

## STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1903-AOP-R3 AFIN: 47-00448

1. PERMITTING AUTHORITY:

Arkansas Department of Environmental Quality  
8001 National Drive  
Little Rock, Arkansas 72219-8913

2. APPLICANT:

TPS Dell, LLC  
301 E. Highway 18  
Dell, Arkansas 72426

3. PERMIT WRITER:

Karen Cerney

4. PROCESS DESCRIPTION AND NAICS CODE:

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

5. SUBMITTALS:

February 7, 2005

6. REVIEWER'S NOTES:

TPS Dell, LLC, is constructing a natural gas fired power plant in Dell, Arkansas. This facility will be a combined cycle electrical generating plant with a nominal rating of 528 MW (with a peak of 640 MW), supplying electrical energy to the Entergy Power Grid via the pre-existing Entergy sub-station located adjacent to the planned site. This permit serves as the first renewal. The facility proposed to modify the permitted HAP emissions based upon more representative emission factors and to correct the emissions from the wastewater cooling tower (SN-28 through SN-31). The changes result in increases of permitted emissions of PM by 3.3 tons per year (tpy) and HAPs by 9.21 tpy.

7. COMPLIANCE STATUS:

The following summarizes the current compliance of the facility including active/pending enforcement actions and recent compliance activities and issues: the facility has no current enforcement actions as of 05/03/05.

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? Y  
 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  
 If so, indicate increases and decreases used in netting for PSD purposes only.

Source and Pollutant Specific Regulatory Applicability

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
01 and 02	NO <sub>x</sub> SO <sub>2</sub>	NSPS Subpart GG
01 and 02	PM/PM <sub>10</sub> NO <sub>x</sub> SO <sub>2</sub>	NSPS Subpart Da
03	-	NSPS Subpart Dc
All Sources	PM/PM <sub>10</sub> NO <sub>x</sub> VOC CO	PSD
01 and 02	-	NESHAP Subpart YYYY
03	-	NESHAP Subpart DDDDD

9. EMISSION CHANGES:

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

Plantwide Permitted Emissions (tpy)			
Pollutant	Permit # 1903-AOP-R2	Permit #1903-AOP-R3	Change
PM	301.4	304.7	+3.3
PM <sub>10</sub>	204.6	204.6	0
SO <sub>2</sub>	35.2	35.2	0

Plantwide Permitted Emissions (tpy)			
VOC	103.8	103.8	0
CO	524.1	524.1	0
NO <sub>x</sub>	265.9	265.9	0
Lead	0.00	0.4	+0.4
1,3-Butadiene	0.00	0.04	+0.04
Acetaldehyde	0.00	0.75	+0.75
Acrolein	0.00	0.14	+0.14
Benzene	0.00	0.24	+0.24
Ethylbenzene	0.00	0.60	+0.60
Formaldehyde	9.6	12.58	+2.98
Hexane	0.1	0.00	-0.1
Naphthalene	0.00	0.06	+0.06
PAH	0.00	0.06	+0.06
Propylene Oxide	0.00	0.54	+0.54
Toluene	0.00	2.32	+2.32
Xylene	0.00	1.18	+1.18
Ammonia	215.4	215.40	0

10. MODELING:

Criteria Pollutants

Pollutant	Emission Rate (lb/hr)	NAAQS Standard (µg/m <sup>3</sup> )	Averaging Time	Highest Concentration (µg/m <sup>3</sup> )	% of NAAQS
PM <sub>10</sub>	48.6	50	Annual	4.49	9%
		150	24-Hour	22.47	15%
SO <sub>2</sub>	8.7	80	Annual	0.50	1%
		1300	3-Hour	5.73	0%
		365	24-Hour	2.54	1%

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
VOC	24.8	0.12	1-Hour (ppm)	-	0%
CO	127.5	10,000	8-Hour	128.46	1%
		40,000	1-Hour	183.52	0%
NO <sub>x</sub>	71.8	100	Annual	11.66	12%

## Non-Criteria Pollutants:

1<sup>st</sup> 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 ( $\text{mg}/\text{m}^3$ ), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV ( $\text{mg}/\text{m}^3$ )	PAER (lb/hr) = $0.11 \times \text{TLV}$	Proposed lb/hr	Pass?
Lead	0.05	0.005	0.4	N
1,3-Butadiene	4.4245	0.486	0.04	Y
Acetaldehyde	45.0408	4.954	0.20	Y
Acrolein	0.2292	0.025	0.06	N
Benzene	1.597	0.175	0.08	Y
Ethylbenzene	434.1922	47.761	0.16	Y
Formaldehyde	0.368	0.040	2.88	N
Naphthalene	52.429	5.767	0.04	Y
PAH	0.2	0.022	0.04	N
Propylene Oxide	4.6699	0.513	0.13	Y
Toluene	188.40	20.724	0.56	Y
Xylene	434.1922	47.761	0.28	Y
Ammonia	17.413	1.915	49.20	N

2<sup>nd</sup> Tier Screening (PAIL)

ISCST3 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?
Lead	0.5	0.23634	Y
Acrolein	2.292	0.02363	Y
Formaldehyde	3.68	0.043441	Y
PAH	2.0	0.02363	Y
Ammonia	174.13	0.7153	Y

11. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
01 and 02	AP-42 and General Electric Equipment Specs	For HAPs: AP-42 Tables 3.1-2a and 3.1-3	Dry Low NO <sub>x</sub> with Selective Catalytic Reduction	Approx. 85%	Controlled emission factors provided for the GE Turbines. Factors assume that SCR is included.
03	AP-42	Table 1.4-1, 1.4-2, 1.4-3, and 1.4-4	Low NO <sub>x</sub> Burner	N/A	Uncontrolled emission factors
04-15	AP-42 and AWMA Abstract No. 216, Session No. AM-1b, Orlando, 2001	0.0005% Drift Rate and 8000ppm Total Dissolved Solids	N/A	N/A	Uncontrolled emission factors
16-22 and 24-27	AP-42 and AWMA Abstract No. 216, Session No. AM-1b, Orlando, 2001	0.0005% Drift Rate and 1500ppm Total Dissolved	N/A	N/A	Uncontrolled emission factors

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
		Solids			
23	AP-42	Table 3.3-1 and 3.3-2	N/A	N/A	Uncontrolled emission factors
28-31	AP-42 and AWMA Abstract No. 216, Session No. AM-1b, Orlando, 2001	0.0005% Drift Rate and 75,000 ppm Total Dissolved Solids	N/A	N/A	Uncontrolled emission factors

12. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
01 and 02	PM	5 and 202	Initial and then every 5 years	In order to confirm BACT and lb/MMBtu limits
	PM <sub>10</sub>	201A and 202 or 5 and 202		
	VOC	25A		
	CO	10		
	NO <sub>x</sub>	7E		To confirm lb/hr and tpy limits
	Lead	12		
	HAPs and Ammonia	18	To confirm lb/hr and tpy limits for HAPs and ammonia and to verify that no additional HAPs will be emitted	
03	NO <sub>x</sub>	7E	Initial	In order to confirm BACT and lb/MMBtu

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 and 02	Natural Gas Fuel Sulfur Content	ASTM D1072-80, D3031-81, or D3246-81	Daily	If exceeded
	Natural Gas Fuel Nitrogen Content	Fuel Monitoring Protocol for Stationary Gas Turbines subject to 40 CFR 60, Subpart GG	Daily	
	Fuel Flow Rate	In-line Fuel Flow Meter (CEM)	Continuous	
	CO	CEM	Continuous	
	NO <sub>x</sub>	CEM	Continuous	
	SO <sub>2</sub>	CEM	Continuous	

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 and 02	Fuel Fired	Natural Gas	N/A	Y
	Natural Gas Usage	39,500 million SCF	Annual	Y
	Fuel Nitrogen and Sulfur Contents	N/A	Daily	Y
03	Fuel Fired	Natural Gas	N/A	Y
	Hours per year of operation	1000 hours/yr	Monthly	Y
04-15	Total Dissolved Solids	8,000 ppm	Monthly	Y
16-22 and 24-27	Total Dissolved Solids	1,500 ppm	Weekly	Y
23	Fuel Sulfur Content	0.5%	Monthly	Y
	Hours per year of operation	250 hours/yr	Monthly	Y
28-31	Total Suspended Particulate	75,000 ppm	Weekly	Y

15. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
01 and 02	5%	Dept. Limit	Initial reading, then natural gas usage only
03	5%	Dept. Limit	Natural gas usage only
04-22 and 24-27	20%	Dept. Limit	Total Dissolved Solids Limit (SC#42 and 43)
23	20%	Dept. Limit	Readings taken if operated more than 3 consecutive hours
28-31	20%	Dept. Limit	TSP Limit (SC#55)

16. DELETED CONDITIONS:

Former SC	Justification for removal
	None

17. VOIDED, SUPERCEDED, OR SUBSUMED PERMITS:

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

Permit #
1903-AOP-R2

18. CONCURRENCE BY:

The following supervisor concurs with the permitting decision.

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Phillip Murphy, P.E.