STATEMENT OF BASIS

For the issuance of Air Permit # 1923-AOP-R10 AFIN: 60-00689

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Arkansas Children's Hospital
1 Children's Way
Little Rock, Arkansas 72202

3. PERMIT WRITER:

Sarah Neoh

4. NAICS DESCRIPTION AND CODE:

NAICS Description: General Medical and Surgical Hospitals
NAICS Code: 622110

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
12/8/2021	Renewal	No changes to emissions

6. REVIEWER'S NOTES:

Arkansas Children's Hospital (abbreviated ACH; AFIN: 60-00689), located at 1 Children's Way, Little Rock, in Pulaski County, is a medical hospital and research center dedicated to the needs of children. ACH provides medical care to children from the state of Arkansas as well as children from other regions of the country.

This permit renews the facility's Title V permit. This renewal does not include any changes.

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 is currently under no enforcement actions.

8. PSD/GHG 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 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)
17, 18, 19, 20, 21, 22	PM, VOC, CO, NOx	NSPS Subpart IIII
16, 17, 18, 19, 20, 21, 22	HAPs	NESHAP Subpart ZZZZ
23	HAPs	NESHAP CCCCCC

The facility stores "Jet A" fuel on site. That does not appear to make them subject to NESHAP CCCCCC, because jet fuel has a Reid Vapor Pressure sufficiently low not to meet the definition of gasoline (that is, below 27.7 kPa).

For the purposes of NSPS IIII applicability, SN-16 is an existing non-emergency CI RICE that was manufactured June 1, 2005, which is prior to the applicability date of April 1, 2006, for CI RICE that are not fire pump engines. According to 40 CFR 60.4200(a)(2)(i), NSPS IIII is not applicable to SN-16.

For the purposes of NESHAP ZZZZ applicability, SN-16 is an existing non-emergency stationary CI RICE of greater than 500 hp, located at an area source of HAP, constructed before June 12, 2006.

For the purposes of NSPS IIII applicability, SN-17 is a non-emergency CI RICE, not a fire pump, pre-2007 model year (2006), with a displacement of less than 10 liters per cylinder. It was constructed after July 11, 2005 (ordered in March 2008), and manufactured after April 1, 2006 (originally produced October 28, 2006, and not reconstructed).

For the purposes of NSPS IIII applicability, SN-18 through SN-21 are non-emergency CI RICEs, not fire pumps, 2007 model years or later, with a displacement of less than 10 liters per cylinder. They were installed in or after March 2009.

For the purposes of NESHAP ZZZZ applicability, SN-17 and SN-18 through SN-21 are non-emergency CI RICEs, at an area source of HAP, rated at more than 500 hp (for SN-17, 2,000 kW, or 2,848 hp; for SN-18 through 21, 2,500 kW, or 3,622 hp). Construction began on or after June 12, 2006. On-site installation of SN-17 was some time after it was ordered in March 2008. On-site installation of SN-18 through SN-21 was some time after issuance of Permit #1923-AOP-R2, on March 11, 2009.

For the purposes of NESHAP 6C applicability, SN-23 is a gasoline storage tank of 300 gallons, used to fuel vehicles, and is located at a minor source of HAP emissions.

10. UNCONSTRUCTED SOURCES:

Unconstructed Source	Permit Approval Date	Extension Requested Date	Extension Approval Date	If Greater than 18 Months without Approval, List Reason for Continued Inclusion in Permit
N/A				

11. 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 Regulation 18 requirement.)

12. COMPLIANCE ASSURANCE MONITORING (CAM) – TITLE V PERMITS ONLY:

List sources potentially subject to CAM because they use a control device to achieve compliance and have pre-control emissions of at least 100 percent of the major source level. List the pollutant of concern and a brief summary of the CAM plan (temperature monitoring, CEMs, opacity monitoring, etc.) and frequency requirements of § 64.

Source	Pollutant Controlled	Cite Exemption or CAM Plan Monitoring and Frequency
N/A		

13. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

14. 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 DEQ 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?
Arsenic	0.01	0.0011	3.35E-04	Y
Benzene	1.6	0.176	2.97E-01	N
Beryllium	5.0E-05	5.5E-06	2.51E-04	N
Cadmium	0.01	0.0011	2.51E-04	Y
Chromium, hexavalent	0.005	0.00055	2.51E-04	Y
Chromium, total	0.5	0.055	2.51E-04	Y
Cobalt	0.02	0.0022	6.89E-06	Y
Dichlorobenzene	60.12678937	6.61395	9.85E-05	Y
Ethyl benzene	86.84	9.5524	1.13E-01	Y
Formaldehyde	1.5	0.165	4.79E-02	Y
Hexane	176.2	19.382	2.98E-01	Y
Lead	0.05	0.0055	7.53E-04	Y
Manganese	0.1	0.011	5.02E-04	Y
Mercury	0.025	0.00275	2.51E-04	Y
Naphthalene	52.4	5.764	6.75E-04	Y
Nickel	1.5	0.165	2.51E-04	Y

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
POM	0.2	0.022	1.08E-02	Y
Selenium	0.2	0.022	1.26E-03	Y
Toluene	75.4	8.294	9.82E-01	Y
Xylene	434.19	47.7609	5.91E-01	Y

* Calculated as sum on the individual POM or PAH from AP-42 factors

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?
Benzene	16.0	12.77*	Y
Beryllium	5.0E-04	3.09E-05	Y

*No changes to emissions, so the facility has not been remodeled.

c) H_2S 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_2S Standards Y
If exempt, explain: This facility does not produce H_2S.

15. CALCULATIONS:

<table>
<tr><th>SN</th><th>Emission Factor Source (AP-42, testing, etc.)</th><th>Emission Factor (lb/ton, lb/hr, etc.)</th><th>Control Equipment</th><th>Control Equipment Efficiency</th><th>Comments</th></tr>
<tr><td>02, 03, 04</td><td>AP-42, tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4</td><td>(lb/10^6 scf NG)
PM: 7.6
PM_{10}: 7.6
SO_2: 0.6,
VOC: 5.5
CO: 84
NO_x: 100</td><td>None</td><td>N/A</td><td>1020 BTU/scf
<table><tr><th>Source No.</th><th>Input Duty (MMBtu/hr)</th><th>scf/hr</th></tr><tr><td>SN02</td><td>16.74</td><td>16411.76</td></tr><tr><td>SN03A</td><td>16.74</td><td>16411.76</td></tr><tr><td>SN03B</td><td>8.37</td><td>8205.88</td></tr><tr><td>SN03C</td><td>16.74</td><td>16411.76</td></tr><tr><td>SN04</td><td>25.10</td><td>24607.84</td></tr></table></td></tr>
<tr><td>02, 03, 04</td><td>AP-42, tables 1.3-1, 1.3-3, 1.3-6, 1.3-8, and 1.3-9</td><td>(lb/10^3 gal oil)
PM: 3.3,
PM_{10}: 3.3
SO_2: 0.213
VOC: 0.34
CO: 5
NO_x: 20</td><td>None</td><td>N/A</td><td>140,000 BTU/gal
<table><tr><th>Source No.</th><th>Input Duty (MMBtu/hr)</th><th>gal/hr</th></tr><tr><td>SN02</td><td>16.74</td><td>119.57</td></tr><tr><td>SN03A</td><td>16.74</td><td>119.57</td></tr><tr><td>SN03B</td><td>8.37</td><td>59.79</td></tr><tr><td>SN03C</td><td>16.74</td><td>119.57</td></tr><tr><td>SN04</td><td>25.10</td><td>179.29</td></tr></table></td></tr>
<tr><td>14, 15</td><td>Manufacturer’s data; mass balance (SO_2)</td><td>(lb/hr)
PM: 0.68,
PM_{10}: 0.68
SO_2: 0.0042723,
VOC: 0.06
CO: 0.55,
NO_x: 14.57</td><td>None</td><td>N/A</td><td>Emerg. Power Generators, 500 kW, No. 2 fuel oil allowance

15 ppm sulfur</td></tr>
<tr><td>16</td><td>Manufacturer’s data; mass balance (SO_2)</td><td>(lb/hr)
PM: 0.61,
PM_{10}: 0.61
SO_2: 0.0214884,
VOC: 2.49
CO: 11.56,
NO_x: 51.4</td><td>None</td><td>N/A</td><td>Power Generator, 1400kW, No. 2 fuel oil allowance</td></tr>
<tr><td>17</td><td>NSPS4I mass balance (SO_2)</td><td>0.0289 lb SO_2/hr (g/kW-hr)
PM: 0.54,
PM_{10}: 0.54
VOC: 1.3,
NOx: 9.2, CO: 11.4</td><td>None</td><td>N/A</td><td>Power Generator, 2000 kW, No. 2 fuel oil allowance</td></tr>
</table>

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
18-21	Manufacturer's data; mass balance (SO_2)	(lb/hr) PM: 0.4, PM_{10}: 0.4 SO_2: 0.03665295, VOC: 1.07 CO: 5.86, NO_x: 48.11	None	N/A	Power Generators, 2500 kW, No. 2 fuel oil allowance
22	Manufacturer's data; mass balance (SO_2)	(lb/hr) PM: 0.2, PM_{10}: 0.2 SO_2: 0.0221, VOC: 0.72 CO: 3.85, NO_x: 29.35	None	N/A	Power Generator, 1500kW, No. 2 fuel oil allowance
23	TANKS	5 turnovers/yr, 300 gallons Assume turnover takes place in an hour Short term emissions are single turnover working loss + annualized breathing emissions	None	N/A	

16. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
16	CO	See permit Table 3, item 3	Initial test must be performed within 180 days after May 3, 2013	§63.6612 & 63.6615
16	CO	See permit Table 3, item 3	Subsequent tests every 3 years or at 8,760 hrs, whichever comes first	§63.6612 & 63.6615

17. 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)
16	Temperature Range 450 °F - 1350 °F	CPMS Temperature Gauge	Continuous	Yes
16	Pressure Drop Must record initial test info	CPMS Pressure Gauge	Continuous	Yes
16	Operating Hours	Non-resettable Hour Meter	Continuous	Yes

18. 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, 03, 04 14, 15, 16 17, 18, 19, 20, 21	Fuel Oil Sulfur Content	0.0015% by wt	Per shipment	N
02, 03	#2 Distillate Fuel Oil Combustion	120,000 gal (both sources) / 12 months	monthly	Y
16	Time spent at idle during startup	Minimize engine's time spent at idle & engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 min., after which time the non-startup emission limitations apply.	As occurs	No
16	Emission Limitation - of CO (Table 2D, item #3b)	Reduce CO emissions by 70 percent or more; with oxidation catalyst and CPMS	At all times, except 30 min at startup	Yes
16	Notifications	Multiple notifications required, see permit	As required	Yes

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
16	Notifications include: engine percent load during a performance test	Must be determined by documenting the calculations, assumptions, and measurement devices used to measure or estimate the percent load in a specific application. A written report of the average percent load determination must be included in the notification of compliance status.	As tests occur	Yes
16	Notifications include: each instance of deviation from emission and op limits	Must report if emissions and/or operating limits deviate.	As occurs	Yes
16	Notifications include: change/replacement of catalyst	Must reestablish values of op parameters, via a new performance test.	As catalyst replacement occurs.	Yes
16	Affected Source, Control Devices, Monitoring Devices	1.Prepare written site-specific monitoring plan 2. Good work practices & possible testing & calibration 3. Ongoing operation and maintenance procedures 4.Perf. eval., accuracy audits, 5. See permit for more details.	At all times	Maybe, report deviations

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
16	Operating Limitations - Catalyst Pressure Drop (Table 2B, #2b)	Pressure drop across catalyst must not change by more than 2" H_2O from pressure drop across catalyst that was measured during initial performance test	At all times, Continuous operation, monitor & collect data once every 15 minutes	Maybe, report deviations
16	Operating Limitations - Catalyst Inlet Temperature Range (Table 2B, #2a)	Catalyst inlet temp greater than or equal to 450 °F and less than or equal to 1350 °F. Sensor must have minimum tolerance of 5 °F.	At all times, Continuous operation, monitor & collect data once every 15 minutes	Maybe, report deviations
16	Maintain source, pollution control equipment & monitoring equipment to minimize emissions	Maintain monitoring results, review of operation & maintenance procedures, review of operation and maintenance records, and inspection of the source	At all times keep documents current	Maybe, report deviations
16	Maintenance Logs	Repair, tune-up, replacement of parts, etc., date	As occurs	N
16	Crankcase Emissions	1.Install closed loop vent system or 2.Install open filtration system to reduce oil mist, PM, and metals.	On-going	Yes, One time notification

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
16	Performance Tests	Submit written reports of entire results of all performance tests conducted to the Department per GC #7 at the address in GC #6. Keep for 5 years minimum or until next test, whichever is longest. Requirements of perf tests follow Table 4, Item #3	Initial test within 180 days of May 3, 2013 (due 10/30/2013) & Subsequent tests every 3 years or at 8,760 op hrs, whichever comes first	Yes
16	Emission Deviations	No deviations permitted, except during first 200 op hours (when new, one time only).	Ongoing, within 48 hours	Yes
16	Control Devices, Monitoring Devices	Good work practices & possible testing & calibration	Ongoing after May 3, 2013	Yes
16	Notifications of Compliance	Multiple notifications, §63.6650(b)(1) through (b)(9), see SC #67 & #68	As required, semi-annual or annual	Yes
16	Manuals and all manufacturer's specifications for all process equipment, control devices & monitoring devices	Keep for usable life of Equipment	On going	No
16	Maintenance conducted	Keep for 5 years from date of occurrence.	As occurs	No
04	#2 Distillate Fuel Oil Combustion	60,000 gal / 12 months	monthly	Y
14, 15	#2 Distillate Fuel Oil Combustion	50,000 gal (both sources) / 12 months	monthly	Y
16	#2 Distillate Fuel Oil Combustion	60,000 gal / 12 months	monthly	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
17	#2 Distillate Fuel Oil Combustion	51,200 gal / 12 months	monthly	Y
18, 19, 20, 21	#2 Distillate Fuel Oil Combustion	346,600 gal (all sources) / 12 months	monthly	Y
22	#2 Distillate Fuel Oil Combustion	60,000 gal / 12 months	monthly	Y
23	Gasoline	1500 gallons/12 months	Monthly	Y

19. OPACITY:

SN	Opacity Limit Natural Gas	Opacity Limit #2 Distillate Oil	Justification for limit	Compliance Mechanism
02, 03, 04	5%	20%	§18.501 (NG), §19.503 (No. 2 Oil)	EPA Method #9
14-22	N/A	20%	§19.503	EPA Method #9

20. DELETED CONDITIONS:

Former SC	Justification for removal
N/A	

21. 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_{10}	SO_2	VOC	CO	NO_x	HAPs	
							Single	Total
Emergency Fire Pump Engine #3	A-1	0.07	0.01	0.08	0.22	1.01		
Emergency Fire Pump Engine #4	A-1	0.07	0.01	0.08	0.22	1.01		
180 kW Emergency Generator	A-1	0.07	0.02	0.16	1.41	1.13		
8,000 Gallon No. 2 Fuel Oil AST #1, #2, and #3	A-3			0.007				0.00008
6,000 Gallon Jet Fuel AST	A-3			0.011				0.000005

Source Name	Group A Category	Emissions (tpy)						
		PM/PM_{10}	SO_2	VOC	CO	NO_x	HAPs	
							Single	Total
2,800 Gallon No. 2 Fuel Oil AST	A-3			0.002				0.00003
Group of 14 tanks for No. 2 Fuel Oil	A-3			0.005				0.00008
61 Laboratory Hoods	A-5							
10,152 Gallon No. 2 Fuel Oil UST	A-13			0.002			0.00002	0.00002
16,000 Gallon No. 2 Fuel Oil AST	A-13			0.008			0.0002	0.0002
Six (6) Cooling Towers	A-13	0.88		4.57			0.05	0.05

22. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

The following is a list of all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
1923-AOP-R9

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-11-16

Arkansas Children's Hospital
Permit Number: 1923-AOP-R10
AFIN: 60-00689

$/ton factor	25.13	Annual Chargeable Emissions (tpy)	136.3
Permit Type	Renewal No Changes	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	☐
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		4.7	4.7	0		
PM_{10}		4.7	4.7	0	0	4.7
$PM_{2.5}$		0	0	0		
SO_2		0.8	0.8	0	0	0.8
VOC		5.5	5.5	0	0	5.5
CO		50.8	50.8	0		
NO_X		125.3	125.3	0	0	125.3
HAPs	☐	0.92	0.92	0		