable regulation in the permit shield, explain the reason why it is not applicable in the table below.

Source	Inapplicable Regulation	Reason
N/A		

11. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

12. AMBIENT AIR EVALUATIONS:

Include the results for any ambient air evaluations or modeling. Include NSR/PSD permits and permits that require an evaluation in accordance with revisions to 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 ADEQ Air Permit Screening Modeling Instructions.

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).

No modeling was performed for this revision.

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Acetaldehyde	45	4.95	0.74	Yes
Benzene	32	3.52	0.34	Yes
Formaldehyde	0.37	0.0405	1.46	No
Arsenic	0.01	0.0011	0.08	No
Cadmium	0.01	0.0011	0.08	No
Mercury	0.01	0.0011	0.08	No
Ammonia	17.4	1.914	245.60	No
Sulfuric acid	1.0	0.11	2.80	No
Acrolein	0.23	0.03	0.103	No
1,3-Butadiene	4.43	0.49	0.18	Yes
Ethylbenzene	434.19	47.76	0.48	Yes
Napthalene	52.43	5.77	0.18	Yes
PAH	0.2	0.02	0.18	No
Propylene Oxide	4.75	0.52	0.48	Yes
Toluene	75.36	8.29	2.18	Yes
Xylene	434.19	47.76	1.14	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 ($\mu g/m^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu g/m^3$)	Pass?
Formaldehyde	15	1.10	Y
Arsenic	0.1	0.002	Y

Pollutant	PAIL ($\mu g/m^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu g/m^3$)	Pass?
Cadmium	0.1	0.002	Y
Mercury	0.1	0.002	Y
Ammonia	174.0	7.41	Y
Sulfuric Acid	10.0	0.11	Y
Acrolein	2.30	0.033	Y
PAH	20.0	0.002	Y

13. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
01 thru 08	Vendor data for NOX and PM/PM10. Emission formulas based on an emission factor for SO2, combustion formula for sulfur for sulfuric acid, VOC and CO emissions were calculated using ppmv wet and dry vendor data and multiplying it by the volumetric flow rate. Formaldehyde – stack testing data on January 14, 2003 Other HAPs – AP-42	-	SCR, the CT's will also have steam injection capabilities .	71%	For HAPs emissions, the maximum annual hours for CTs are 8760 hrs, and for DBs are 4000 hrs.
11-14	185,000 gpm x 0.0005% x 3000 ppmw	-	-	-	Based on a publication from Reisman/Frisbie, PM_{10} is 50% of total PM.

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
15	AP-42 – Table 3.3-1 & 3.3-2	Lb/MMBtu SO_2: 1.5E-03 NOx:4.41 CO: 0.95 VOC: 0.36 PM: 0.31 PM_{10}: 0.31	-	-	-
16	NSPS Subpart JJJJ (CO, NOx) SCAQMD &SDCAPCD (Sox, PM_{10}, VOC) MDAQMD & AVAPCD (HAP)	g/hp-hr NOx: 10 CO: 387 lb/1,000 gal SOx: 0.35 PM_{10}: 5 VOC 83			
18	AP-42 – Table 3.3-2 & 3.3-3	Lb/MMBtu SO_2: 0.000588 NOx: 4.08 CO: 3.72 VOC: 0.118 PM(cond): 0.00991 PM(filterable): 0.0095 PM_{10}: 0.0095			
19	AP-42 7.1.4	6.8 lb VOC/hr 0.38 Total HAP/hr			Based on maximum throughput of 120,000 gal/yr.

14. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
SN-01 thru SN-08	VOC	25A	5 years for 4 of the 8	To confirm BACT limit(s) and lb/hr limits)
SN-01 thru SN-08	NH_3	206	5 years for 1 of the 8	To assure facility accurately

SN	Pollutants	Test Method	Test Interval	Justification
				estimated emissions

15. 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 thru 08	NO_X	CEMs	Continuously	Y
	CO	CEMs	Continuously	Y

16. 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 – 08	Sulfur content of fuel	0.5 gr S/100 scf	daily	Y
01 – 08	Total Btu's fed to duct burners	9,120,000 MMBtu/year	monthly	Y
01-08	Maintain records of Combustion Turbine Tuning on site.	Hourly NOx emission rate per combustion turbine shall not exceed 65 lb/hr during a consecutive 24 hour period.	Twice per consecutive twelve month period per CT	N

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
01-08	SUSD Event	350.0 lb/hr NOx 21.0 tpy NOx 850.0 lb/hr CO 85.0 tpy CO	As Applicable	N
11-14	TDS	3000 ppm	Monthly	Y
15	Malfunction	-	As Applicable	N
	Hours of operation	500 hours per calendar year	Monthly	Y
	Hours of operation	Maintenance Check: 100 hours/year Non-emergency: 50 hours/yr	As Needed	N
16	Malfunction	-	As Applicable	N
	Hours of operation	500 hours per calendar year	Monthly	Y
	Hours of operation	Maintenance Check: 100 hours/year Non-emergency: 50 hours/yr	As Needed	N
18	Malfunction	-	As Applicable	N
	Hours of operation	500 hours per calendar year	Monthly	Y
	Hours of operation	Maintenance Check: 100 hours/year Non-emergency: 50 hours/yr	As Needed	N
19	Throughput	120,000 gal/yr	Monthly	N

17. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
1-8	5%	Department guidance	Use of natural gas

SN	Opacity	Justification for limit	Compliance Mechanism
11-14	20%	Department guidance	Monitor Monthly TDS
15	20%	Department guidance	Annual Observation
16	5%	Department guidance	Annual Observation
18	5%	Department guidance	Annual Observation

18. DELETED CONDITIONS:

Former SC	Justification for removal
None	

19. 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
EDFP Diesel Storage Tank	A-3			<0.1				
Diesel Storage Tank	A-3			<0.1				
Used Oil Tank	A-3			<0.1				
Contractor Diesel Fuel Tank	A-3			<0.1				
Caustic Storage Tanks	A-4							
Lab. Vents	A-5							
Oil Water Separator	A-13			0.34				
Gas Yard Condensate Tank	A-13			0.90				
Parts Washer	A-13			2.30				
Glove Box Grit Blaster	A-13	0.10						
Aerosol Can Puncture Station	A-13			0.19				

Source Name	Group A Category	Emissions (tpy)						
		PM/PM_{10}	SO_2	VOC	CO	NO_x	HAPs	
							Single	Total
Maintenance Shop Welding	A-13	0.11					0.04	0.11

20. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

The following is a list of all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
1861-AOP-R8

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-11-16

Facility Name: Entergy Arkansas, Inc. - Union Power Station
Permit Number: 1861-AOP-R9
AFIN: 70-00543

$/ton factor	23.93	Annual Chargeable Emissions (tpy)	2966.14
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)	-0.4
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		724.8	724.8	0	0	724.8
PM_{10}		712.8	712.8	0		
$PM_{2.5}$		0	0	0		
SO_2		89.2	89.2	0	0	89.2
VOC		145.4	145	-0.4	-0.4	145
CO		1253.4	1253.4	0		
NO_X		920.9	920.9	0	0	920.9
Pb	☐	0.032	0.032	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Acrolein	☐	0.392	0.392	0		
Arsenic*	☐	0.0008941	0.0008941	0		
Beryllium	☐	0.0000536	0.0000536	0		
Cadmium	☐	0.00491	0.00491	0		
Chromium	☐	0.00625	0.00625	0		
Cobalt	☐	0.000375	0.000375	0		
Formaldehyde*	☐	5.003	5.003	0		
Manganese	☐	0.0017	0.0017	0		
Mercury	☐	0.00116	0.00116	0		
Nickel	☐	0.00939	0.00939	0		
Selenium	☐	0.000107	0.000107	0		
H2SO4	☑	10.24	10.24	0	0	10.24
NH3**	☑	1076	1076	0	0	1076