

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1842-AOP-R7 AFIN: 60-01380

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Arkansas Electric Cooperative Corporation - Harry L. Oswald Generating Station
17400 Highway 365 South
Wrightsville, Arkansas 72183

3. PERMIT WRITER:

John Mazurkiewicz

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 |
|---------------------|---|--|
| 2/23/2018 | Minor Modification | Increase the permitted hours of operation for the generator (SN-08) to 1,250 hours per rolling twelve month period, and install an oxidation catalyst system for CO control. |

6. REVIEWER'S NOTES:

None.

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 current enforcement actions against the facility.

8. PSD/GHG APPLICABILITY:

a) Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? No.
If yes, were GHG emission increases significant? N/A.

b) Is the facility categorized as a major source for PSD? Yes.

- *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.

This is not a major modification as defined in 40 C.F.R. § 52.21, and PSD review is not required.

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

| Source | Pollutant | Regulation (NSPS, NESHAP or PSD) |
|---|--|-------------------------------------|
| SN-01 thru SN-07 Turbine w/duct burner | PM ₁₀ VOC CO NO _x | BACT |
| SN-01 thru SN-07 Turbine w/duct burner | NO _x | NSPS Db |
| SN-01 thru SN-07 Turbine w/duct burner | SO ₂ NO _x | NSPS GG |
| SN-08 | HAPs | NESHAP ZZZZ |
| SN-10 | | |

10. PERMIT SHIELD – TITLE V PERMITS ONLY:

Did the facility request a permit shield in this application? Yes.

(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? Yes.
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 |
|------------------------------|--------------------------|--|
| SN-01 -SN-07 | 40 CFR Part 64 | Because none of the emission units use a control device as defined under Part 64. |
| SN-08 - SN-10 | 40 CFR Part 64 | Because none of the emission units have a potential pre-control device emissions in the amounts of tons per year required to classify the unit as a major source under Part 70. |
| Cooling Tower (SN-09) | 40 CFR Part 63 Subpart Q | The facility is not a major source of HAPs. The facility does not operate the cooling tower with chromium based water treatment chemicals. |
| Duct Burners (SN-01 - SN-07) | 40 CFR 60.49b(g) and (b) | Pursuant to 40 CFR 60.48b(h) a continuous monitoring system for NOx is not required for the duct burners. Therefore these two paragraphs do not apply because the provisions are applicable to affected facilities required to install a continuous monitoring system. |

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:

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? |
|-----------------|-----------------------------------|----------------------------|-------------------|-------|
| Acetaldehyde | 45.04 | 4.9544 | 0.0002 | Yes |
| Acrolein | 0.23 ^a | 0.0253 | 0.0013 | No |
| Benzene | 1.59 | 0.1749 | 0.0880 | Yes |
| 1,3-Butadiene | 4.42 | 0.4862 | 0.0704 | Yes |
| Formaldehyde | 1.5 | 0.165 | 3.3516 | No |
| Naphthalene | 54.43 | 5.9873 | 0.0013 | Yes |
| PAH | 0.2 | 0.022 | 0.0732 | No |
| Propylene Oxide | 4.75 | 0.5225 | 0.1888 | Yes |
| Toluene | 75.4 | 8.294 | 0.6330 | Yes |
| Xylene | 434.19 | 47.7609 | 0.5721 | Yes |

^a STEL ceiling Value.

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, $\mu\text{g}/\text{m}^3$) = 1/100 of Threshold Limit Value | Modeled Concentration ($\mu\text{g}/\text{m}^3$) | Pass? |
|--------------|---|---|-------|
| Acrolein | 2.3 | 0.0036 | Yes |
| Formaldehyde | 15 | 0.1946 | Yes |
| PAH | 2 | 0.0522 | Yes |

c) H₂S Modeling: N/A.

13. CALCULATIONS:

| SN | Emission Factor Source (AP-42, testing, etc.) | Emission Factor (lb/ton, lb/hr, etc.) | Control Equipment | Control Equipment Efficiency | Comments |
|-------|---|--|-----------------------|------------------------------|---|
| 01-06 | Vendor Data | PM 0.0052 lb/MMBTU VOC 0.0005 lb/MMBtu CO 66 ppmvd@15% O ₂ NO _x 25 ppmvd@15% O ₂ | None | N/A | Uses steam injection to limit NO _x emissions |
| | Test Data | Formaldehyde, acrolein, and PAH | | | |
| | AP-42 Chapter 3.1 | All other HAPs | | | |
| 07 | Vendor Data | PM 0.0061 lb/MMBtu VOC 0.0006 lb/MMBtu CO 50 ppmvd@15% O ₂ NO _x 9 ppmvd@15% O ₂ | None | N/A | Facility uses Dry Low NO _x |
| 08 | AP-42 Table 3.4-1 | PM ₁₀ 0.0007 lb/hp-hr SO ₂ 4E-4 lb/hp-hr VOC 6E-4 lb/hp-hr CO 5.5E-3 lb/hp-hr NO _x 0.024 lb/hp-hr | CO Oxidation Catalyst | 70% | |
| 09 | EPA Report | 31.3% dispersion factor 4000 lb PM/1E6 lb water | None | | |
| 10 | AP-42 | PM 0.1 lb/MMBTU SO ₂ 0.084 lb/MMBTU VOC 2.1 lb/MMBtu CO 0.99 lb/MMBTU NO _x 1.63 lb/MMBTU | None | N/A | |

14. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

| SN | Pollutants | Test Method | Test Interval | Justification |
|-------|-------------------------|-------------|---------------|------------------------|
| 01-07 | PM ₁₀ VOC | 5 25A | 5 yrs | To confirm BACT limits |

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) |
|-------|--|------------------------------------|--------------|--------------|
| 01-07 | SO ₂ | continuous monitoring systems | N/A | N/A |
| | CO | continuous monitoring systems | Continuously | N/A |
| | NO _x | continuous monitoring systems | Continuously | N/A |
| | Sulfur content of fuel | N/A* | N/A | N/A |
| | fuel nitrogen content | N/A* | N/A | N/A |

* EPA allowed the permittee to use Part 75 CEMS and data gathering methods in place of the requirements of these Part 60 requirements.

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) |
|-------|----------------------------|---|------------|--------------|
| 01-07 | Firing Natural Gas only | No limit, will be at capacity | Monthly | N |
| 08 | Hours of Operation | 1,250 | Monthly | Y |
| | Diesel Sulfur Content | 0.05% weight | Monthly | Y |
| | Subpart ZZZZ recordkeeping | Reduce CO emissions by 70 percent or more | Continuous | Y |
| 09 | Total Dissolved Solids | 4000 ppm | Monthly | N |
| 10 | Hours of Operation | 500 | Monthly | Y |

17. OPACITY:

| SN | Opacity | Justification for limit | Compliance Mechanism |
|-------|---------|-------------------------|--|
| 01-07 | 5% | Natural gas use | natural gas only |
| 08 | 20% | Department standards | method 9 readings |
| 09 | 20% | Department standards | dissolved solids limit along with annual inspections |
| 10 | 20% | Department standards | method 9 readings |

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) | | | | | | HAPs | |
|---|------------------|---------------------|-----------------|-----|-----|-----------------|--------|-------|--|
| | | PM/PM ₁₀ | SO ₂ | VOC | CO | NO _x | Single | Total | |
| | | | | | | | | | |
| 9.9 MMBtu/hr Natural Gas Fired Fuel Heater | A-1 | 0.4 | 0.1 | 0.5 | 3.7 | 4.4 | N/A | | |
| EDG Fuel Storage Tank (500 gallons) | A-3/A-13 | - | - | - | - | - | - | - | |
| Emergency Fire Pump Fuel Tank (360 gallons) | A-3/A-13 | - | - | - | - | - | - | - | |

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 # |
|-------------|
| 1842-AOP-R6 |

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-11-16

Facility Name: Arkansas Electric Cooperative Corporation
 - Harry L. Oswald Generating Station
 Permit Number: 1842-AOP-R7
 AFIN: 60-01380

| | | | |
|---------------|-----------|-----------------------------------|-------|
| \$/ton factor | 23.93 | Annual Chargeable Emissions (tpy) | 899.6 |
| 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 | <input type="checkbox"/> |
| If Hold Active Permit, Amt of Last Annual Air Permit Invoice \$ | 0 |
| Total Permit Fee Chargeable Emissions (tpy) | 7.2 |
| 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 | | 185.4 | 185.6 | 0.2 | 0.2 | 185.6 |
| PM ₁₀ | | 180.3 | 180.5 | 0.2 | | |
| PM _{2.5} | | 0 | 0 | 0 | | |
| SO ₂ | | 13.3 | 13.4 | 0.1 | 0.1 | 13.4 |
| VOC | | 74.4 | 74.5 | 0.1 | 0.1 | 74.5 |
| CO | | 818.8 | 817.3 | -1.5 | | |
| NO _x | | 619.3 | 626.1 | 6.8 | 6.8 | 626.1 |
| Total HAPs | <input type="checkbox"/> | 19.6 | 19.64 | 0.04 | | |