

## STATEMENT OF BASIS

For the issuance of Air Permit # 0972-AOP-R7 AFIN: 24-00068

1. PERMITTING AUTHORITY:

Division 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:

Skylar Redman

4. NAICS DESCRIPTION AND CODE:

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

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
4/14/2023	Modification	Removal of plantwide conditions 8 and 10. Plantwide Condition 9 had total sulfur testing removed.

6. REVIEWER'S NOTES:

This permitting issuance completes renewal requirements of Arkansas Rule 26 and 40 C.F.R. Part 70. Plantwide condition 9 was edited to remove total sulfur testing to make it more consistent with other Black Hills Energy air permits. Plantwide conditions 8 and 10 were removed.

With this renewal application, there are no changes to permitted emissions.

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 January 05, 2023 and was found to be in compliance.

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? N

- *Single pollutant  $\geq 100$  tpy and on the list of 28 or single pollutant  $\geq 250$  tpy and not on list*

If yes for 8(b), 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. 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 Rule 18 requirement.)

11. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

12. AMBIENT AIR EVALUATIONS:

The following are results for ambient air evaluations or modeling.

## a) NAAQS

A NAAQS evaluation is not required under 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.

## b) Non-Criteria Pollutants:

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

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?
Acrolein	0.23	0.03	5.35E-02	No

2<sup>nd</sup> 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 ( $\mu\text{g}/\text{m}^3$ ) = 1/100 of Threshold Limit Value	Modeled Concentration ( $\mu\text{g}/\text{m}^3$ )	Pass?
Acrolein	2.3	0.73	Yes

c) H<sub>2</sub>S 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 H<sub>2</sub>S Standards

Y

If exempt, explain: No H<sub>2</sub>S emissions

Pollutant	Threshold value	Modeled Concentration (ppb)	Pass?
H <sub>2</sub> 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<sub>p</sub> = 5-minute average concentrationC<sub>m</sub> = 1-hour average concentrationt<sub>m</sub> = 60 minutest<sub>p</sub> = 5 minutes

## 13. 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 Table 3.2-1  Based on fuel sulfur Content of 0.5 gr/100 scf	<u>g/bhp-hr:</u> NO <sub>x</sub> =15.00 CO=1.00 VOC=1.20 Formaldehyde*=0.05  <u>lb/MMBtu:</u> PM=0.04831 PM <sub>10</sub> =0.04831  <u>lb/MMBtu:</u> SO <sub>2</sub> =1.47 E-03	None	N/A	4SRB 600HP  4.52 MMBtu/hr  39.63 MMscf/yr
03	Equipment Manufacturer Specs	<u>g/bhp-hr:</u> NO <sub>x</sub> =2.0 CO=2.65 VOC=1.0	None	N/A	4SLB 615 HP  4.64 MMBtu/hr

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
	AP-42 3.2 Table 3.2-2  Based on fuel sulfur Content of 0.5 gr/100 scf	Formaldehyde*=0.05  <u>lb/MMBtu:</u> PM=0.0099871 PM <sub>10</sub> =0.0099871  <u>lb/MMBtu:</u> SO <sub>2</sub> =1.47 E-03			40.62 MMscf/yr
04	Equipment Manufacturer Specs  AP-42 3.2 Table 3.2-2  Based on fuel sulfur Content of 0.5 gr/100 scf	<u>g/bhp-hr:</u> NO <sub>x</sub> =1.61 CO=1.50 VOC=0.25 Formaldehyde*=0.05  <u>lb/MMBtu:</u> PM=0.01941 PM <sub>10</sub> =0.01941  <u>lb/MMBtu:</u> SO <sub>2</sub> =1.47 E-03	None	N/A	4SRB 896 HP  7,540 Btu/hp-hr  6.76 MMBtu/hr  59.18 MMscf/yr
05	AP-42 1.4 Tables 1.4-1, 1.4-2 and 1.4-3	<u>Lb/MMscf</u> NO <sub>x</sub> =100 CO=84 VOC=5.5 SO <sub>2</sub> =0.6 PM=7.6 PM <sub>10</sub> =4.0 E-5  <u>HAPs</u> See Table 1.4-3	None	N/A	2.0 MMBtu/hr 17.52 MMscf/yr
06	AP-42 1.4 Tables 1.4-1, 1.4-2 and 1.4-3	<u>Lb/MMscf</u> NO <sub>x</sub> =100 CO=84 VOC=5.5 SO <sub>2</sub> =0.6 PM=7.6 PM <sub>10</sub> =4.0 E-5  <u>HAPs</u> See Table 1.4-3	None	N/A	0.5 MMBtu/hr 4.38 MMscf/yr

## 14. 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 <sub>x</sub> 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 <sub>x</sub> CO	7E 10	Once within 180 days of installing controls	Compliance Verification
03 & 04	O <sup>2</sup> Moisture Content Formaldehyde CO	Methods & Requirements Listed in Permit	Annual	NESHAP 40 CFR Part 63 Subpart ZZZZ

## 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)
03 & 04	Catalyst Temperature	Thermocouple	Continuous	N
03 & 04	Pressure Differential cross Catalyst Bed	Pressure transducer, differential pressure gauge, manometer as appropriate	Monthly	N

## 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)
02	Maintenance	N/A	Monthly	N
03 & 04	Pressure	Change of 2 inches of water at 100	Monthly	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
		percent load plus or minus 10 percent from the pressure drop across the catalyst measured		
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 <sub>2</sub> )	0.5 grains/100 scf of natural gas	Every 5 years	Y

## 17. OPACITY:

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

## 18. DELETED CONDITIONS:

Former PC	Justification for removal
8 and 10	This condition is not established in any other Title V permits for Black Hills Energy.

## 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 <sub>10</sub>	SO <sub>2</sub>	VOC	CO	NO <sub>x</sub>	HAPs	
							Single	Total
T-4 Lube Oil Tanks (250 gallon)	A-2			0.1				0.1
T-5 Lube Oil Tank (250 gallon)	A-2			0.1				0.1
Used Oil Drum #1	A-2			0.1				0.1
Used Oil Drum #2	A-2			0.1				0.1
T-6 Lube Oil Tank (550 gallon)	A-3			0.1				0.1
Equipment Leaks	A-13			0.6			0.0062	0.0118
Compressor Blowdowns	A-13			0.004			0.004	0.004
T-1 Condensed Water	A-13			0.01			<0.01	0.01
T-2 Condensed Water	A-13			0.01			<0.01	0.01
T-3 Produced Water	A-13			0.05			<0.05	0.05

## 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 #
0972-AOP-R6



## APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

## Fee Calculation for Major Source

Revised 03-11-16

Facility Name: Black Hills Energy Arkansas, Inc. -  
Woolsey Compressor Station  
Permit Number: 0972-AOP-R7  
AFIN: 24-00068

\$/ton factor	27.27	Annual Chargeable Emissions (tpy)	132.1
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	<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		2	2	0		
PM <sub>10</sub>		2	2	0	0	2
PM <sub>2.5</sub>		0	0	0		
SO <sub>2</sub>		0.5	0.5	0	0	0.5
VOC		15.5	15.5	0	0	15.5
CO		35.7	35.7	0		
NO <sub>x</sub>		114.1	114.1	0	0	114.1

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Formaldehyde	<input type="checkbox"/>	1.02	1.02	0		
Single HAPs	<input type="checkbox"/>	1.04	1.04	0		
Total HAPs	<input type="checkbox"/>	1.95	1.95	0		