STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1016-AOP-R8 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:

Phillip Murphy

4. NAICS DESCRIPTION AND CODE:

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

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
10/2/2014	Minor Modification	Increase in hours of operation in the Diesel Stormwater Pump (SN-33) and addition of new hazardous waste in incinerator adding new HAP emissions in their kiln (SN-19)

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 waste streams from outside sources for incineration in their kilns (SN-19), increase in operating hours for the diesel stormwater pump (SN-33), and add applicable NESHAP 40 CFR Part 63 Subpart DD conditions to Waste Stream Fugitive Emissions (SN-34). The total annual permitted emission rate limit changes associated with this modification includes: +0.1 tpy VOC, +0.1 tpy CO, +0.7 tpy NO_X, +7.29 tpy Bromine, +0.21 tpy Selenium, and +4.74 tpy Single Organic HAPs.

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 July 10, 2014 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*

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, 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	NESHAP 40 CFR Part 63 Subpart ZZZZ
19	CO & O_2	CEMs
34	HAPs	NESHAP 40 CFR Part 63 Subpart DD

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. NAAQS EVALUATIONS AND NON-CRITERIA POLLUTANTS:

a) NAAQS:

Reserved

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/m^3), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

The permittee updated one source by adding new waste streams for SN-19 in Permit Modification #1016-AOP-R8. Since the diesel Stormwater Pump is used intermittently, the emissions are not included in this analysis. There were only two new HAP (Bromine and Selenium) emissions added in this permit modification that did not pass the PAER analysis.

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

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
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
Bromine	0.6536	0.0718	1.67	N
Selenium	0.2	0.022	4.80E-2	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.

The permittee updated one source by adding new waste streams for SN-19 in Permit Modification #1016-AOP-R8. Since the diesel Stormwater Pump is used intermittently, the emissions are not included in this analysis. Bromine and Selenium (new HAPs) passed the PAIL analysis.

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
Lead	0.5	0.00191	Y
Bromine	6.536	0.139	Y
Selenium	2.0	4.02E-3	Y

* The facility Risk Assessment

c) H_2S 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 H_2S Standards Y
If exempt, explain: No H_2S emissions.

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, Stack Testing (SO_2 & NO_X), and Waste Analysis for VOC	SO_2 Max %: 4.0 Max Flow= 15 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

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
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 2nd 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
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	N/A	Calculated at 1,000 hours of operation per year
34	Table 2-9, 2-11 of EPA "Protocol for Equipment Leak & Emission Estimates" Nov, 1995		None	N/A	<u>Max VOC Concentration</u> 500 ppmv Light Liquid Valves= 42 Light Liquid Pumps= 14 Connectors= 112

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
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

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
19	SO_2 NO_X	6C 7E	Annual After 3 years of testing that demonstrates compliance, facility can test once every 5 years.	Emissions Verification

SN	Pollutants	Test Method	Test Interval	Justification
19	Average VOHAP concentration for off-site material streams	Sampling, Method 305 in 40 CFR part 63, Method 25D in 40 CFR part 60, Method 624 in 40 CFR part 136, Method 625 in 40 CFR part 136, Method 1624 in 40 CFR part 136, Method 1625 in 40 CFR part 136, Method 8260 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication No. SW-846, Third Edition, September 1986, as amended by Update I, November 15, 1992, or Method 8270 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication No. SW-846, Third Edition, September 1986, as amended by Update I, November 15, 1992	1 year	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication No. SW-846 or Method 25D in 40 CFR part 60, appendix A

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	COM	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)
33	Maintenance/Malfunction	N/A	Monthly	N
33	Hours of Operation	1,000 Hours per year	Monthly	N
19	MSDS	TLV Table	Monthly	N

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	20%	Guidance	Continuous
33	20%	Guidance	Inspector Observation

17. DELETED CONDITIONS:

Former SC	Justification for removal
None	

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	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

Source Name	Group A Category	Emissions (tpy)						
		PM/PM_{10}	SO_2	VOC	CO	NO_X	HAPs	
							Single	Total
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**

19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

Permit #
1016-AOP-R7

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

DO NOT PASTE INTO SOB **Use Ctrl + e to Print to Last Pollutant**

Fee Calculation for Major Source

Revised 08-25-14

Facility Name: Reynolds Metals Company- Gum Springs
Permit Number: 1016-AOP_R8
AFIN: 10-00004

$/ton factor	23.89	Annual Chargeable Emissions (tpy)	870.17105
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	☐
If Hold Active Permit, Amt of Last Annual Air Permit Invoice $	0
Total Permit Fee Chargeable Emissions (tpy)	8.09105
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		
PM_{10}		49.1	49.1	0	0	49.1
SO_2		243	243	0	0	243
VOC		48.2	48.3	0.1	0.1	48.3
CO		105.8	105.9	0.1		
NO_X		245	245.7	0.7	0.7	245.7

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Lead	☐	0.211	0.211	0		
Arsenic Compounds	☐	0.0861	8.61E-02	0		
Beryllium Compounds	☐	0.0865	8.65E-02	0		
Cadmium Compounds	☐	0.211	0.211	0		
Chlorine	☑	100.18	100.18	0	0	100.18
Chromium Compounds	☐	0.0901	9.01E-02	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
Ethylbenzene	☐	1.254	0.93	-0.324		
Methanol	☐	7.387	5.45	-1.937		
Phenol	☐	0.01465	1.08E-02	-0.00385		
Styrene	☐	0.7364	0.55	-0.1864		
Toluene	☐	1.548	1.15	-0.398		
Bromine	☑	0	7.29	7.29	7.29	7.29
Selenium	☐	0	0.21	0.21		
Total Other Organic HAP	☐	0	4.74	4.74		
Acetone	☑	0	1.05E-03	0.00105	0.00105	0.00105