STATEMENT OF BASIS

For the issuance of Draft Air Permit #1016-AOP-R6 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. PROCESS DESCRIPTION AND NAICS CODE:

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

5. SUBMITTALS:

   January 16, 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 a High-Water Feed Stream to its incinerator at SN-19. The new feed stream will also emit VOC's as fugitive emissions, designated as SN-34. The total annual permitted emission changes associated with this permit include: +239.1 tpy SO_2, +1.3 tpy VOC, and +13.5 tpy NO_X.

7. COMPLIANCE STATUS:

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

   On September 27, 2012, the facility was inspected. The facility failed to submit an accurate Annual Compliance Certification report. Enforcement action may be taken.

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. GHG MAJOR SOURCE (TITLE V):

   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, 19, 20, 21, 22, 23, 24, 25, 26, and 27	PM_{10}	CAM
Facility	All	MACT EEE
32	HAPs	NSPS 40 CFR Part 60 Subpart IIII
33	HAPs	40 CFR Part 63 Subpart ZZZZ

11. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

12. MODELING:

a) NAAQS

PM_{10}, CO, and lead weren't re-modeled because there weren't any changes in emissions. The hourly rate of SO_2 for SN-19 is 427.3 lb/hr. It was modeled and passed. The maximum hourly rate of SO_2 for SN-19 is 757 lb/hr. Even modeling the 757 lb/hr emission rate running 24/7, it still passed.

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu g/m^3$)	Averaging Time	Highest Concentration ($\mu g/m^3$)	% of NAAQS
PM_{10}	13.9	150	24-Hour	69.3	46.2
SO_2	427.9* 757.6**	80	Annual	3.97* 5.49**	4.96 6.86
		1300	3-Hour	116.65* 206.55**	8.97 15.88
		365	24-Hour	38.05* 67.35**	10.42 18.45
CO	24.8	10,000	8-Hour	20.4	0.2
		40,000	1-Hour	12.6	0.032
NO_X	112.6	100	Annual	44.14+11***	55.14
Pb	0.1	0.15	Rolling 3-month Period over 3 years (not to be exceeded in any 3 month period)	0.002	1.4

* Modeled with SN-19 at 427.9 lb/hr for SO_2.
** Modeled with SN-19 at 757.6 lb/hr for SO_2.
*** Background concentration

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

Pollutant	PAIL ($\mu g/m^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu g/m^3$)	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

Pollutant	PAIL ($\mu g/m^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu g/m^3$)	Pass?
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 and Stack Testing	See Permit SO_2 Max %: 4.263 Max Flow= 10 gal/min SO_2=(10grpm)*(8.34lb/gal) *(4.263%)*(60min/hr)* 2lb SO_2/ lb S	Afterburner Baghouse	99.9% 99.9%	

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
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 2nd 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
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		
34	Table 2-9, 2-11 of EPA "Protocol for Equipment Leak & Emission Estimates" Nov, 1995	<u>Max VOC Concentration</u> 500 ppmv			

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)
19	High-Water feed stream	1,200,000 Gallons	Monthly	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
19	High-Water feed stream	1,200,000 Gallons	Monthly	Y
33	Maintenance/Malfunction	N/A	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
N/A	

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						
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

20. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

Permit #
1016-AOP-R5

21. 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 08-20-12

Facility Name: Reynolds Metals Co. (Gum Springs)
Permit Number: 1016-AOP-R6
AFIN: 10-00004

$/ton factor	22.97	Annual Chargeable Emissions (tpy)	849.48
Permit Type	Modification	Permit Fee $	5832.083

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)	253.9
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	☑	49.1	49.1	0	0	49.1
PM_{10}	☐	49.1	49.1	0		
SO_2	☑	3.9	243	239.1	239.1	243
VOC	☑	34.3	35.6	1.3	1.3	35.6
CO	☐	105.8	105.8	0		
NO_X	☑	231.5	245	13.5	13.5	245
Lead	☐	0.211	0.211	0		
Arsenic Compounds	☐	0.0861	0.0861	0		
Beryllium Compounds	☐	0.0865	0.0865	0		
Cadmium Compounds	☐	0.211	0.211	0		
Chlorine	☑	100.18	100.18	0	0	100.18
Chromium Compounds	☐	0.0901	0.0901	0		
Dioxins and Furans	☐	8.43E-07	8.43E-07	0		
Fluorides	☑	6.48	6.48	0	0	6.48
Mercury	☐	0.11	0.11	0		
Polycyclic Armomatic Hydrocarbons (PAH)	☐	2.99	2.99	0		
Ammonia	☑	69.94	69.94	0	0	69.94
Hydrochloric Acid (HCl)	☑	100.18	100.18	0	0	100.18