

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 0972-AOP-R5 AFIN: 24-00068

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Black Hills Energy Arkansas, Inc. - Woolsey Compressor Station
2002 Cataberry Run Road
Ozark, Arkansas 72949

3. PERMIT WRITER:

Ann Sudmeyer

4. NAICS DESCRIPTION AND CODE:

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

5. ALL 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
4/21/2017	Administrative Amendment	N/A

6. REVIEWER'S NOTES:

Black Hills Energy Arkansas, Inc. - Woolsey Compressor Station operates a natural gas compressor station located near Ozark, Arkansas. This permitting action is necessary to change the name from SourceGas Arkansas Inc. - Woolsey Compressor Station to Black Hills Energy Arkansas, Inc. - Woolsey Compressor Station. In addition, the contact information was updated. No other changes or items were reviewed.

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 was last inspected on October 11, 2016 and was found to be in compliance.

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)
02, 03, 04	HAPs	NESHAP 40 C.F.R. § 63 Subpart ZZZZ

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:

The non-criteria pollutants listed below were evaluated in a previous permit. Based on Department procedures for review of non-criteria pollutants, emissions of all other non-criteria pollutants are below thresholds of concern.

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	0.03	3.48E-1	No
Formaldehyde	1.5	0.165	1.04	No
Butadiene	4.42	0.4862	4.96E-2	Yes

The above information was obtained from the statement of basis for 0972-AOP-R4.

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 (µg/m ³) = 1/100 of Threshold Limit Value	Modeled Concentration (µg/m ³)	Pass?
Acrolein	2.3	0.98	Yes
Formaldehyde	15.0	14.48	Yes

The above information was obtained from the statement of basis for 0972-AOP-R4.

c) H₂S Modeling:

A.C.A. §8-3-103 requires hydrogen sulfide emissions to meet specific ambient standards. Many sources are exempt from this regulation, refer to the Arkansas Code for details.

Is the facility exempt from the H₂S Standards N/A

If exempt, explain: _____

Pollutant	Threshold value	Modeled Concentration (ppb)	Pass?
H ₂ S	20 parts per million (5-minute average*)	N/A	N/A
	80 parts per billion (8-hour average) residential area	N/A	N/A
	100 parts per billion (8-hour average) nonresidential area	N/A	N/A

*To determine the 5-minute average use the following equation

$$C_p = C_m (t_m/t_p)^{0.2} \text{ where}$$

C_p = 5-minute average concentration

C_m = 1-hour average concentration

t_m = 60 minutes

t_p = 5 minutes

12. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
02	Equipment Manufacturer Specs AP-42 3.2 Equipment Manufacturer Specs	<u>g/bhp-hr:</u> NO _x =15 CO=1 VOC=1.2 <u>lb/MMBtu:</u> PM=9.91 E-03 PM ₁₀ =9.91 E-03 SO ₂ =5.88 E-04 Acrolein=2.63 E-3 Butadiene=6.63 E-4 <u>g/bhp-hr:</u> Formaldehyde=0.05	None	N/A	4SRB 600HP 4.52 MMBtu/hr 39.63 MMscf/yr
03	Equipment Manufacturer Specs AP-42 3.2 Equipment Manufacturer Specs	<u>g/bhp-hr:</u> NO _x =2.0 CO=2.65 VOC=1.0 <u>lb/MMBtu:</u> PM=9.91 E-03 PM ₁₀ =7.71 E-05 SO ₂ =5.88 E-04 Acrolein=5.14 E-3 Butadiene=2.67 E-4 <u>g/bhp-hr:</u> Formaldehyde=0.05	None	N/A	4SLB 615 HP 4.64 MMBtu/hr 40.62 MMscf/yr
04	Equipment Manufacturer Specs AP-42 3.2	<u>g/bhp-hr:</u> NO _x = 1.61 CO= 1.50 VOC= 0.25 <u>lb/MMBtu:</u> PM= 1.941E-2 PM ₁₀ = 1.941E-2 SO ₂ =5.88 E-04	None	N/A	4SRB 896 HP 7,540 Btu/hp- hr 6.76 MMBtu/hr

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
	Equipment Manufacturer Specs	Acrolein= 2.63 E-3 Butadiene= 6.63 E-4 <u>g/bhp-hr:</u> Formaldehyde=0.05			59.18 MMscf/yr
05	AP-42 1.4 Equipment Manufacturer Specs	<u>Lb/MMscf</u> NO _x =100 CO=84 VOC=5.5 SO ₂ =0.6 PM=7.6 PM ₁₀ =4.0 E-5 <u>g/bhp-hr:</u> Formaldehyde=0.05	None	N/A	2.0 MMBtu/hr 17.52 MMscf/yr
06	AP-42 1.4 Equipment Manufacturer Specs	<u>Lb/MMscf</u> NO _x =100 CO=84 VOC=5.5 SO ₂ =0.6 PM=7.6 PM ₁₀ =4.0 E-5 <u>g/bhp-hr:</u> Formaldehyde=0.05	None	N/A	0.8 MMBtu/hr 7.01 MMscf/yr

13. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
02 - 04 (one of each model engine)	NO _x CO	7E 10	Every 5 years	Compressor stations are required to test one half of each type of engine every five years
03 - 04	NO _x CO	7E 10	Once within 180 days of installing controls	Compliance Verification
Plantwide	Total Sulfur (SO ₂)	Methods outlined in section 2.3.5 or 2.3.3.1.2 of 40	Within 180 days of permit issuance and	Department Guidance

SN	Pollutants	Test Method	Test Interval	Justification
		CFR Part 75, Appendix D	every five years	
03 & 04	O ² Moisture Content Formaldehyde CO	Methods & Requirements Listed in Permit	Annual	NESHAP 40 CFR Part 63 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)
03 & 04	Catalyst Temperature	Thermocouple	Continuous	N
03 & 04	Pressure Differential cross Catalyst Bed	Pressure transducer, differential pressure gauge, manometer as appropriate	Monthly	N

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)
02	Maintenance	N/A	Monthly	N
03 & 04	Pressure	Change of 2 inches of water at 100 percent load plus or minus 10 percent from the pressure drop across the catalyst measured	Monthly	Y
03 & 04	Catalyst Temperature	450 °F to 1350 °F	Continuous	Y
03 & 04	Annual Compliance Demonstration	Listed in Permit	Annual	Y
03 & 04	Maintenance/Notifications	N/A	Monthly	Y
Facility	Total Sulfur (SO ₂)	0.2 grains/100 scf of natural gas	Every 5 years	Y

16. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
Facility	5%	Department Guidance	Pipeline Quality Natural Gas Fuel Only

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	
Lube Oil Storage Tanks (250 gallon)	A-3			0.002					
Lube Oil Storage Tanks (550 gallon)	A-3			0.003					
Non-Point source Fugitive Emissions	A-13			1.5			0.0073	0.0139	
ESD Blowdowns	A-13			0.034					

19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

Permit #
0972-AOP-R4

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-11-16

Black Hills Energy Arkansas, Inc. - Woolsey Compressor Station
 Permit #: 0972-AOP-R5
 AFIN: 24-00068

\$/ton factor		23.93	Annual Chargeable Emissions (tpy)	131.1
Permit Type	AA		Permit Fee \$	0

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	<input type="checkbox"/>
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		1	1	0	0	1
PM ₁₀		0.8	0.8	0		
PM _{2.5}		0	0	0		
SO ₂		0.5	0.5	0	0	0.5
VOC		15.5	15.5	0	0	15.5
CO		35.7	35.7	0		
NO _x		114.1	114.1	0	0	114.1
Acrolein	<input type="checkbox"/>	3.48E-01	3.48E-01	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Butadiene	<input type="checkbox"/>	4.96E-02	4.96E-02	0		
Formaldehyde	<input type="checkbox"/>	1.04	1.04	0		