Facility Name: **Aludyne Columbus LLC**
City: Columbus
County: Muscogee
AIRS #: 04-13-215-00001

Application #: TV-688128
Date Application Received: September 7, 2022
Permit No: 3321-215-0001-V-06-0

| Program | Review Engineers | Review Managers |
|---|---|---|
| **SSPP** | Ginger Payment | Jeng-Hon Su (TLH) |
| **ISMU** | Joanna Pecko | Dan McCain |
| **SSCP** | Fred Francis | Tammy Hayes |
| **Toxics** | N/A | N/A |
| **Permitting Program Manager** | | Steve Allison |

## Introduction

This narrative is being provided to assist the reader in understanding the content of referenced operating permit. Complex issues and unusual items are explained here in simpler terms and/or greater detail than is sometimes possible in the actual permit. The permit is being issued pursuant to: (1) Georgia Air Quality Act, O.C.G.A § 12-9-1, et seq. and (2) Georgia Rules for Air Quality Control, Chapter 391-3-1, and (3) Title V of the Clean Air Act. Section 391-3-1-.03(10) of the Georgia Rules for Air Quality Control incorporates requirements of Part 70 of Title 40 of the Code of Federal Regulations promulgated pursuant to the Federal Clean Air Act. The narrative is intended as an adjunct for the reviewer and to provide information only. It has no legal standing. Any revisions made to the permit in response to comments received during the public participation and EPA review process will be described in an addendum to this narrative.

# I. Facility Description

A. Facility Identification

1. Facility Name: Aludyne Columbus LLC

2. Parent/Holding Company Name

Chassix

3. Previous and/or Other Name(s)

pka Intermet Columbus Foundry
pka DMI Columbus, LLC

4. Facility Location

1600 Northside Industrial Boulevard
Columbus, Georgia 31904 (Muscogee County)

5. Attainment, Non-attainment Area Location, or Contributing Area

Aludyne Columbus LLC (hereinafter "facility") is located in Muscogee County, which is considered an attainment area for all criteria pollutants.

B. Site Determination

There are no other facilities which could possibly be contiguous or adjacent and under common control.

C. Existing Permits

Table 1 below lists all current Title V permits, all amendments, 502(b)(10) changes, and off-permit changes, issued to the facility, based on a comparative review of form A.6, Current Permits, of the Title V application and the "Permit" file(s) on the facility found in the Air Branch office.

Table 1: List of Current Permits, Amendments, and Off-Permit Changes

| Permit Number and/or Off-Permit Change | Date of Issuance/ Effectiveness | Purpose of Issuance |
|---|---|---|
| Permit No. 3321-215-0001-V-05-0 | April 30, 2018 | Title V Renewal |
| Off-Permit Change | August 6, 2018 | Correction of applicable control devices for Sand Handling Lines A-D EUID Nos. 5100, 5200 and 5300 |
| Amendment No. 3321-215-0001-V-05-1 | May 31, 2019 | Replace Cold Box Machine#1 with Cold Box Machine#8 and change Source ID# for Cold Box Machine#6 to 3129. |
| Off-Permit Change | October 17, 2019 | Connect the air discharged from the interior dust silo to a dust collector. |
| Amendment No. 3321-215-0001-V-05-2 | August 10, 2020 | Name change from DMI Columbus, LLC to Aludyne Columbus LLC. |

D. Process Description

1. SIC Codes(s)

3321 – Gray and Ductile Iron Foundries

The SIC Code(s) identified above were assigned by EPD's Air Protection Branch for purposes pursuant to the Georgia Air Quality Act and related administrative purposes only and are not intended to be used for any other purpose. Assignment of SIC Codes by EPD's Air Protection Branch for these purposes does not prohibit the facility from using these or different SIC Codes for other regulatory and non-regulatory purposes.

Should the reference(s) to SIC Code(s) in any narratives or narrative addendum previously issued for the Title V permit for this facility conflict with the revised language herein, the language herein shall control; provided, however, language in previously issued narratives that does not expressly reference SIC Code(s) shall not be affected.

2. Description of Product(s)

Aludyne Columbus LLC produces ductile iron castings from materials such as scrap metal, pig iron, and foundry scrap.

3. Overall Facility Process Description

Raw Materials Handling: Incoming scrap metal is unloaded, moved, and placed using magnetic pick-up discs attached to either overhead cranes or a tracked scrap handler. Other materials, such as alloys and additives to the melting process are moved using forklifts. Other raw material transfer is accomplished via shakers, conveyors, and transfers.

Metal Melting: The ductile iron process begins by melting specified steel scrap, pig iron, and ductile iron "returns." Returns are the sprues, runners, and other parts of the cast mold not processed as final product. These components are preheated before introduction into the melting furnace. Once melted, other components such as graphite (carbon) and silicon are added in small quantities to form a consistent base iron. Base iron is held in large holding furnaces. From the holding furnaces, base iron is converted to ductile iron through the introduction of magnesium. The magnesium treatment causes the microscopic carbon flake structure to be converted to a spherical or nodular structure. The result of this nodular carbon shape is iron with properties very similar to tempered steel. This is Ductile Iron.

Core Production: Cores are specially shaped solid formations of sand, made in specially designed core machines in which sand is blown into core molds and instantaneously hardened using a catalytic process. These cores are then placed in the production molds to make designed voids in the parts. For more on the function of cores, see the Mold Manufacturing Process.

Mold Manufacturing/Pouring: Ductile iron is quickly poured into a mold made in special machinery from sand and clay. When needed, sand cores are placed inside the mold to form void spaces around which the metal is cast. Molds are positioned front to back on long conveyor lines to cool as they are conveyed to the cooling and shakeout operation.

Cooling/Shakeout: The iron-filled mold is cooled along a cooling conveyor line until the individual molds get to shakeout. During shakeout, the solidified iron is separated from the mold sand, which breaks up and is returned through a series of conveyors, classifiers, and coolers and remixed for reuse. In Shakeout, the designed parts are separated from the sprues and runners, which are collected and returned to the scrap yard for remelting.

Grinding/Finishing Parts coming from the shakeout process are separated from the sprues and runners and collected for further processing, which includes shot blasting, grinding and/or pressing before being packaged for shipment to the customer.

Application No. 761312 was created to update App No. 688128 with the changes in Amendment No. 3321-215-0001-V-04-4 which removed existing Baghouse 7024 and replaced existing Baghouses 7029 and 7030 with two new baghouses.

4. Overall Process Flow Diagram

The facility provided a process flow diagram in their Title V permit application.

E. Regulatory Status

1. PSD/NSR

Aludyne Columbus LLC is located in an attainment area. It is classified as one of the 28 named source categories in the PSD regulations because it is a secondary metal production facility. The foundry is a major source because it has the potential to emit more than 100 tons per year of at least one pollutant regulated by the PSD regulations.

The facility proposed a modification that involved adding two casting lines and other equipment in 1999. The facility avoided a PSD review by accepting the limits for PM, CO, and VOC set by Permit No. 3321-215-0001-V-01-0. Condition 3.2.1 established in Permit No. 3321-215-0001-V-01-0 limits the annual output from the pressure pouring furnaces (ID Nos. 1480 and 1481) to less than 187,500 tons per year. The limits ensure the net emissions for all criteria pollutants are below the significant increase levels so that the PSD review could be avoided. Removal or modification of any of these conditions may result in a retroactive PSD review for this entire modification.

Application No. 202654 requested to remove existing Baghouse 7024 and replace existing Baghouses 7029 and 7030 with two new baghouses. The proposed baghouses were more efficient. The emissions from Baghouse 7024 were re-routed to the two new Baghouses 7029 and 7030, which vent to one new stack (Stack ID NDC5). The potential emissions from the existing baghouses (7024, 7029 and 7030) were calculated using their airflow capacity of 11,000 CFM, 30,694 CFM and 19,993 CFM respectively. These combined airflow rates were used with an outlet grain loading rate of 0.0075 gr/DCSF which is the PM emission limit for similar emission sources

at the facility. The potential emissions from the existing baghouses were calculated to be 17.4 tpy. The potential emissions from the proposed baghouses (7029 and 7030) were calculated using the new baghouses airflow capacity of 62,500 CFM for each. The combined airflow rate was used with an outlet grain loading rate of 0.004 gr/DCSF. The potential emissions from the proposed baghouses will be 18.8 tpy. The difference from the existing baghouses (17.4 tpy) to the proposed baghouses (18.8 tpy) shows an increase in 1.4 tpy of PM emissions. The emission increase was below the significant emission rate of 25 tpy for PM emissions under the PSD rules to trigger a new source review (NSR); therefore, this modification was not subject to PSD review.

2. Title V Major Source Status by Pollutant

**Table 2: Title V Major Source Status**

| Pollutant | Is the Pollutant Emitted? | If emitted, what is the facility's Title V status for the pollutant? | | |
|---|---|---|---|---|
| | | Major Source Status | Major Source Requesting SM Status | Non-Major Source Status |
| PM | Yes | ✓ | | |
| $PM_{10}$ | Yes | ✓ | | |
| $PM_{2.5}$ | Yes | ✓ | | |
| $SO_2$ | Yes | | | ✓ |
| VOC | Yes | ✓ | | |
| $NO_x$ | Yes | | | ✓ |
| CO | Yes | ✓ | | |
| TRS | Yes | | | ✓ |
| $H_2S$ | Yes | | | ✓ |
| Individual HAP | Yes | ✓ | | |
| Total HAPs | Yes | ✓ | | |

3. MACT Standards

The facility is subject to 40 CFR 63 Subpart EEEEE, "National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries".

4. Program Applicability (AIRS Program Codes)

| Program Code | Applicable (y/n) |
|---|---|
| Program Code 6 - PSD | No |
| Program Code 8 – Part 61 NESHAP | No |
| Program Code 9 - NSPS | No |
| Program Code M – Part 63 NESHAP | Yes |
| Program Code V – Title V | Yes |

**Regulatory Analysis**

## II. Facility Wide Requirements

A. Emission and Operating Caps:

None applicable.

B. Applicable Rules and Regulations

Not applicable.

Previously, 40 CFR 63 Subpart EEEEE had been listed here. However, not all emission units are subject to the MACT. Therefore, this rule was moved to the equipment section since it is applicable to specific emission units.

C. Compliance Status

There are no compliance issues noted at the time of the application.

D. Permit Conditions

None applicable.

## III. Regulated Equipment Requirements

### A. Equipment List for the Process

| Emission Units | | | Applicable Requirements/Standards | Air Pollution Control Devices | | |
|---|---|---|---|---|---|---|
| ID No. | Description | Process Group | | ID No. | Description | Stack ID No. |
| 1153 | Scrap Preheater #1 | PG01 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e)<br>391-3-1-.02(2)(g) | 7044<br>7045<br>7046 | Baghouse | 7046 |
| 1163 | Scrap Preheater #2 | PG01 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e)<br>391-3-1-.02(2)(g) | 7044<br>7045<br>7046 | Baghouse | 7046 |
| 1173 | Scrap Preheater #3 | PG01 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e)<br>391-3-1-.02(2)(g) | 7044<br>7045<br>7046 | Baghouse | 7046 |
| 1023 | Scrap Preheater #4 | PG01 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e)<br>391-3-1-.02(2)(g) | 7044<br>7045<br>7046 | Baghouse | 7046 |
| 1033 | Scrap Preheater #5 | PG01 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e)<br>391-3-1-.02(2)(g) | 7044<br>7045<br>7046 | Baghouse | 7046 |
| 1110 | Melting Furnace #0 | PG01 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7044<br>7045<br>7046 | Baghouse | 7046 |
| 1111 | Melting Furnace #1 | PG01 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7044<br>7045<br>7046 | Baghouse | 7046 |
| 1112 | Melting Furnace #2 | PG01 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7044<br>7045<br>7046 | Baghouse | 7046 |
| 1113 | Melting Furnace #3 | PG01 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7044<br>7045<br>7046 | Baghouse | 7046 |
| 1114 | Melting Furnace #4 | PG01 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7044<br>7045<br>7046 | Baghouse | 7046 |
| 1115 | Melting Furnace #5 | PG01 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7044<br>7045<br>7046 | Baghouse | 7046 |
| 1116 | Melting Furnace #6 | PG01 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7044<br>7045<br>7046 | Baghouse | 7046 |

| Emission Units | | | Applicable Requirements/Standards | Air Pollution Control Devices | | |
|---|---|---|---|---|---|---|
| ID No. | Description | Process Group | | ID No. | Description | Stack ID No. |
| 1117 | Melting Furnace #7 | PG01 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7044<br>7045<br>7046 | Baghouse | 7046 |
| 1120 | Melting Furnace C | PG01 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7044<br>7045<br>7046 | Baghouse | 7046 |
| 1121 | Melting Furnace B | PG01 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7044<br>7045<br>7046 | Baghouse | 7046 |
| 1122 | Melting Furnace A | PG01 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7044<br>7045<br>7046 | Baghouse | NDC1 |
| 1221 | Holding Furnace #1 | PG01 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7051<br>7052<br>7053 | Baghouse | NDC4 |
| 1222 | Holding Furnace #2 | PG01 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7051<br>7052<br>7053 | Baghouse | NDC4 |
| 1223 | Holding Furnace #3 | PG01 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7051<br>7052<br>7053 | Baghouse | NDC4 |
| 1224 | Holding Furnace #4 | PG01 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7051<br>7052<br>7053 | Baghouse | NDC4 |
| 3113 | Cold Box Machine #2 | PG02 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 3171 | Scrubber | 3171 |
| 3124 | Cold Box Machine #3 | PG02 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 3171 | Scrubber | 3171 |
| 3126 | Cold Box Machine #4 | PG02 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 3171 | Scrubber | 3171 |
| 3128 | Cold Box Machine #5 | PG02 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 3171 | Scrubber | 3171 |
| 3129 | Cold Box Machine #6 | PG02 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 3171 | Scrubber | 3171 |
| 3125 | Cold Box Machine #7 | PG02 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 3171 | Scrubber | 3171 |
| 3127 | Cold Box Machine #8 | PG02 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 3171 | Scrubber | 3171 |

| Emission Units | | | Applicable Requirements/Standards | Air Pollution Control Devices | | |
|---|---|---|---|---|---|---|
| ID No. | Description | Process Group | | ID No. | Description | Stack ID No. |
| 3132 | Laempe Core Machine #2 | PG02 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 3171 | Scrubber | 3171 |
| 3133 | Laempe Core Machine #3 | PG02 | 40 CFR 63 Subpart A<br>40 CFR 63 Subpart EEEEE<br>391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 3171 | Scrubber | 3171 |
| 1491 | Pourer A | PG03 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | N/A | N/A | N/A |
| 2124 | Cooling A | PG03 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | N/A | N/A | 7034 |
| 2125 | Shakeout A | PG03 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7041 | Baghouse | 7041 |
| 2126 | Shakeout A | PG03 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7041 | Baghouse | 7041 |
| 2127 | Shakeout A | PG03 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7041 | Baghouse | 7041 |
| 2128 | Shakeout A | PG03 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7041 | Baghouse | 7041 |
| 2129 | Shakeout A | PG03 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7041 | Baghouse | 7041 |
| 2130 | Shakeout A | PG03 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7041 | Baghouse | 7041 |
| 1492 | Pourer B | PG04 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | N/A | N/A | N/A |
| 2224 | Cooling B | PG04 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | N/A | N/A | 7035 |
| 2225 | Shakeout B | PG04 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7041 | Baghouse | 7041 |
| 2226 | Shakeout B | PG04 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7041 | Baghouse | 7041 |
| 2227 | Shakeout B | PG04 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7041 | Baghouse | 7041 |
| 2228 | Shakeout B | PG04 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7041 | Baghouse | 7041 |
| 2229 | Shakeout B | PG04 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7041 | Baghouse | 7041 |
| 2230 | Shakeout B | PG04 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7041 | Baghouse | 7041 |
| 1493 | Pourer C | PG05 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | N/A | N/A | N/A |
| 2324 | Cooling C | PG05 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | N/A | N/A | 7036 |
| 2325 | Shakeout C | PG05 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7040 | Baghouse | 7040 |
| 2326 | Shakeout C | PG05 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7040 | Baghouse | 7040 |
| 2327 | Shakeout C | PG05 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7040 | Baghouse | 7040 |
| 2328 | Shakeout C | PG05 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7040 | Baghouse | 7040 |
| 2329 | Shakeout C | PG05 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7040 | Baghouse | 7040 |
| 2330 | Shakeout C | PG05 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7040 | Baghouse | 7040 |
| 1494 | Pourer D | PG06 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | N/A | N/A | N/A |

| Emission Units | | | Applicable Requirements/Standards | Air Pollution Control Devices | | |
|---|---|---|---|---|---|---|
| ID No. | Description | Process Group | | ID No. | Description | Stack ID No. |
| 2424 | Cooling D | PG06 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | N/A | N/A | 7037 |
| 2425 | Shakeout D | PG06 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7040 | Baghouse | 7040 |
| 2426 | Shakeout D | PG06 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7040 | Baghouse | 7040 |
| 2427 | Shakeout D | PG06 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7040 | Baghouse | 7040 |
| 2428 | Shakeout D | PG06 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7040 | Baghouse | 7040 |
| 2429 | Shakeout D | PG06 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7040 | Baghouse | 7040 |
| 2430 | Shakeout D | PG06 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7040 | Baghouse | 7040 |
| 1480 | Pourer E | PG07 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7049/<br>RTO | Baghouse/<br>Thermal Oxidizer | RTO1 |
| 2524 | Cooling E | PG07 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7049/<br>RTO | Baghouse/<br>Thermal Oxidizer | RTO1 |
| 2526 | Shakeout E | PG07 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7049/<br>RTO | Baghouse/<br>Thermal Oxidizer | RTO1 |
| 2527 | Shakeout E | PG07 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7047 | Baghouse | NDC1 |
| 2528 | Shakeout E | PG07 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7047 | Baghouse | NDC1 |
| 1481 | Pourer F | PG07 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7049/<br>RTO | Baghouse/<br>Thermal Oxidizer | RTO1 |
| 2624 | Cooling F | PG08 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7049/<br>RTO | Baghouse/<br>Thermal Oxidizer | NDC1/<br>RTO1 |
| 2626 | Shakeout F | PG08 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7049/<br>RTO | Baghouse/<br>Thermal Oxidizer | RTO1 |
| 2627 | Shakeout F | PG08 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7047 | Baghouse | NDC1 |
| 4003 | Continuous Blast Machine E | PG07 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7047 | Baghouse | NDC1 |
| 4004 | Continuous Blast Machine E & F | PG07 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7047 | Baghouse | NDC1 |
| 4005 | Batch Blast Machine F | PG07 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7047 | Baghouse | NDC1 |
| 4000 | Continuous Blast Machine | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7029/7030 | Baghouses | NDC5 |
| 4001 | Batch Blast Machine | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7029/7030 | Baghouse | NDC5 |
| 4002 | Batch Blast Machine | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7029/7030 | Baghouse | NDC5 |
| 4006 | Batch Blast Machine | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7029/7030 | Baghouse | NDC5 |
| 4014 | Blast Machine Line D | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7029/7030 | Baghouse | NDC5 |
| CL01 | Cleaning & Grinding Cell 1 | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7029/7030 | Baghouse | NDC5 |
| CL02 | Cleaning & Grinding Cell 2 | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7029/7030 | Baghouse | NDC5 |
| CL04 | Cleaning & Grinding Cell 4 | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7047 | Baghouse | NDC1 |
| CL05 | Cleaning & Grinding Cell 5 | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7047 | Baghouse | NDC1 |
| CL06 | Cleaning & Grinding Cell 6 | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7047 | Baghouse | NDC1 |

| Emission Units | | | Applicable Requirements/Standards | Air Pollution Control Devices | | |
|---|---|---|---|---|---|---|
| ID No. | Description | Process Group | | ID No. | Description | Stack ID No. |
| CL07 | Cleaning & Grinding Cell 7 | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7029/7030 | Baghouse | NDC5 |
| CL12 | Cleaning & Grinding Cell 12 | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7029/7030 | Baghouse | NDC5 |
| CL22 | Cleaning & Grinding Cell 22 | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7029/7030 | Baghouse | NDC5 |
| CL23 | Cleaning & Grinding Cell 23 | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7029/7030 | Baghouse | NDC5 |
| CL24 | Cleaning & Grinding Cell 24 | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7029/7030 | Baghouse | NDC5 |
| CL25 | Cleaning & Grinding Cell 25 | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7029/7030 | Baghouse | NDC5 |
| CL26 | Cleaning & Grinding Cell 26 | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7029/7030 | Baghouse | NDC5 |
| CL27 | Cleaning & Grinding Cell 27 | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7029/7030 | Baghouse | NDC5 |
| KUKA | Cleaning & Grinding | PG09 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7029/7030 | Baghouse | NDC5 |
| 5100 | Sand Handling Lines A-D | PG10 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7042/7043 | Baghouses | 7042 |
| 5200 | Sand Handling Lines A-D | PG10 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7042/7043 | Baghouses | 7042 |
| 5300 | Sand Handling Lines A-D | PG10 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7042/7043 | Baghouses | 7042 |
| 5500 | Sand Handling Lines E-F | PG10 | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(e) | 7048 | Baghouse | NDC1 |

* Generally applicable requirements contained in this permit may also apply to emission units listed above. The lists of applicable requirements/standards are intended as a compliance tool and may not be definitive.

B. Equipment & Rule Applicability

Emission and Operating Caps:

In order to avoid the PSD review, the facility accepted emission and operating limits.

In Air Quality Permit No. 3321-106-8169-0, the facility agreed to limit the annual output from the pressure pouring furnaces (Emission Unit ID Nos. 1480 and 1481). The annual output from the furnaces cannot exceed 187,500 tons during any consecutive 12-month period. The facility must not emit more than 0.052 pound of carbon monoxide (CO) per ton of metal and 0.029 pound of volatile organic compounds (VOC) per ton of metal from Stack RTO1. The facility must not emit more than 0.401 pound of VOC per ton of core sand from the scrubber (ID No. 3171).

The PM emissions for Stacks NDC1, NDC4, and 7046 were lowered from PSD avoidance limits of 0.0075 gr/dscf to 0.0050 gr/dscf to comply with MACT limits in Air Quality Permit No. 3321-215-0001-V-03-0. The PM limit for RTO1 was left unchanged since the PSD avoidance limit of 0.0075 gr/dscf is more stringent than the MACT limit of 0.010 gr/dscf.

Particulate matter emissions from Stack NDC5 are limited to 0.004 gr/dscf because this outlet grain loading emission factor that was used to calculate the potential emissions from the proposed baghouses (18.77 tpy) for Permit Amendment No. 3321-215-0001-V-04-4. Because this emission

factor was used for PSD avoidance, it is included as an operating limit in Condition 3.3.1c. of the permit.

Removal of any of these conditions will result in a retroactive PSD review.

All references to triethylamine (TEA) were removed with Amendment No. 3321-215-0001-V-04-1 when the facility replaced TEA with dimethylisopropylamine (DMIPA) as cold box core making catalyst. Though the scrubber (3171) is not necessary to control TEA emissions, it remains onsite to control emissions and reduce odors from DMIPA usage.

Rules and Regulations Assessment:

The facility will continue to be subject to Georgia Rule (b) – *Visible Emissions* and Georgia Rule (e) - *Particulate Emissions from Manufacturing Processes*.

PM, VOC, and CO emitted by certain sources within the facility are limited by the appropriate PSD avoidance limits and MACT requirements prescribed in 40 CFR 63 Subpart EEEEE.

Due to the stringency of PSD avoidance limits and the MACT emission standards, the PM limits are considerably lower than Rule (e) allows. Likewise, the equipment subject to PM limits are unlikely to produce visible emissions that approach the 40 percent opacity allowed by Rule (b).

C. Permit Conditions

- Condition 3.2.1 limits the amount of iron poured from the pressure pour furnaces (Emission Unit ID Nos. 1480 and 1481) to no more than 187,500 tons for any consecutive 12-month period. This operational limit is part of the PSD avoidance limit.
- Condition 3.3.1 was previously Condition 2.2.1. Due to the moving of Condition 3.3.1, the following conditions were renumbered accordingly. The condition subjects the applicable equipment to MACT EEEEE.
- Condition 3.3.2 contains the PM emission limits for PSD avoidance. This is the outlet grain loading emission factor used for the emission calculations and for PSD avoidance.
- Condition 3.3.3 contains the CO emission limits.
- Conditions 3.3.4 and 3.3.5 contain the VOC emission limits.
- Condition 3.3.6 contains the opacity limit.
- Condition 3.3.7 limits the VOHAPs from the Scrap Preheaters (Source Code: 1023, 1033, 1153, 1163 and 1173) to 20 ppmv as required by the MACT.
- Condition 3.3.8 requires the facility to operate the capture and collection system and scrap preheaters in accordance with the MACT requirements.
- Condition 3.3.9 requires the facility to operate the acid scrubber to control emissions in accordance with the MACT requirements.
- Condition 3.3.10 requires the facility to operate the RTO above the temperature established during the most recent Division approved performance test.
- Condition 3.3.11 requires the facility to operate the baghouses at the manufacturers recommended temperature.
- Condition 3.4.1 subjects the facility to the requirements of Georgia Rule (b).
- Condition 3.4.2 subjects the facility to the requirements of Georgia Rule (e).

- Condition 3.4.3 subjects the facility to the requirements of Georgia Rule (g).
- Condition 3.5.1 limits DMIPA as the cold box core making catalyst.

## IV. Testing Requirements (with Associated Record Keeping and Reporting)

A. General Testing Requirements

The permit includes a requirement that the Permittee conduct performance testing on any specified emission unit when directed by the Division. Additionally, a written notification of any performance test(s) is required 30 days (or sixty (60) days for tests required by 40 CFR Part 63) prior to the date of the test(s) and a test plan is required to be submitted with the test notification. Test methods and procedures for determining compliance with applicable emission limitations are listed and test results are required to be submitted to the Division within 60 days of completion of the testing.

B. Specific Testing Requirements

- Condition 4.2.1 requires the facility to perform compliance tests for PM, metal HAP and VOHAP emissions from the baghouses and scrubber to demonstrate compliance with MACT emission limits at least every five years.
- Condition 4.2.2 requires a subsequent testing for the fugitive emission from building once every six months as required by the MACT standards.
- Condition 4.2.3 provides guidance for procedures to change operating parameters on the scrubber.

## V. Monitoring Requirements

A. General Monitoring Requirements

Condition 5.1.1 requires that all continuous monitoring systems required by the Division be operated continuously except during monitoring system breakdowns and repairs. Monitoring system response during quality assurance activities is required to be measured and recorded. Maintenance or repair is required to be conducted in an expeditious manner.

B. Specific Monitoring Requirements

- Condition 5.2.1 requires the facility to continuously monitor and record the temperature in each ceramic bed of the RTO to ensure compliance with the limits of Georgia Rules (b) and (e).
- Condition 5.2.2a. requires the facility to install a differential pressure indicator on each baghouse and measure and record the pressure drop (differential pressure) across each baghouse.
- Condition 5.2.2b. requires the facility to install an inlet temperature indicator for the melt deck baghouses in order to ensure the proper operation of these baghouses.
- Condition 5.2.3 requires the facility to perform a check of the visible emissions from each baghouse listed in Table 3.1. Visible emissions (VE) check is used as the primary monitoring parameter for the baghouses to ensure that the PM emission limits listed Condition 3.3.2 are not exceeded, the opacity limit in Condition 3.4.1 is not exceeded; and the PM emission allowed in Condition 3.4.2 are not exceeded.
- Condition 5.2.4 requires the facility to measure and record the pH of the scrubbing liquid in the scrubber once each day or portion of each day during which the scrubber operates to ensure the compliance with the VOC limit for the scrubber in Condition 3.3.5.
- Condition 5.2.5 requires the facility to inspect the baghouses according to specific requirements. These requirements serve as the secondary monitoring parameters for the baghouses that ensure compliance with the PM emission limits. Baghouse 7048 is not subject to the 40 CFR 63 Subpart EEEEE requirement for a bag leak detection system because this baghouse only controls emissions from the Foundry II Sand System (5100, 5200 and 5300) which is not subject to 40 CFR 63 Subpart EEEEE.
- Condition 5.2.6 requires the facility to maintain a baghouse leak detection system as required by the MACT standard.
- Conditions 5.2.7 through 5.2.10 incorporate the monitoring parameters for the scrubber as required by the MACT standard.

C. Compliance Assurance Monitoring (CAM)

The Shakeout E 2527, Shakeout E 2528, Shakeout F 2627, Continuous Blast Machine E 4003, Continuous Blast Machine E & F 4004, Batch Blast Machine F 4005, Cleaning and Grinding Cells 4, 5 and 6 (Emission Unit ID Nos. CL04, CL05 and CL06), Continuous Blast Machine 4000, Batch Blast Machine 4001, Batch Blast Machine 4002, Batch Blast Machine 4006, Blast Machine Line D 4014 and Cleaning and Grinding Cells 1, 2, 7, 12, 22, 23, 24, 25, 26, 27 and KUKA (Emission Unit ID Nos. CL01, CL02, CL07, CL12, CL22, CL23, CL24, CL25, CL26, CL27 and KUKA) are subject to CAM because the pre-controlled potential emissions for PM emissions are greater than the major source threshold. Conditions 5.2.11 and 5.2.12 include the CAM requirements for these units.

## VI. Record Keeping and Reporting Requirements

A. General Record Keeping and Reporting Requirements

The Permit contains general requirements for the maintenance of all records for a period of five years following the date of entry and requires the prompt reporting of all information related to deviations from the applicable requirements. Records, including identification of any excess emissions, exceedances, or excursions from the applicable monitoring triggers, the cause of such occurrence, and the corrective action taken, are required to be kept by the Permittee and reporting is required on a semiannual basis.

B. Specific Record Keeping and Reporting Requirements

- Condition 6.1.7b.i. is an exceedance reporting requirement for exceeding 187,500 tons of total amount of metal poured from Pourers E and F (Emission Unit ID Nos. 1480 and 1481) in any 12 month period.
- Condition 6.1.7c.i. is an excursion reporting requirement for any required daily determination of inlet temperature for any melt deck baghouse (Emission Unit ID No. 7044, 7045, and 7046) that exceeds the filter bag design temperature.
- Condition 6.1.7c.ii. is an excursion reporting requirement for any two consecutive required daily determinations of visible emissions from the same source (specified in Condition 5.2.3) for which visible emissions are present.
- Condition 6.1.7c.iii. is an excursion reporting requirement for any pressure differential measurement for the baghouses specified in Condition 5.2.2 that is outside of the ranges established during the most recent compliance test.
- Condition 6.1.7c.iv. is an excursion reporting requirement for each three-hour average temperature in the retention chamber of thermal oxidizer (Air Pollution Control Device ID No. RTO) that is less than 1500°F. The condition notes that each clock hour begins a new three-hour period.
- Condition 6.1.7c.v. is an excursion reporting requirement for any required daily determination of scrubbant pH for the Scrubber (Air Pollution Control Device ID No. 3171) in excess of 4.5.
- Condition 6.1.7c.vi. is an excursion reporting requirement for any three-hour scrubbant flow rate measurement for the Scrubber (Air Pollution Control Device ID No. 3171) that is outside of the ranges established during the most recent compliance test.
- Condition 6.1.7c.vii. is an excursion reporting requirement for each occurrence when the corrective actions performed for the melting furnace baghouses (Air Pollution Control Device ID No. 7044, 7045, 7046, and 7048) equipped with the broken bag leak detector are not initiated within 24 hours
- Condition 6.2.1 requires the facility to maintain records of the amount of metal poured from the pouring furnaces.
- Condition 6.2.2 requires the facility to submit with the semi-annual report the consecutive 12-month rolling total of metal poured as recorded by Conditions 6.2.1 and 6.2.2.
- Condition 6.2.3 requires the maintenance of records of the facilities efforts to control fugitive emissions.
- Condition 6.2.4 details the scrap certification requirement of the MACT standard.
- Condition 6.2.5 excludes methanol for binder formulation as required by the MACT Standard.
- Condition 6.2.6 details the work practice standards for the scrap preheater.

- Condition 6.2.7 details the operation and maintenance requirements of the MACT standard.
- Condition 6.2.8 requires the facility to be in compliance with the applicable emissions limitations, work practice standards, and operation and maintenance requirements of 40 CFR 63 Subpart EEEEE at all times.
- Condition 6.2.9 details the record keeping requirements for the baghouse leak detection monitor and the baghouse inspection plan.
- Condition 6.2.10 requires the facility to maintain the records of the scrap inspection or scrap certification program.
- Condition 6.2.11 requires monthly inspection of the capture system and the baghouse as required by the MACT Standard.
- Condition 6.2.12 contains the scrubber operating and recordkeeping requirements.
- Condition 6.2.13 requires the facility to keep records of all binders used in the core making lines.
- Condition 6.2.14 incorporates the scrap preheater recordkeeping requirements.
- Condition 6.2.15 requires the facility to maintain the current copy of the operation and maintenance plan onsite and available for inspection.

## VII. Specific Requirements

A. Operational Flexibility

- None applicable.

B. Alternative Requirements

- None applicable.

C. Insignificant Activities

See Permit Application on GEOS website.
See Attachment B of the permit

D. Temporary Sources

- None applicable.

E. Short-Term Activities

- None applicable.

F. Compliance Schedule/Progress Reports

- Not applicable.

G. Emissions Trading

- Not applicable.

H. Acid Rain Requirements

- Not applicable

I. Stratospheric Ozone Protection Requirements

- Not applicable.

J. Pollution Prevention

- Not applicable.

K. Specific Conditions

- There are no additional facility-specific conditions that are not covered elsewhere.

## VIII. General Provisions

Generic provisions have been included in this permit to address the requirements in 40 CFR Part 70 that apply to all Title V sources, and the requirements in Chapter 391-3-1 of the Georgia Rules for Air Quality Control that apply to all stationary sources of air pollution.

Template Condition 8.14.1 was updated in September 2011 to change the default submittal deadline for Annual Compliance Certifications to February 28.

Template Condition Section 8.27 was updated in August 2014 to include more detailed, clear requirements for emergency generator engines currently exempt from SIP permitting and considered insignificant sources in the Title V permit.

Template Condition Section 8.28 was updated in August 2014 to more clearly define the applicability of the Boiler MACT or GACT for major or minor sources of HAP.

**Addendum to Narrative**

The 30-day public review started on month day, year and ended on month day, year. Comments were/were not received by the Division.

//If comments were received, state the commenter, the date the comments were received in the above paragraph. All explanations of any changes should be addressed below.//