

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1016-AOP-R7 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 (Gum Springs)
500 East Reynolds Road
Arkadelphia, Arkansas 71923

3. PERMIT WRITER:

Adam McDaniel

4. NAICS DESCRIPTION AND CODE:

NAICS Description: Hazardous Waste Treatment and Disposal
NAICS Code: 562211

5. SUBMITTALS:

12/31/2013

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 modification to add new High-Water Feed Streams to its incinerator at SN-19. The facility has performed stack testing and requests that the SO₂ emissions be adjusted to 122.4 lb/hr to reflect actual operating parameters. No annual SO₂ emission increases are requested. The new feed stream would also emit an estimated 1.7 tpy VOC as fugitive emissions at SN-34. The facility would also like to add 6 new organic liquid storage tanks, to be designated as SN-35. The total annual permitted emission rate limit changes associated with this permit includes: +12.6 tpy VOC, +1.254 tpy Ethylbenzene, +7.387 tpy Methanol, +0.01465 tpy Phenol, +0.7364 tpy Styrene, and +1.548 tpy Toluene.

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 was last inspected on September 24, 2013 which revealed no violations.

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, or
- CO₂e potential to emit $\geq 100,000$ tpy and ≥ 100 tpy/ ≥ 250 tpy of combined GHGs?

9. GHG Status:

Indicate one:

- Facility is classified as a major source for GHG and the permit includes this designation
- Facility does not have the physical potential to be a major GHG source
- Facility has restrictions on GHG or throughput rates that limit facility to a minor GHG source. Describe these restrictions: _____

10. 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, 20, 21, 22, 23, 24, 25, 26, and 27	PM ₁₀	CAM
Facility	All	MACT EEE
32	HAPs	NSPS 40 CFR Part 60 Subpart III
33	HAPs	NESHAP 40 CFR Part 63 Subpart ZZZZ
19	CO & O ₂	CEMs

11. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

12. NAAQS EVALUATIONS AND NON-CRITERIA POLLUTANTS:

a) NAAQS:

Pursuant to Act 1302 of the Regular Session of the 89th General Assembly of the State of Arkansas, no dispersion modeling was performed by ADEQ because it was not voluntarily proposed and agreed to by the facility. No other information was submitted by the applicant. Criteria pollutants were not evaluated for impacts on the NAAQS.

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/m³), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

The permittee updated two sources and added another source in Permit Modification #1016-AOP-R7. There were only five new or updated HAP (Ethylbenzene, Methanol, Phenol, Styrene, and Toluene) emissions added to the PAER table and the rest were not updated.

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

Pollutant	TLV (mg/m ³)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
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
Ethylbenzene	86.8	9.55	0.286	Y
Methanol	262.08	28.82	1.682	Y
Phenol	19.25	2.11	0.00334	Y
Styrene	85.2	9.37	0.1681	Y
Toluene	75.36	8.29	0.354	Y

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. Non-criteria pollutants were not re-modeled because there weren't any changes in HAP emissions.

The five new or updated HAPs passed the PAER. So, the PAIL table was not updated.

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

13. 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, Stack Testing (SO ₂ & NO _x), and MSDS for VOC	SO ₂ Max %: 4.0 Max Flow= 10 gal/min SO ₂ = (0.24 lb SO ₂ /lb S)(510 lb S supplied/hr)= 122.4 lb/hr SO ₂ = 241.1 tpy NO _x testing showed max to be much lower (29.62 lb/hr & 129.7 tpy) than permitted, but leaving it the same as last permit.	Afterburner Baghouse	99.9% 99.9%	Throughput higher than 20tph, SO ₂ = 0.18 lb SO ₂ /lb S Less than = 0.24
32	AP-42 11.19.2 MSDS AP-42 3.3	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 PM= 0.31 lb/MMBtu PM ₁₀ = 0.31 lb/MMBtu SO ₂ = 0.29 lb/MMBtu VOC= 0.36 lb/MMBtu CO= 0.95 lb/MMBtu NO _x = 4.41 lb/MMBtu	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

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	None		Calculated at 500 hours of operation per year
34	Table 2-9, 2-11 of EPA "Protocol for Equipment Leak & Emission Estimates" Nov, 1995	<u>Max VOC Concentration</u> 500 ppmv Light Liquid Valves= 42 Light Liquid Pumps= 14 Connectors= 112	None		
35	Tanks Program	Organic Fuel Max throughput= 10,512,000 gal/yr Worst Case= 30% throughput Methyl Alcohol	Tank Vent	99%	(2)- 50,000 Gallon and (4)- 24,000 gallon Tanks

14. 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
19	NO _x SO ₂	7E 6C	Annual After 3 years of testing that demonstrates compliance, facility can test once every 5 years.	Emissions Verification

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

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)
33	Maintenance/Malfunction	N/A	Monthly	N
33	Hours of Operation	500 Hours per year	Monthly	N

17. 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, 34	20%	Guidance	Daily

18. DELETED CONDITIONS:

Former SC	Justification for removal
	None

19. 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	0.0001						
Lime Handling Fugitives (SN-29)	13	0.003						
Cooling Tower	13	0.22						
Cooler Conveyor Dust Collector	13	0.0001						
Leachate Tanks	13			0.0001				
Loading Silos	13	PM= 0.19 PM ₁₀ =0.09						

Source Name	Group A Category	Emissions (tpy)						
		PM/PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs	
							Single	Total
Air Duct Systems	13	0.0001						
Initial Size Reduction System	13	0.0001						
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
Total	13	0.7033	0.1	0.1101	0.29	0.80	1.08E-3	3.21E-3

20. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

Permit #
1016-AOP-R6

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 11-06-13

Facility Name: Reynolds Metals Company
 Permit Number: 1016-AOP-R7
 AFIN: 10-00004

\$/ton factor	23.42	Annual Chargeable Emissions (tpy)	855.6
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)	12.6
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		49.1	49.1	0		
PM ₁₀		49.1	49.1	0	0	49.1
SO ₂		243	243	0	0	243
VOC		35.6	48.2	12.6	12.6	48.2
CO		105.8	105.8	0		
NO _x		245	245	0	0	245
Lead	<input type="checkbox"/>	0.211	0.211	0		
Arsenic Compounds	<input type="checkbox"/>	0.0861	0.0861	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
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"/>	0.0901	0.0901	0		
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"/>	69.94	69.94	0	0	69.94
Hydrochloric Acid (HCl)	<input checked="" type="checkbox"/>	100.18	100.18	0	0	100.18
Ethylbenzene	<input type="checkbox"/>	0	1.254	1.254		
Methanol	<input type="checkbox"/>	0	7.387	7.387		
Phenol	<input type="checkbox"/>	0	0.01465	0.01465		
Styrene	<input type="checkbox"/>	0	0.7364	0.7364		
Toluene	<input type="checkbox"/>	0	1.548	1.548		