

Date: 6/22/2023

**To:** File/Julia DeGagné  
**From:** Thomas Rhodes

**Subject:** Source Test Review Report  
Eagle Foundry Company  
Permit Number: 03-2631-ST-01

Test Date: April 18, 2023  
Re-Test Date: June 1, 2023  
Revised Report Received: June 15, 2023  
Source Testers: Bison Engineering, Inc.  
DEQ Observed: No

**I) Source Description:** White iron, manganese and low alloy steel casting facility.

**II) Process (es)/Emissions Unit(s) Tested:** Grinding area (GRIND) and torch cut-off area (AIRARC).

**III) Test Purpose:** To demonstrate that improvements made to the grinding (GRIND) and torch cut-off (AIRARC) areas meet the requirements for a Permanent Total Enclosure (PTE) so that they can be assumed to have 100 percent capture efficiency. Further improvements were made to the AIRARC enclosure after the testing on April 18, 2023. The report was revised to include updated measurements for the AIRARC enclosure.

**IV) Testing Location(s):**

**GRIND Area**

Pressure Differential Measurements Locations

- 1 – NE Loading Door
- 2 – North Man Door
- 3 – NW Loading Door
- 4 – West Loading Door
- 5 – South Man Door
- 6 – Casting Loading Opening
- 7 – SE Loading Door

**AIR ARC Area**

Pressure Differential Measurements Locations

- 1 – South Loading Door
- 2 – North Loading Door

**V) Testing Methodology:** The following testing methods were utilized during the testing program:

Permanent Total Enclosure Verification: EPA Method 204

**VI) Summary of Results:** The testing parameters, test results and operating parameters are summarized in the Tables below:

Table 1: GRIND Area  
Table 2: AIR ARC Area

**TABLE 1: GRIND Area**

Method Section Requirement	Results	Pass/Fail
5.1 Any NDO shall be at least four equivalent opening diameters from each emitting point	> 4	Pass
5.3 Total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's four walls, floor and ceiling	0.2%	Pass
5.4 The facial velocity shall be at least 200 fpm (0.007 "H <sub>2</sub> O). The direction of air flow through all NDO's shall be into the enclosure	0.0024 – 0.0509 Inward	Fail Pass
5.5 All access doors and windows not included in section 5.3 and 5.4 shall be closed during routine operation	Closed	Pass

**TABLE 2: AIRARC Area**

Method Section Requirement	Results	Pass/Fail
5.1 Any NDO shall be at least four equivalent opening diameters from each emitting point	> 4	Pass
5.3 Total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's four walls, floor and ceiling	0.05%	Pass
5.4 The facial velocity shall be at least 200 fpm (0.007 "H <sub>2</sub> O). The direction of air flow through all NDO's shall be into the enclosure	0.0316 – 0.0400 --	Pass --
5.5 All access doors and windows not included in section 5.3 and 5.4 shall be closed during routine operation	Closed	Pass

**VII) Comments & Concerns:**

1. Many of the pressure drop reading for the GRIND area were below 0.007 "H<sub>2</sub>O.
2. Verification of inward flow was not completed for the AIRARC enclosure during the June 1 retest. Inward flow was documented during the April 18 test and with a stronger pressure drop across the enclosure during the June 1 test, it is likely that the flow remains inward. Method 204 requires verification that the direction of air flow through all NDO's is inward. Continuous inward flow can only be assumed if the Facial Velocity is at least 500 fpm. There is not an approved pressure drop value that correlates to 500 fpm.

**VIII) Overall Evaluation:** The test method conducted, and the data provided **are not** sufficient to determine that the grinding area (GRIND) meets the criteria for Permanent Total Enclosure and **cannot** be assumed to have 100% capture efficiency at the operating condition tested.

The test method conducted, and the data provided are sufficient to determine that the torch cut-off (AIRARC) area meets the criteria for Permanent Total Enclosure and **can** be assumed to have 100% capture efficiency at the operating condition tested.

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