STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1244-AOP-R3 AFIN: 43-00093

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

   Carlisle Compressor Station
   Hillman Road, Route 1
   Carlisle, Arkansas 72024

3. PERMIT WRITER:

   Ambrosia Brown

4. PROCESS DESCRIPTION AND NAICS CODE:

   NAICS Description: Pipeline Transportation of Natural Gas
   NAICS Code: 486210

5. SUBMITTALS:

   1/18/2011

6. REVIEWER'S NOTES:

   Carlisle Compressor Station operates a natural gas compressor station. This permit is being issued in order to incorporate conditions demonstrating compliance with 40 CFR Part 63, Subpart ZZZZ. The resulting permitted emissions are decreased by 4.28 tpy Formaldehyde.

7. COMPLIANCE STATUS:

   The following summarizes the current compliance of the facility including active/pending enforcement actions and recent compliance activities and issues.
   This facility has no known pending CAO's or other enforcement issues.

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? N
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 is not PSD?

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
No Source/Pollutant Specific Regulations		

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. MODELING:

The current modification reduces the Formaldehyde. The following modeling data is from the recent permit renewal.

Criteria Pollutants

The screening models by ADEQ used 5 yrs of MET data from Little Rock, AR (2003 to 2007). The background pollutant levels were added for determining the PM concentrations.

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu g/m^3$)	Averaging Time	Highest Concentration ($\mu g/m^3$)	% of NAAQS
PM_{10}	1.7	50	Annual	23.31*	47%
		150	24-Hour	45.62*	31%
CO	53.1	10,000	8-Hour	521.99	6%
		40,000	1-Hour	758.89	2%
NO_x	52.1	100	Annual	11.48	12%

* PM_{10} highest concentrations include background of 23 $\mu g/m^3$ (annual) and 43 $\mu g/m^3$ (24-hour)

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?
Formaldehyde	0.37	0.0407	1.365	No
Methanol	262.09	28.8299	0.247	Yes
Acetaldehyde	45.04	4.9544	0.247	Yes
Benzene	1.6	0.176	0.164	Yes
Toluene	75.36	8.2896	0.082	Yes
Acrolein	0.23	0.0253	0.226	No

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	3.7	3.57	Yes
Acrolein	2.3	0.905	Yes

Remember you can use 15

12. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
01 to 08	CO and NO_x: Stack Testing VOC, PM, PM_{10}, SO_2: AP-42 Table 3.2-3 HAPs: GRI-HAPCalc	CO: 3.8205 lb/MMbtu NO_x: 2.9158 lb/MMbtu VOC: 0.0296 lb/MMbtu PM_{10}: 0.0095 lb/MMbtu SO_2: 0.000588 lb/MMbtu PM: 0.00991 lb/MMbtu Formaldehyde: 0.0677 gm/hp-hr Methanol: 0.0101 gm/hp-hr Acetaldehyde: 0.0092 gm/hp-hr Benzene: 0.0052 gm/hp-hr Toluene: 0.0018 gm/hp-hr Acrolein: 0.0087 gm/hp-hr	Catalytic Converter	CO: 90% NO_x: 90% Formaldehyde: 76%	SN01-SN06: 1000 hp SN07-SN08: 1100 hp 13.93 MMBtu/hr 20% safety factor
10	NO_x: AGA Emission Factors CO, VOC, PM, PM_{10} SO_2: AP-42 Table 3.2-3 HAPs: GRI-HAPCalc	NO_x: 7.2715 lb/MMbtu CO: 3.72 lb/MMbtu VOC: 0.0296 lb/MMbtu PM_{10}: 0.0095 lb/MMbtu PM: 0.00991 lb/MMbut SO_2: 0.000588 lb/MMbtu AP-42 Table 3.2-3 HAPs: GRI-HAPCalc	none	N/A	2.65 MMBtu/hr 300 hp

13. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
SN01-SN08 Stack Testing	CO NO_X	Method 10 and 7E	One-half of eight compressor engines every 5 years	See Plantwide Condition # 10 in permit.
SN01-SN08 Stack Testing	Formaldehyde:	Method 320	Every 3 Years	Subpart ZZZZ

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 (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
SN01-SN08	temperature of the exhaust gas into the catalyst	inline thermocouple	Continuous monitoring (4 hour average)	Yes, only when outside of range
SN01-SN08	pressure drop across the catalyst	Pressure Gauge	monthly	Yes
SN01-SN08	O_2 in exhaust gas	O_2 sensor for air/fuel ratio controller (AFRC)	Continuous	Yes, only when alarm sounds for more than 30 minutes in any 4 hour period

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)
SN01-SN08 SNCR	Logging and corrective actions when SNCR not operating	SNCR must always operate except during start-up	Any Occurance	Yes
SN01-SN08 SNCR	Temperature of the exhaust gas into the catalyst When outside limit: corrective action, and logging	750 F <1250 F	Continuous monitoring (4 hour average) and additional info when outside limit	Yes, only when outside Permit Limits
SN01-SN08 SNCR	thermocouple and indicator visual check and test data	N/A	Visual:Quarterly Test: Annual (See CAM Plan)	No
SN01-SN08 SNCR	pressure drop across the catalyst When outside limit: corrective action, logging	Less than 2 inches H_2O from benchmark	Monthly and additional info when outside limit	Yes
SN01-SN08 SNCR	pressure gauge calibration data	N/A	Calibrated: Quarterly (See CAM Plan)	No
SN01-SN08 SNCR	over-temperature system testing data	N/A	Annual (See CAM Plan)	No
SN01-SN08 SNCR	Air/fuel ratio controller O_2 sensor Alarm Events and any corrective actions	Alarm sounding 30 minutes in any 4 hour period	Continuous and additional info when outside limit	Yes, only when outside Permit Limits

16. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
01, 02, 03, 04, 05, 06, 07, 08 and 09	5%	§18.501	Plantwide Condition #6 (Natural Gas Fuel)

17. DELETED CONDITIONS: None

18. GROUP A INSIGNIFICANT ACTIVITIES

Source Name	Group A Category	Emissions (tpy)						
		PM/PM_{10}	SO_2	VOC	CO	NO_x	HAPs	
							Single	Total
2,500 gallons used oil storage tank	A-3	0	0	0.00146	0	0	0.00146	0.00146
Two (2) 4,200 gallons entrained liquid storage tanks	A-3	0	0	0.054	0	0	0.054	0.054
5,000 gallons lube oil storage tank	A-3	0	0	0.0028	0	0	0.0028	0.0028
8,820 gallons antifreeze storage tank	A-3	0	0	0.0001	0	0	0.0001	0.0001
4,200 gallons antifreeze storage tank	A-3	0	0	0.0001	0	0	0.0001	0.0001
1,500 gallons waste water storage tank	A-3	0	0	0.0010	0	0	0.0010	0.0010
Two (2) 100 gallons kerosene storage tanks	A-2	0	0	0.0001	0	0	0.0001	0.0001
100 gallons diesel storage tank	A-2	0	0	0.0002	0	0	0.0002	0.0002
Compressors blowdowns	A-13	0	0	0.10	0	0	0.10	0.10
Fugitive emissions	A-13	0	0	0.016	0	0	0	0

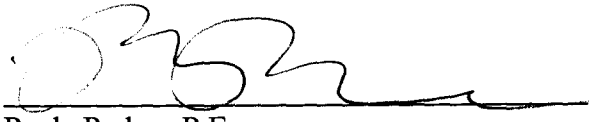
19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

Permit #
1244-AOP-R2

20. CONCURRENCE BY:

The following supervisor concurs with the permitting decision.



Paula Parker, P.E.

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 12-15-10

Facility Name: Carlisle Compressor Station
Permit Number: 1244-AOP-R3
AFIN: 43-000093

$/ton factor	22.07	Annual Chargeable Emissions (tpy)	248.4
Permit Type	Minor Mod	Permit Fee $	500

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
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	☑	5	5	0	0	5
PM_{10}	☐	5	5	0		
SO_2	☑	0.9	0.9	0	0	0.9
VOC	☑	15.6	15.6	0	0	15.6
CO	☐	230.4	230.4	0		
NO_X	☑	226.9	226.9	0	0	226.9
Acetaldehyde	☐	0.83	0.83	0		
Formaldehyde	☐	5.84	1.56	-4.28		
Acrolein	☐	0.81	0.81	0		
Methanol	☐	0.89	0.89	0		
Benzene	☐	0.5	0.5	0		
Toluene	☐	0.17	0.17	0		