

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1016-AOP-R5 AFIN: 10-00004

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Reynolds Metals Company
500 East Reynolds Road
Arkadelphia, Arkansas 71923

3. PERMIT WRITER:

Adam McDaniel

4. PROCESS DESCRIPTION AND NAICS CODE:

NAICS Description: Primary Aluminum Production
NAICS Code: 331312

5. SUBMITTALS:

2/3/2012

6. REVIEWER'S NOTES:

Reynolds Metals Company (Reynolds) operates a spent potliner thermal treatment process at its facility located in Gum Springs, Arkansas. The facility requested a minor modification to add a diesel stormwater pump (SN-33) which is subject to 40 CFR Part 63 Subpart ZZZZ and to add two (2) water heaters (Group A-13) to insignificant activities. Also, the portable baghouse for SN-32 (2nd Cut Material Grinding Operation) is subject to NSPS 40 CFR Part 60 Subpart IIII and the appropriate conditions will be added to the permit that were left out of the previous modification. Also, there were a few emission changes due to typos and rounding errors. The total annual permitted emission changes associated with this permit include: +0.1 tpy PM/PM₁₀, +0.1 tpy SO₂, +0.1 tpy VOC, +0.2 tpy CO, +0.7 tpy NO_x, + 0.28 tpy Lead, a small reduction in Arsenic Compounds, - 0.125 tpy Chromium Compounds, and + 5.5 tpy Ammonia.

7. COMPLIANCE STATUS:

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

On August 31, 2011 and September 1, 2011, the facility was inspected and found to be in compliance

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 ≥ 100 tpy and on the list of 28 or single pollutant ≥ 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)
01, 02, 05, 06, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, and 27	PM ₁₀	CAM
Facility	All	MACT EEE
32		NSPS 40 CFR Part 60 Subpart IIII
33		40 CFR Part 63 Subpart ZZZZ

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. MODELING:

Criteria Pollutants:

The criteria pollutants were remodeled during the renewal for 1016-AOP-R4. Due to the minimal changes to the criteria pollutant emissions from the Minor Modification, no additional modeling was done.

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu\text{g}/\text{m}^3$)	Averaging Time	Highest Concentration ($\mu\text{g}/\text{m}^3$)	% of NAAQS
PM ₁₀	18 down to 13.9	150	24-Hour	69.3	46.2
SO ₂	0.6 up to 1.2	80	Annual	N/A	N/A
		1300	3-Hour	N/A	N/A
		365	24-Hour	N/A	N/A
CO	22.9 up to 24.8	10,000	8-Hour	20.4	0.2
		40,000	1-Hour	12.6	0.032
NO _x	52 up to 60.6	100	Annual	0.36	0.36
Pb	0.051 to 0.1	0.15	Rolling 3-month Period over 3 years (not to be exceeded in any 3 month period)	0.002	1.4

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/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?
Ammonia	17.41	1.92	15.98	N
Arsenic Compounds	0.01	0.0011	1.92E-02	N
Beryllium Compounds	0.002	2.2E-04	1.94E-02	N
Cadmium Compounds	0.01	0.0011	4.81E-02	N
Chlorine	1.45	0.1595	22.87	N
Chromium Compounds	0.01	0.0011	2.1E-02	N
Fluorides	2.5	0.275	1.48	N
Hydrochloric Acid (Hydrogen Chloride)	2.98	0.3278	22.87	N
Mercury	0.025	0.00275	0.03	N
Polycyclic Aromatic Hydrocarbons	0.2	0.022	0.69	N
Lead	0.05	0.0055	0.1	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 Department 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?
Ammonia	200-Annual 3200-1 Hour	4.37=Annual 254.3=1 Hour	Y
Arsenic Compounds	0.11	0.01443	Y
Beryllium Compounds	0.007	0.00296	Y
Cadmium Compounds	0.02	0.00156	Y
Chlorine	14.5	1.67045	Y
Chromium Compounds	0.1	0.05434	Y
Fluorides	25.0	0.11172	Y
Hydrochloric Acid (Hydrogen Chloride)	29.8	1.67045	Y
Mercury	0.25	0.00219	Y
Polycyclic Aromatic Hydrocarbons	2.0	0.07	Y
Lead	0.5	0.00191	Y

* The facility Risk Assessment

12. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
01, 02, 05, 06, 26, 27, 30, 31	Grain Loading	0.002 gr/acf	Baghouse	99.9%	
07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 18, 20, 21, 22, 23, 24, 25	Grain Loading	0.005 gr/acf	Baghouse	99.9%	
19	MACT EEE Limits and Stack Testing	See Permit	Afterburner Baghouse	99.9% 99.9%	
32	AP-42 Chapter 11.19.2 MSDS AP-42 Chapter 3.3 for Combustion	Operation lb/ton Screen=0.072 Crusher=0.015 Loading/Unloading=0.0004 Conveyor= 0.0077 2 nd Cut = 0.1% Sodium Beryllium Fluoride Based on Molecular Weight Ratio <u>lb/MMBtu</u> PM=0.31 PM ₁₀ =0.31 SO ₂ =0.29 VOC=0.36 CO=0.95 NO _x =4.41	Primary Screen= Baghouse Crusher= Building Loading/Unloading= Baghouse Conveyor (7 drop off pts)= building	99.9% 80% 99.9% 80%	Portable Baghouse is 190HP Diesel Engine operated 8,760 hr/yr

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SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
33	AP-42 Chapter 3.3 for Combustion	<u>lb/MMBtu</u> PM=0.31 PM ₁₀ =0.31 SO ₂ =0.29 VOC=0.36 CO=0.95 NO _x =4.41			

13. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
19	EEE	EEE See Plantwide	Annual	MACT EEE

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)
19	Various AFS systems	CEM	Continuous	N
19	CO Concentration	CEM	Continuous	N
19	PM Concentration	CEM	Continuous	N

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)
None				

16. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
32	5%	§18.501	Inspector Observation
01, 05, 06, 09, 10, 11, 18, 20, 21, 22, 26, 27	7%	CAM	Weekly
07, 08, 12, 13, 14, 15, 16, 23, 24, 25	10%	CAM	Weekly
19, 33	20%	Guidance	Daily

17. DELETED CONDITIONS:

Former SC	Justification for removal
N/A	

18. GROUP A INSIGNIFICANT ACTIVITIES

Source Name	Group A Category	Emissions (tpy)						
		PM/PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs	
							Single	Total
Five Diesel Fuel Storage Tanks 4000, 2 @ 3000, 2000, and 1000 gallon capacity.	3							0.002
Gasoline Storage Tanks #1 and #2 (SN-28)	3			0.34				
Laboratory Dust Collector and Vent	5							
Lime Handling Fugitives (SN-29)	13	0.003						
Cooling Tower	13	0.22						

Source Name	Group A Category	Emissions (tpy)						
		PM/PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs	
							Single	Total
Cooler Conveyor Dust Collector	13							
Leachate Tanks	13							
Loading Silos	13	PM= 0.19 PM ₁₀ =0.09						
Air Duct Systems	13							
Initial Size Reduction System	13							
Loadout Inline Dust Collector (SN-31)	13	0.19					7.44e-5	2.65e-4
Hot Water Heater #1	13	0.05	0.05	0.06	0.15	0.66	5.24e-4	7.16e-4
Hot Water Heater #2	13	0.05	0.05	0.05	0.14	0.14	4.76e-4	2.23e-3

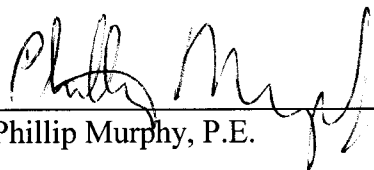
19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

Permit #
1016-AOP-R4

20. CONCURRENCE BY:

The following supervisor concurs with the permitting decision.


 Phillip Murphy, P.E.

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 08-30-11

Facility Name: Reynolds Metal Co.- Gum Springs
 Permit Number: 1016-AOP-R5
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\$/ton factor	22.65	Annual Chargeable Emissions (tpy)	589.1
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)	6.5
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	<input checked="" type="checkbox"/>	49	49.1	0.1	0.1	49.1
PM ₁₀	<input type="checkbox"/>	49	49.1	0.1		
SO ₂	<input checked="" type="checkbox"/>	3.8	3.9	0.1	0.1	3.9
VOC	<input checked="" type="checkbox"/>	34.2	34.3	0.1	0.1	34.3
CO	<input type="checkbox"/>	105.6	105.8	0.2		
NO _x	<input checked="" type="checkbox"/>	230.8	231.5	0.7	0.7	231.5
Lead	<input type="checkbox"/>	0.0212	0.3	0.2788		
Arsenic Compounds	<input type="checkbox"/>	0.0911	0.0861	-0.005		
Beryllium Compounds	<input type="checkbox"/>	0.0865	0.0865	0		
Cadmium Compounds	<input type="checkbox"/>	0.211	0.211	0		
Chlorine	<input checked="" type="checkbox"/>	100.18	100.18	0	0	100.18
Chromium Compounds	<input type="checkbox"/>	0.215	0.0901	-0.1249		
Dioxins and Furans	<input type="checkbox"/>	8.43E-07	8.43E-07	0		
Fluorides	<input type="checkbox"/>	6.48	6.48	0		
Mercury	<input type="checkbox"/>	0.11	0.11	0		
Polycyclic Aromatic Hydrocarbons (PAH)	<input type="checkbox"/>	2.99	2.99	0		
Ammonia	<input checked="" type="checkbox"/>	64.44	69.94	5.5	5.5	69.94
Hydrochloric Acid (HCl)	<input checked="" type="checkbox"/>	100.18	100.18	0	0	100.18