

## STATEMENT OF BASIS

For the issuance of Draft Air Permit # 0617-AOP-R11 AFIN: 07-00035

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Aerojet Rocketdyne, Inc.  
East Walton Road, 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. 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
8/1/2011	Renewal with Modification	Production increase
8/18/2011	Minor Modification	New Generator
3/16/2012	Administrative Amendment	Water Heater Insignificant Activity
5/21/12	Modification	Production Increase (same as renewal)
9/19/2012	Minor Modification	New Boiler
5/15/2014	Minor Modification	New Generator

6. REVIEWER'S NOTES:

Aerojet – General Corporation, currently operates a manufacturing facility located in the Highland Industrial Park near East Camden, Arkansas. In this renewal the boiler grouped source, SN-02, is being separated into seven individual sources, MACT Subparts DDDD and ZZZZ have been added, the annual limit at SN-04, the Thermal Treatment Facility, has been increased to 925,000 pounds per year, and the requirements for MACT Subpart T has been

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removed. The facility no longer uses a halogenated solvent as defined by the Subpart and is no longer subject to the MACT. Some boilers and emergency generators have been added of the sources are new some previously insignificant activities now subject to federal regulations.

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 known enforcement issues against the facility.

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  $\geq 100$  tpy and on the list of 28 or single pollutant  $\geq 250$  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)
SN-86, SN-87, SN-89 and SN-95	VOC CO NO <sub>x</sub>	NSPS JJJJ
81 86 87 89 90 91 92 93 95	HAPs	MACT ZZZZ
71	VOC/HAP	NSPS Kb
72	VOC/HAP	NSPS Kb
Plantwide	VOC/HAP	NESHAP Part 63 Subpart GG
02A 02B	HAPs	MACT DDDDD

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
02B		
02C		
02D		
02E		
02F		
02H		
SN-25A		
SN-25B		
SN-25C		
SN-25D		
SN-25E		
SN-25F		
SN-25G		
SN-69A		
SN-69B		
SN-69C		
SN-69D		
SN-69E		
SN-69F		
SN-69G		
SN-69H		
SN-94		

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. AMBIENT AIR EVALUATIONS:

a) 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

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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?
Acetone	1090	120	115	Yes
All other evaluated non criteria pollutants were modeled.				

## 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	2.29	0.5	Yes
Cadmium	0.1	0.003	
Chromium	0.1	0.03	
Hydrogen Chloride	29.3	26.7	
Hydrogen Fluoride	4.1	0.08	
Methanol	2620	355	
Methylene Chloride	1032	1000	
Methyl Isobutyl Ketone	2048	1013	
Toluene	1884	595	
1,1,1 Trichloroethane	545	515	
Xylene	4341	1311	

## 12. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
02A 02B 02C 02D	Ap-42 Natural gas for boilers	Varied	None	N/A	

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
02E 02F 02H SN-25A SN-25B SN-25C SN-25D SN-25E SN-25F SN-25G SN-69A SN-69B SN-69C SN-69D SN-69E SN-69F SN-69G SN-69H SN-94					
03A-F 04 30	EQTCH Products of Combustion model	Varied	None	None	
Solvent Usages and Painting	Based on VOC and HAP usage at maximum rates	Varied	None	None	
Engines	Lower of AP-42 or RICE rule limits	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	
63	Mass Balance		Condenser	95%	
64	Mass Balance		None	N/A	

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
73	Mass Balance		Dual Baghouses	99.9%	

13. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
81	CO	40 CFR 63.6612	Initial only	ZZZZ Requirement

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)
This permit requires no monitoring or CEMs				

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)
2, 25, and 69	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
30	Energetic materials used	300 pounds per hour 24,000 pounds per 12 months	Monthly	Y
81	Fuel	131,400 gallons	Monthly	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
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
SN-07, SN-11, SN-12, SN-13, SN-19, SN-20, SN-22, SN-24, SN-28, SN-36 through SN-45, SN-47, SN-52, SN-54, SN-57, SN-58, SN-59, SN-62 through SN-64, SN-74 through SN-78, SN-80, SN-82, SN-83, and SN-85	Solvent usage	See Plantwide Condition 7	Monthly	Y
SN-12, SN-24, SN-43, SN-44, SN-80 or SN-83	Surface Coating Materials	59,500 pounds	Monthly	Y
SN-12, SN-24, SN-43, SN-44, SN-80 or SN-83	VOC and HAP contents	See table Plantwide Condition 11	Monthly	Y
SN-44	Miscellaneous Materials	28,400 pounds	Monthly	Y
SN-44	VOC and HAP content	See table Plantwide Condition 15	Monthly	Y
SN-39, SN-40, SN-41, SN-76, SN-77 and/or SN-	adhesives, adhesive primers, adhesive catalysts, barrier coatings, and related compounds	27,600 pounds	Monthly	Y
SN-39, SN-40, SN-41, SN-76, SN-77 and/or SN-	VOC and HAP content	See table Plantwide Condition 19	Monthly	Y
All	HAP substitution	Comply with	Annual	N

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SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
	records	Plantwide Condition 22		

16. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
02A, 02B, 02D, 02E, 02F, 02G, 02H, 25A, 25B, 25C, 25D, 25E, 25F, 25G, 69A, 69B, 69C, 69D, 69E, 69F, 69G, 69H, 94	5%	Department Guidance	Natural Gas Combustion
67A through R	5%	Department Guidance	Weekly observation
73	5%	Department Guidance	Compliance with this condition will be demonstrated by the permittee's established standard operating procedures for processing energetic materials.
81	20%	Department Guidance	Daily Observation
SN-86 SN-87, SN-89, SN-90, SN-95	5%	Department Guidance	Natural Gas Combustion
SN-91, SN-92, SN-93	20%	Department Guidance	Daily Observation after 24 consecutive hours of operation

17. DELETED CONDITIONS:

Former SC	Justification for removal
Plantwide 24 through 36	These conditions were for MACT Subpart T. The facility has ceased using halogenated solvents as defined by the subpart and is no longer subject to these conditions or the subpart.



18. GROUP A INSIGNIFICANT ACTIVITIES:

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
DOA Storage Tank (3,500 gallons)	Group A, Number 3							
MLRS Igniter Assembly (SN-55) at Building M-85	Group A, Number 13			0.09			.06	.06
SN-60 Ingredient Preparation Room	Group A, Number 13	0.03						
SN-66 Lathes at Building 2-SH-3	Group A, Number 13	.28						
SN-70 Polymer Tank Farm	Group A, Number 13			0.04				
Motor Case Cutting Equipment	Group A, Number 13	.27						
Motor Case Grinding	Group A, Number 13	.14						
Composite Case Grinding Machine at Building M-8	Group A, Number 13	.01						
Total	A-13	.73		.13		.06	.06	
Water	Group A,	0.14	0.01	0.09	1.19	1.41	0.01	

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Heater Building #47	Number 1							
Diesel Tank for Generator at M-2 Building	Group A, Number 3							

19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

Permit #
0617-AOP-R10

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

**Fee Calculation for Major Source**

Aerojet - General Corporation  
 Permit #: 0617-AOP-R10  
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\$/ton factor	23.89	Annual Chargeable Emissions (tpy)	693.98
Permit Type	Modification	Permit Fee \$	<u>1000</u>

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)	-102.82
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		241.7	205.3	-36.4		
PM <sub>10</sub>		241.7	205.3	-36.4	-36.4	205.3
SO <sub>2</sub>		3.4	5.9	2.5	2.5	5.9
VOC		154	150.3	-3.7	-3.7	150.3
CO		79.1	93.3	14.2		
NO <sub>x</sub>		74.4	87.7	13.3	13.3	87.7
Lead	<input type="checkbox"/>	5.61	6.77	1.16		
Acetaldehyde	<input type="checkbox"/>	1.06	0.12	-0.94		

**\*\*DO NOT PASTE INTO SOB\*\*    \*\*Use Ctrl + e to Print to Last Pollutant\*\*  
**Fee Calculation for Major Source****

Revised 08-25-14

Aerojet - General Corporation  
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\$/ton factor	23.89	Annual Chargeable Emissions (tpy)	693.98
Permit Type	Modification	Permit Fee \$	<u>3931.0995</u>

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)	164.55
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		241.7	205.3	-36.4		
PM <sub>10</sub>		241.7	205.3	-36.4	-36.4	205.3
SO <sub>2</sub>		3.4	5.9	2.5	2.5	5.9
VOC		154	150.3	-3.7	-3.7	150.3
CO		79.1	93.3	14.2		
NO <sub>x</sub>		74.4	87.7	13.3	13.3	87.7
Lead	<input type="checkbox"/>	5.61	6.77	1.16		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Acetaldehyde	<input type="checkbox"/>	1.06	0.12	-0.94		
Acrolein	<input type="checkbox"/>	0.14	0.1	-0.04		
Benzene	<input type="checkbox"/>	1.23	0.242598	-0.987402		
1,2 Butylene Oxide	<input type="checkbox"/>	0.36	1.04	0.68		
1,3 Butadiene	<input type="checkbox"/>	0.09	0.12	0.03		
Cadmium	<input type="checkbox"/>	0.08	0.08	0		
Chlorine	<input checked="" type="checkbox"/>	6.35	7.83	1.48	1.48	7.83
Chromium	<input type="checkbox"/>	0.54	0.11	-0.43		
Cumene	<input type="checkbox"/>	1.42	1.5	0.08		
Diethylene Glycol Monobutyl Ether Acetate	<input type="checkbox"/>	2.84	1.5	-1.34		
Diethylene Glycol Monoethyl Ether Acetate	<input type="checkbox"/>	4.48	2.9	-1.58		
Ethyl Acrylate	<input type="checkbox"/>	7.89	4.1	-3.79		
Ethyl Benzene	<input type="checkbox"/>	1.72	8.14	6.42		
Formaldehyde	<input type="checkbox"/>	123.46	0.6828	-122.7772		
Hydrogen Chloride	<input checked="" type="checkbox"/>	0.67	145.4	144.73	144.73	145.4
Hydrogen Fluoride	<input checked="" type="checkbox"/>	10.84	0.9	-9.94	-9.94	0.9
Methanol	<input type="checkbox"/>	96.25	17.18	-79.07		
Methylene Chloride	<input checked="" type="checkbox"/>	32.53	24.6	-7.93	-7.93	24.6
Methyl Isobutyl Ketone	<input type="checkbox"/>	0.03	30.9	30.87		
PAH	<input type="checkbox"/>	3.41	0.02	-3.39		
Phenol	<input type="checkbox"/>	3.42	3.58	0.16		
Propylene Oxide	<input type="checkbox"/>	2.1	0.1	-2		
Tetrachloroethylene	<input type="checkbox"/>	42.33	2.25	-40.08		
Toluene	<input type="checkbox"/>	48.25	39.78539	-8.46461		
1,1,1 Trichloroethane	<input checked="" type="checkbox"/>	5.52	34.91	29.39	29.39	34.91
Trichloroethylene	<input type="checkbox"/>	33.56	5.76	-27.8		
Xylene	<input type="checkbox"/>	48.3	33.10017	-15.19983		
Acetone	<input checked="" type="checkbox"/>	0.02	28.6	28.58	28.58	28.6

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Ammonia	<input checked="" type="checkbox"/>	0	0.04	0.04	0.04	0.04
HAPs from Natural Gas Combustion	<input type="checkbox"/>	0	0.1	0.1	0.1	0.1
HFC-245fa	<input checked="" type="checkbox"/>	0	2.5	2.5	2.5	2.5

