

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1016-AOP-R12 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, LLC  
500 East Reynolds Road  
Arkadelphia, Arkansas 71923

3. PERMIT WRITER:

Christopher Riley

4. NAICS DESCRIPTION AND CODE:

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

5. ALL SUBMITTALS:

| Date of Application | Type of Application<br>(New, Renewal, Modification,<br>Deminimis/Minor Mod, or<br>Administrative Amendment) | Short Description of Any Changes<br>That Would Be Considered New or<br>Modified Emissions |
|---------------------|---|---|
| 1/30/2019           | Modification  | Added SN-37 (Alternative solid waste<br>handling)   |

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 has submitted a modification to add SN-37 (Alternative solid waste handling operations). SN-37 is subject to 40 CFR Part 61 Subpart FF. The permitted emissions increases for this modification are 5.2 tpy of both VOC and Total Other Organic HAPs and 0.26 tpy of Benzene.

7. COMPLIANCE STATUS:

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

Per the most recent inspection letter (dated June 14, 2018) there were no violations found during the last inspection. The facility required an Interim Authority due to construction starting on SN-37 before the permitting process was complete.

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<br>(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 <sub>10</sub>    | CAM                                   |
| Facility   | All                 | NESHAP 40 C.F.R. § 63<br>Subpart EEE  |
| 32   | HAPs                | NSPS 40 C.F.R. § 60 Subpart<br>III    |
| 33   | HAPs                | NESHAP 40 C.F.R. § 63<br>Subpart ZZZZ |
| 19   | CO & O <sub>2</sub> | CEMs                                  |
| 34   | HAPs                | NESHAP 40 C.F.R. § 63<br>Subpart DD   |
| 37   | Benezene            | 40 CFR 61 Subpart FF                  |

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

## 11. AMBIENT AIR EVALUATIONS:

a) A NAAQS evaluation is not required under the Arkansas State Implementation Plan, National Ambient Air Quality Standards, Infrastructure SIPs and NAAQS SIP per Ark. Code Ann. § 8-4-318, dated March 2017 and the ADEQ Air Permit Screening Modeling Instructions..

b) 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 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<br>( $\text{mg}/\text{m}^3$ ) | PAER (lb/hr) =<br>$0.11 \times \text{TLV}$ | 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     |

| Pollutant    | TLV<br>(mg/m <sup>3</sup> ) | PAER (lb/hr) =<br>0.11 × TLV | Proposed lb/hr | Pass? |
|--------------|-----------------------------|------------------------------|----------------|-------|
| 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     |
| Benzene      | 0.1                         | 0.011                        | 0.06           | Y     |

### 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 (µg/m <sup>3</sup> ) = 1/100<br>of<br>Threshold Limit Value | Modeled<br>Concentration<br>(µg/m <sup>3</sup> ) | Pass? |
|--|--|--|-------|
| Ammonia                                  | 200-Annual<br>3200-1 Hour  | 4.37=Annual<br>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<br>Chloride) | 29.8   | 1.67045  | Y     |
| Mercury                                  | 0.25   | 0.00219  | Y     |
| Polycyclic Aromatic Hydrocarbons         | 2.0  | 0.07   | Y     |

| Pollutant | PAIL ( $\mu\text{g}/\text{m}^3$ ) = 1/100 of Threshold Limit Value | Modeled Concentration ( $\mu\text{g}/\text{m}^3$ ) | Pass? |
|-----------|--|--|-------|
| Lead      | 0.5  | 0.00191  | Y     |
| Bromine   | 6.536  | 0.139  | Y     |
| Selenium  | 2.0  | 4.02E-3  | Y     |

\*- None of these values changed during R12. Modeling is from previous permit revisions.

c) H<sub>2</sub>S 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<sub>2</sub>S Standards Y  
 If exempt, explain: No Emissions

| Pollutant        | Threshold value  | Modeled Concentration (ppb) | Pass? |
|------------------|--|-----------------------------|-------|
| H <sub>2</sub> S | 20 parts per million (5-minute average*)                   |                             |       |
|                  | 80 parts per billion (8-hour average) residential area     |                             |       |
|                  | 100 parts per billion (8-hour average) nonresidential area |                             |       |

\*To determine the 5-minute average use the following equation

$$C_p = C_m (t_m/t_p)^{0.2} \text{ where}$$

C<sub>p</sub> = 5-minute average concentration

C<sub>m</sub> = 1-hour average concentration

t<sub>m</sub> = 60 minutes

t<sub>p</sub> = 5 minutes

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 <sub>2</sub> & NO <sub>x</sub> ), and Waste Analysis for VOC | SO <sub>2</sub> Max %: 4.0<br>Max Flow= 15 gal/min<br>SO <sub>2</sub> = (0.24 lb SO <sub>2</sub> /lb S)(510 lb S supplied/hr)= 122.4 lb/hr<br>SO <sub>2</sub> = 241.1 tpy<br>NO <sub>x</sub> 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%<br>99.9%                           | Throughput higher than 20tph, SO <sub>2</sub> = 0.18 lb SO <sub>2</sub> /lb S<br>Less than = 0.24 |
| 32   | AP-42 11.19.2<br><br>MSDS<br><br>AP-42 3.3  | Operation lb/ton<br>Screen=0.072<br>Crusher=0.015<br>Loading/Unloading= 0.0004<br>Conveyor= 0.0077<br>2 <sup>nd</sup> Cut = 0.1%<br>Sodium Beryllium Fluoride<br>Based on Molecular Weight Ratio   | Primary Screen= Baghouse<br><br>Crusher= Building<br><br>Loading/Unloading= Baghouse<br><br>Conveyor (7 drop off pts)= building | 99.9%<br><br>80%<br><br>99.9%<br><br>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   |
|----|---|--|-------------------|------------------------------|--|
|    |   | PM= 0.31<br>lb/MMBtu<br>PM <sub>10</sub> = 0.31<br>lb/MMBtu<br>SO <sub>2</sub> = 0.29<br>lb/MMBtu<br>VOC= 0.36<br>lb/MMBtu<br>CO= 0.95<br>lb/MMBtu<br>NO <sub>x</sub> = 4.41<br>lb/MMBtu |                   |                              |  |
| 33 | AP-42 Chapter 3.3 for Combustion  | <u>lb/MMBtu</u><br>PM=0.31<br>PM <sub>10</sub> =0.31<br>SO <sub>2</sub> =0.29<br>VOC=0.36<br>CO=0.95<br>NO <sub>x</sub> =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><br>500 ppmv<br>Light Liquid Valves= 42<br>Light Liquid Pumps= 14<br>Connectors= 112 |
| 35 | Tanks Program   | Organic Fuel<br>Max throughput= 10,512,000 gal/yr<br>Worst Case= 30% throughput Methyl Alcohol   | Tank Vent         | 99%                          | (2)- 50,000 Gallon and (4)- 24,000 gallon Tanks  |
| 36 | AP-42 Table 11.19.2   | Max throughput = 200,000 ton/yr  | None              | N/A                          | Half of PM assumed to be PM <sub>10</sub>  |

| SN | Emission Factor Source (AP-42, testing, etc.) | Emission Factor (lb/ton, lb/hr, etc.)               | Control Equipment | Control Equipment Efficiency | Comments |
|----|---|---|-------------------|------------------------------|----------|
|    |   | 0.0085 lb PM/ton<br>0.0035 lb PM <sub>10</sub> /ton |                   |                              |          |

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 <sub>2</sub><br>NO <sub>x</sub>                        | 6C<br>7E   | Annual<br>After 3 years of testing that demonstrates compliance, facility can test once every 5 years. | Emissions Verification  |
| 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 | 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 |

| SN | Pollutants | Test Method  | Test Interval | Justification |
|----|------------|--|---------------|---------------|
|    |            | Methods,” EPA Publication No. SW-846, Third Edition, September 1986, as amended by Update I, November 15, 1992 |               |               |

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            |

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 |
| N/A       |                           |

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 |
| Five Diesel Fuel Storage Tanks<br>4000, 2 @ 3000,<br>2000, and 1000 gallon capacity. | 3                |                                    |                 |        |    |                 |        | 0.002 |
| Gasoline Storage Tanks<br>#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<br>PM <sub>10</sub> =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        |
| <b>Total</b>                          | <b>13</b> | <b>0.7033</b> | <b>0.1</b> | <b>0.1101</b> | <b>0.29</b> | <b>0.80</b> | <b>1.08E-3</b> | <b>3.21E-3</b> |

19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

|              |
|--------------|
| Permit #     |
| 1016-AOP-R11 |



## APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

## Fee Calculation for Major Source

Revised 03-11-16

Facility Name: Reynolds Metal  
 Permit Number: 1016-AOP-R12  
 AFIN: 10-00004

|               |              |                                   |        |
|---------------|--------------|-----------------------------------|--------|
| \$/ton factor | 23.93        | Annual Chargeable Emissions (tpy) | 869.03 |
| Permit Type   | Modification | Permit Fee \$                     | 1000   |

|   |                          |
|---|--------------------------|
| 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)                                   | 5.2                      |
| 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                |                              | 50         | 50         | 0                   | 0                               | 50                          |
| PM <sub>10</sub>  |                              | 49.5       | 49.5       | 0                   |                                 |                             |
| PM <sub>2.5</sub> |                              | 0          | 0          | 0                   |                                 |                             |
| SO <sub>2</sub>   |                              | 243        | 243        | 0                   | 0                               | 243                         |
| VOC               |                              | 48.3       | 53.5       | 5.2                 | 5.2                             | 53.5                        |
| CO                |                              | 105.9      | 105.9      | 0                   |                                 |                             |
| NO <sub>x</sub>   |                              | 245.7      | 245.7      | 0                   | 0                               | 245.7                       |
| Lead              | <input type="checkbox"/>     | 0.21       | 0.21       | 0                   |                                 |                             |

| Pollutant (tpy)      | Check if Chargeable Emission        | Old Permit | New Permit | Change in Emissions | Permit Fee Chargeable Emissions | Annual Chargeable Emissions |
|----------------------|-------------------------------------|------------|------------|---------------------|---------------------------------|-----------------------------|
| Arsenic Compounds    | <input type="checkbox"/>            | 0.0861     | 0.0861     | 0                   |                                 |                             |
| Beryllium Compounds  | <input type="checkbox"/>            | 0.0865     | 0.0865     | 0                   |                                 |                             |
| Cadmium Compounds    | <input type="checkbox"/>            | 0.21       | 0.21       | 0                   |                                 |                             |
| Chlorine             | <input checked="" type="checkbox"/> | 100.18     | 100.18     | 0                   | 0                               | 100.18                      |
| Hydrochloric Acid    | <input checked="" type="checkbox"/> | 100.18     | 100.18     | 0                   | 0                               | 100.18                      |
| Chromium Compounds   | <input type="checkbox"/>            | 0.0901     | 0.0901     | 0                   |                                 |                             |
| Dioxin and Furans    | <input type="checkbox"/>            | 8.43E-07   | 8.43E-07   | 0                   |                                 |                             |
| Fluorides            | <input checked="" type="checkbox"/> | 6.53       | 6.53       | 0                   | 0                               | 6.53                        |
| Mercury              | <input type="checkbox"/>            | 0.11       | 0.11       | 0                   |                                 |                             |
| PAH                  | <input type="checkbox"/>            | 2.9829     | 2.9829     | 0                   |                                 |                             |
| Bromine              | <input type="checkbox"/>            | 7.29       | 7.29       | 0                   |                                 |                             |
| Selenium             | <input type="checkbox"/>            | 0.21       | 0.21       | 0                   |                                 |                             |
| Ammonia              | <input checked="" type="checkbox"/> | 69.94      | 69.94      | 0                   | 0                               | 69.94                       |
| Single Organics      | <input type="checkbox"/>            | 4.74       | 4.74       | 0                   |                                 |                             |
| Total Other Organics | <input type="checkbox"/>            | 45.53      | 50.73      | 5.2                 |                                 |                             |
| Benzene              | <input type="checkbox"/>            | 0          | 0.26       | 0.26                |                                 |                             |