

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 0617-AOP-R19 AFIN: 07-00035

1. **PERMITTING AUTHORITY:**

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

2. **APPLICANT:**

Aerojet Rocketdyne, Inc.
 East Walton Road, (Highway 274), Highland Industrial Park
 East Camden, Arkansas 71701

3. **PERMIT WRITER:**

Shawn Hutchings

4. **NAICS DESCRIPTION AND CODE:**

NAICS Description: Ammunition (except Small Arms) Manufacturing
 NAICS Code: 332993

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
9/8/2021	MOD	Long list of new sources see Reviewer's Notes
9/8/2021	AA	Insignificant Activities only
9/20/2021	AA	Insignificant Activities only
2/03/2021	AA	Insignificant Activities only
4/22/2022	Minor MOD	Already listed in the 9/8/21 MOD. Application was only for approval prior to final permit.
6/27/22	AA	Insignificant Activities only
7/20/22	AA	Insignificant Activities only

6. **REVIEWER'S NOTES:**

Aerojet Rocketdyne, Inc. currently operates a manufacturing facility located in the Highland Industrial Park near East Camden, Arkansas. This permit is a modification to add multiple new sources to the permit which were reported in self-disclosures to the Department; address changes to opacity requirements to resolve a permit appeal; to add Sources SN-44E-AC, 67Y, 81A & B, 124, 125, 126, 127, 128, 129, 130, 138, 139, 140; and updating the insignificant activity list. SN-03G was expanded from one to two test stands which will not operate simultaneously. Sources SN-36, 37A, 69D, 80, and 114 were removed from the permit. Permitted emission rates increased 2.4 tpy of SO₂, 6 tpy of CO, 7 tpy of NO_x. Other HAP emissions increased less than 0.5 tpy.

The facility had multiple unpermitted sources dealt with through CAO, Minor Modifications, Administrative Amendments, and Interim Authority. The facility subsequently took a reduction in emissions to become a PSD minor source and is now not permitted to emit pollutants above PSD major source thresholds. The reduction in emissions does not require separate public notice.

7. COMPLIANCE STATUS:

The following summarizes the current compliance of the facility including active/pending enforcement actions and recent compliance activities and issues.

This permit addresses unpermitted sources at the facility addressed in current CAO.

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 ≥ 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. N/A

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
SN-86, SN-87, SN-89, SN-95, SN-102, SN-103, SN-120, SN-123, SN-138, and SN-139	VOC CO NO _x	NSPS JJJJ
81, 81A, 81B, SN-86, SN-87, SN-89, SN-91, SN-92, SN-95, SN-102, SN-103, SN-103, SN-120, SN-123, SN-138, SN-139, 90, 91, 93, 121,	HAPs	MACT ZZZZ
71	VOC/HAP	NSPS Kb

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
72	VOC/HAP	NSPS Kb
Plantwide	VOC/HAP	NESHAP Part 63 Subpart GG
SN- 02C,02F, 02G, 25A, 25C, 25E, 25F, 69E, 69F, 69G, 69H, 94, 96, 112, 113, 115, 116, 117, 119, and 122	HAPs	MACT DDDDD
121, 81, 81A, 81B	Criteria	NSPS IIII

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
None added with this modification.				

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 Rule 18 requirement.)

If yes, are applicable requirements included and specifically identified in the permit? N
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
N/A		

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
--------	----------------------	---

Source	Pollutant Controlled	Cite Exemption or CAM Plan Monitoring and Frequency
67, 73, 104, 118, 124, 125, 126, 128	Particulate	Pre-control below major source thresholds.

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:

The non-criteria pollutants listed below were evaluated. Based on Division of Environmental Quality 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 Division of Environmental Quality has deemed the PAER to be the product, in lb/hr, of 0.11 and the Threshold Limit Value (mg/m³), 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?
1,1,1-Trichloroethane	1,910	210	582	N
Acetone	1,781	196	372	N
Acrolein	0.2	0.022	0.05	N
Arsenic	0.01	0.0011	0.00002	Y

Pollutant	TLV (mg/m ³)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Beryllium	0.0001	0.000001	0.0000001	Y
Cadmium	0.01	0.0011	2.04	N
Chlorine	0.29	0.032	207	N (no increase not evaluated further)
Chromium	0.01	0.0011	23.9	N
Cobalt	0.02	0.0022	0.000007	Y
Ethyl Benzene	86.8	9.55	132	N
Hydrogen Chloride	2.98	0.328	10840	N (no increase not evaluated further)
Hydrogen Fluoride	0.41	0.045	36.3	N (no increase not evaluated further)
Lead	0.05	0.0055	284	N
Manganese	0.1	0.011	0.00004	Y
Mercury	0.03	0.0033	0.00002	Y
Methanol	262	288	265	N
Methylene Chloride	173	19.1	354	N
MIBK	81.9	9	489	N
Selenium	0.2	0.002	0.000002	Y
Toluene	75.4	8.3	570	N
Xylene	434	47.8	520	N

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 Division of Environmental Quality 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?
-----------	---	---	-------

Pollutant	PAIL ($\mu\text{g}/\text{m}^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Pass?
1,1,1-Trichloroethane	19100	1350	Y
Acetone	17810	521	Y
Acrolein	2	0.006	Y
Chromium	0.03	0.001	Y
Ethyl Benzene	868	369	Y
Lead	0.5	0.015	Y
Methanol	2620	420	Y
Methylene Chloride	1730	935	Y
MIBK	819	1060	N
Toluene	754	941	N
Xylene	4340	1300	Y

The facility submitted the following to justify the modeled pollutants which exceeded the PAIL.

All pollutants “pass” the comparison to the PAIL or alternate standard except MIBK and Toluene.

The modeled concentrations of MIBK and Toluene that are above the PAIL limit occur at receptors along or just beyond Aerojet’s fence line. Those beyond the fence line all fall within industrial areas similar to Aerojet’s. The PAIL limit is for residential exposure, which is not a concern because there is restricted public access to these areas. The predicted impact is well below OSHA exposure standards, which is the only type of exposure that would occur at these receptors.

Therefore, the emissions of all non-criteria pollutants proposed in this modification will not cause any significant impact on human health and environment.

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

If exempt, explain: _____

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

*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

15. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
Natural Gas Fired sources	AP-42 Natural gas	Varied	None	None	
Engines	AP-42 Combustion engines	Varied	None	None	
Bubbled Sources, Lacquer, foam blowing	Usage Rates Mass Balance	Varied	None	None	
03A-F 04 30	EQTCH Products of Combustion model	Varied	None	None	
Blast Machines	BAAQMD emission factors for abrasive blasting	Varied per material used	Cyclone and Baghouses	90 and 99%	
Tanks	EPA Tanks Program	Equations	None	none	
13 19	AP-42 Table 4.6-2	0.08 Lb/hr/ft ²			
56	Mass Balance				

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
63	Mass Balance		Condenser	95%	
64 84 98	Mass Balance		None	N/A	
73 104 118, 124	Mass Balance	5% material loss	Baghouse	99.9	

16. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
This permit contains no testing requirements.				

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)
24, 125, 126	differential pressure and/or air velocity	Pressure gauge, or velocity meter	Weekly	Y

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)
SN- 02C,02F, 02G, 25A, 25C, 25E, 25F, 69E, 69F, 69G, 69H, 94, 96, 112, 113, 115, 116, 117, 119, and 122	DDDDD Records	None	As needed	Y
03	Materials Tested	Table in Specific Condition 12	Monthly	Y
11	Lacquer premix used	20,000 pounds	Monthly	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
4	Materials Processed hourly. Emissions monthly	Conditions 16, 17, and 18	Daily, Monthly	Y
30	Energetic materials used	300 pounds per hour 24,000 pounds per 12 months	Monthly	Y
47	Resin usage	40,000 lbs/12 mo	Monthly	Y
48A, 48B, and 49	Phenolic Resin	500,000 lbs/12 mo	Monthly	Y
63	Stabilizing Solvent	20,000lb/12 months	Monthly	Y
81, 81A, 81B	Hours	8760 per 12-month combined	Monthly	Y
84	Asphalt and wax coatings	15,000 pounds each	Monthly	Y
Emergency Engines	Operation hours and maintainence	Hours based on calculations see permit	Monthly	Y
07, 12, 13, 19, 20A & B, 22, 24, 28, 36 37B, 38A & B, 39A & B, 40A & B, 41A & B, 42, 43, 44A - AC, 52A & B, 74, 75, 76A & B, 77A & B, 78A & B, 85, 98, 99, 101A & B, 107, 108, 109, 110, 111, 125, 126, 127, 128, 129, 140	Solvent usage	See Plantwide Condition 10	Monthly	Y
SN-12, 24, 43, 44A - AC, 101A & B, 125, 126	Surface Coating Materials	63,000 pounds	Monthly	Y
SN-12, 24, 43, 44A - AC, 101A & B, 125, 126	VOC and HAP contents	See table Plantwide Condition 14	Monthly	Y
SN-44A – AC, SN-100A,SN-100B and 128	Miscellaneous Materials	35,500 pounds	Monthly	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
SN-44A – AC, SN-100A, SN- 100B and 128	VOC and HAP content	See table Plantwide Condition 14	Monthly	Y
SN-39A & B, 40A & B, 41A & B, 44A – AC, 76A & B, 77A & B, 78A & B, 98, 99, 101A & B, 108, and 109	Usage	41,400 lbs per 12 mo	Monthly	Y
SN-39A & B, 40A & B, 41A & B, 44A – AC, 76A & B, 77A & B, 78A & B, 98, 99, 101A & B, 108, and 109	Content	Plantwide 22	Monthly	Y
SN-48 and 49	Phenolic Molding compounds	500,000 per year	Monthly	Y
SN-67C through S	Blasting Media	300,000 per 12 months	Monthly	Y
SN-39A & B, 40A & B, 41A & B, 44A – AC, 76A & B, 77A & B, 78A & B, 98, 99, 101A & B, 108, and 109	adhesives, adhesive primers, adhesive catalysts, barrier coatings, and related compounds	27,600 pounds	Monthly	Y
SN-39A & B, 40A & B, 41A & B, 44A – AC, 76A & B, 77A & B, 78A & B, 98, 99, 101A & B, 108, and 109	VOC and HAP content	See table Plantwide Condition 19	Monthly	Y
All	HAP substitution records	Comply with Plantwide Condition 22	Annual	N
71	Gasoline throughput	200,000 gallons per 12 months	Monthly	Y
72	Diesel Throughput	40,000 gallons per year	Monthly	Y
SN-86, SN-87,	III	None	As needed	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
SN-89, SN-90, SN-91, SN-92, SN-93, SN-95, SN-102, SN-103, SN104, SN-105, SN-106, SN-120, SN-121, SN-123, 130, 138, and 139	JJJJ and ZZZZ records			
84	Throughput	15,000 pounds asphalt coating	Monthly	Y
SN-86, SN-87, SN-89, SN-90, SN-91, SN-92, SN-93, SN-95, SN-102, SN-103, SN104, SN-105, SN-106, SN-120, SN-121, SN-123, 130, 138, and 139	Hours of Operation	500 per 12 mo.	Monthly	Y
Plantwide	GG Records	None	As Needed	Y

19. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
SN-02C, 02F, 02G, 25A, 25C, 25E, 25F, 69E, 69F, 69G, 69H, 94, 96, 97, 101A, 101B, 112, 113, 115, 116, 117, 119, 122, 131, 132, 133, 134, 135, 136, and 137	5%	Department Guidance	Natural Gas Combustion only.
SN-24, 40A, 40B, 43	5%	Department Guidance	Weekly Observations
56	5%	Department Guidance	
67C through Y	5%	Department Guidance	Weekly Observations
73, 73B, 73C, 73D, 73E, 73F	5%	Department Guidance	Established standard operating procedures for processing energetic materials.
81, 81A, 81B	20%	Department Guidance	Daily Observations
SN-86 SN-87	5%	Department Guidance	Natural Gas

SN	Opacity	Justification for limit	Compliance Mechanism
SN-89 SN-90 SN-95 SN-102 SN-103 SN-105 SN-120 SN-123 SN-138 SN-139			Combustion only.
SN-91 SN-92 SN-93 SN-106 SN-121 SN-130	20%	Department Guidance	
SN-104	5%	Department Guidance	Weekly Observations
SN-125 SN-126	5%	Department Guidance	Weekly control device monitoring
81, 81A, 81B	20%	Department Guidance	Daily Observation
118, 124, 12, 44A-44AC, 100A, 100B, 56	5%	Department Guidance	Plantwide Condition 5

20. DELETED CONDITIONS:

Former SC	Justification for removal
Many	Removal of PM limit leading to opacity requirement removal for a number of sources and changes in opacity requirements due to appeal
Many	Many changes due only to permit restructuring or deleted sources.

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	
DOA Storage Tank (3,500 gallons)	Group A, Number 3			0.01					
Diesel Fuel Tank #1, 550 gal, Building 41, for SN-81	Group A, Number 3			0.01					
Diesel Fuel Tank #2, 550 gal, Building 41, for SN-81	Group A, Number 3			0.01					

Diesel Fuel Tank, 500 gal, Building 66, for SN-91	Group A, Number 3			0.01				
Diesel Fuel Tank, 200 gal, Building M-2, for SN-92	Group A, Number 3			0.01				
Diesel Fuel Tank, 520 gal, Building M-14, for SN-106	Group A, Number 3			0.01				
Diesel Fuel Tank, 460 gal, Building 105, for SN-121	Group A, Number 3			0.01				
Diesel Fuel Tank, 2,400 gal, Building 301, for SN-141	Group A, Number 3			0.01				
Total	Group A, Number 3			0.08				
Water Heater #4 (Building 301) 1.05 MMBTU	Group A, Number 1	0.04	0.01	0.03	0.38	0.46	0.01	
Water Heater #2 (Building M-11) 1.314 MMBTU	Group A, Number 1	0.05	0.01	0.04	0.48	0.57	0.02	
Laboratory at Building 17	Group A, Number 5			0.79				0.79
Laboratory at Building 109	Group A, Number 5			0.79				0.79
Total	Group A, Number 5			1.59				1.59
MLRS Igniter Assembly at Building M-85	Group A, Number 13			0.09				0.06

Ingredient Preparation Room	Group A, Number 13	0.03						
Metalworking Lathes at Building 2-SH-3	Group A, Number 13	0.28						
Polymer Tank Farm	Group A, Number 13			0.04				
Parts Fabrication in Trailer at Building 2-SH-4	Group A, Number 13	0.27						
Dry Ice Blasting	Group A, Number 13	CO2 only						
Vibratory Ceramic Pill Parts Cleaner at Building M-82	Group A, Number 13	0.01						
Winding and Curing Operation A at Building M-8	Group A, Number 13			0.07			0.01	0.01
Winding and Curing Operation B at Building M-8	Group A, Number 13			0.07			0.01	0.01
Winding and Curing Operation C at Building M-8	Group A, Number 13			0.07			0.01	0.01
Winding and Curing Operation D at Building M-8	Group A, Number 13			0.07			0.01	0.01
Composite Case Grinder	Group A, Number	0.05						

A at Building M-8	13							
Composite Case Grinder B at Building M-8	Group A, Number 13	0.05						
Composite Case Grinder C at Building M-8	Group A, Number 13	0.05						
Composite Case Grinder D at Building M-8	Group A, Number 13	0.05						
Saw, Drill, & Chamfer Machine A at Building M-8	Group A, Number 13	0.21						
Saw, Drill, & Chamfer Machine B at Building M-8	Group A, Number 13	0.21						
Saw, Drill, & Chamfer Machine C at Building M-8	Group A, Number 13	0.21						
Winding and Curing Operation at Building M-85	Group A, Number 13			0.07			0.01	0.01
Six (6) Cooling Towers at Buildings 2-SH-14, 2-SH-3, 23, 24, 25, & 51	Group A, Number 13	0.44						
Total	Group A, Number 13	1.81		0.48			0.11	0.11

Permit #: 0617-AOP-R19

AFIN: 07-00035

Page 16 of 16

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 #
0617-AOP-R18

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-11-16

Aerojet Rocketdyne, Inc.
 Permit #: 0617-AOP-R19
 AFIN: 07-00035

\$/ton factor	25.13	Annual Chargeable Emissions (tpy)	781.25
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)	-30.87
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 condensable 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		247.6	235.8	-11.8		
PM ₁₀		247.6	235.8	-11.8	-11.8	235.8
PM _{2.5}			0	0		
SO ₂		7.5	9.9	2.4	2.4	9.9
VOC		211.5	203.6	-7.9	-7.9	203.6
CO		104.4	110.4	6		
NO _x		82.4	89.4	7	7	89.4
Lead	<input type="checkbox"/>	7.66	7.37	-0.29		

