

**DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: On-site Inspection**

B201564316

<b>FACILITY:</b> Metal Technologies, Inc. Three Rivers Gray Iron		<b>SRN / ID:</b> B2015
<b>LOCATION:</b> 429 Fourth Street, THREE RIVERS		<b>DISTRICT:</b> Kalamazoo
<b>CITY:</b> THREE RIVERS		<b>COUNTY:</b> SAINT JOSEPH
<b>CONTACT:</b> Dan Plant , Corporate Environmental Manager		<b>ACTIVITY DATE:</b> 08/23/2022
<b>STAFF:</b> Amanda Chapel	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b>		
<b>RESOLVED COMPLAINTS:</b>		

On August 23, 2022 Air Quality Division's (AQD) Amanda Chapel (staff) conducted an unannounced air quality inspection at Metal Technologies, Inc. Three River Gray Iron located at 429 Fourth Street, Three Rivers, St. Joseph County. The purpose of the inspection was to determine the facility's compliance with Renewable Operating Permit (ROP) MI-ROP-B2015-2019 and all applicable state and federal air regulations. The inspection was completed during the 5-year testing of FGMACTEEEEE. The following will summarize the walkthrough, plant operations and records review.

Staff arrived at the facility at 8:00am, signed in at the front window, and let staff know that I was on site to meet Mr. Dan Plant. MTI purchased the facility from Dock Foundry in 1999. They currently are almost back to full staff after COVID and worker shortages and have 150 employees at the facility. Normal operations are 24/5.5 currently, with some Saturday operations but mainly Monday through Friday with three shifts per day. The facility does not have any boilers or parts washers/cold cleaners on site.

The gray and ductile iron foundry manufactures parts for the automotive sector and for the small engine, construction, and appliance industries. The facility is considered to be a major source for carbon monoxide (CO), particulate matter (PM), hazardous air pollutants (HAPs), and volatile organic compound (VOC) emissions. The facility is subject to applicable provisions of the National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries (40 CFR Part 63, Subpart EEEEE) as an existing source. The facility is also subject to Compliance Assurance Monitoring (CAM) regulations under 40 CFR Part 64.

In order to comply with the scrap certification requirements in 40 CFR Part 63 Subpart EEEEE, MTI is using a Scrap Certification Program for purchase and use only of metal ingots, pig iron, slitter, or other materials that do not include post-consumer automotive body scrap, post-consumer engine blocks, post-consumer oil filters, oily turnings, lead components, mercury switches, plastics, or free organic liquids. There is a clear statement on the spec sheets they require with their scrap stating exactly what is not allowed in the scrap. This also clearly lays out the metal composition they will take. No liquids were observed draining from the metal chips in the scrap area.

The facility is equipped with an interlock system based on the differential pressure in the baghouses. If something occurs in the process in and the differential pressure goes outside of the set parameters, the equipment identified as the next step in the process is stopped and there is about 45 minutes to fix the problem before further action is needed.

**EUSHAKEOUT**

This process separates iron casting from sand molds and transfers castings to the cleaning area, sprues to the scrap bay, and sand back to the sand system. Process is controlled by a reverse air 2014 North Dostar baghouse.

There is a monthly preventative maintenance checklist completed for all baghouses and sweeping occurs daily. A broken bag detector test completed monthly during the monthly PM. Dust is introduced to the system upstream of the BLD system to test that the alarm will trigger. This is noted on the monthly PM checklist.

The facility is required to complete a visolite inspection quarterly. The last dates visolite was used to identify broken bags was April 2022 and no broken bags were identified. The previous visolite inspection was completed on January 9, 2022 and no broken bags were identified. The third quarter visolite inspection is scheduled for September.

Pollutant	Limit	Time Period	Records
PM	0.04 lb/1000 lb exhaust gasses  11.9 pph	Hourly	Highest Monthly: 0.126 tons March 2021  Highest 12-Month Rolling: 1.3 tpy
PM10	No Permit Limit		Highest Monthly: 0.601 tons March 2021  Highest 12-Month Rolling: 6.2 tpy
PM2.5	No Permit Limit		Highest Monthly: 0.601 tons March 2021  Highest 12-Month Rolling: 6.2 tpy
Hours of Operation	No Permit Limit		Highest Monthly: 588.24 hours in April 2021  Highest 12-Month Rolling:

	7,182 hours July 2021
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The baghouse read 4.6" H<sub>2</sub>O pressure drop and the bag break detection (BBD) read 0.5 picoamps (pA). According to Mr. Plant, there is an audible siren on the floor if the bag break detection limit is above the set alarm for 120 seconds. The pressure drop and BBD system are monitored at all times by the facility using an internal dashboard. Mr. Plant showed me the dashboard's capabilities. Each baghouse has an icon that gives an overview of the performance at that exact moment. When opened, additional information is available including high and low alarms, if applicable. No visible emissions were observed during the walkthrough.

The facility has daily pressure drop readings for all baghouses, kept weekly on the same sheet. Mr. Plant pulled up the completed weekly records for review during the inspection. If the differential pressure (DP) is out of range, the facility has to follow the corrective action procedure. If it can be fixed that day, it is done on site. If it will take longer to address, then a work order is created.

The facility has daily non-certified records of visible emissions readings records. If emissions were observed, then they would proceed to the corrective actions. All preventative maintenance activities (PMs) are standardized across all environmental spectrums.

#### **EUEMERGEN**

This emission unit is a diesel fired emergency generator that is subject to 40 CFR Part 63, Subpart ZZZZ (existing CI RICE) based on its installation date. The generator is equipped with a non-resettable hours meter. At the time of the inspection, the meter read 712.8 hours. Hours readings are tracked daily during the weekly PM. Readiness testing is done automatically once per week for about 30 minutes. There are preventative maintenance checks weekly to check fluids. These checks are tracked manually. The generator is only capable of providing power to equipment in FGGREYIRON in the event of a power outage. It powers the cooling loop to keep the furnaces from freezing if the power goes out at the facility.

#### **FGGRAYIRON**

This flexible group includes metal pre-heating (EUVANETTA), charge loading, melting, and pouring activities (EUBBFURN1/2/3/4). Process emissions are controlled by the South Fuller and Small Dostar baghouses that share a common draft fan and stack and the South ETA pulsejet baghouse. The stack for South Fuller and the Small Dostar is equipped with a BLD or BBD and the monitor readout is in the maintenance building that also displays instantaneous pressure drop readings for all baghouses. Readings for the South Fuller baghouse were 3.8 " H<sub>2</sub>O pressure drop and 0.5 pA and Small Dostar was reading 2.0" H<sub>2</sub>O pressure drop and 0.5 pA.

The South ETA pulsejet baghouse readings are in a small contained shed across from the maintenance area. Readings were 4.4" H<sub>2</sub>O pressure drop and 0.5 pA. Cleaning around the baghouses occurs as needed. Bags are emptied depending on load, sometimes once per shift all the way through once per week. There was no dust or visible emissions observed from the stacks.

All four electric induction furnaces were in operation during the inspection. There are general ventilation roof fans above the furnaces and pouring area. This ventilation system is designed as a kind of "enclosure" to help increase capture of fugitives during the melting and pouring process. The general process is as follows: scrap is taken with a magnet and placed into the preheater. Once heated, a clam bucket brings the heated scrap and it is added to a melting furnace. A batch takes approximately 18-24 minutes to melt. No flux is used on site. This practice stopped in about May 2021 and now only 2-4oz of aluminum is added to the tapped metal.

Records review showed the following:

Material	Limit	Time Period	Records
Iron	219,000 tons/year	12-month rolling	Highest Monthly: 13,505 tons in June 2021  Highest 12-Month Rolling: 171,346 tpy June 2021

During the April 2022 check, one broken bag was discovered in the South Fuller baghouse. No broken bags were noted in the small Dustar or ETA baghouse. The previous visolite inspection was completed on January 9, 2022 and no broken bags were identified. The third quarter visolite inspection is scheduled for September. Records for daily visible emissions and daily baghouse pressure drops are being kept, as described in EUSHAKEOUT.

**FGMOLDCOOLING**

There are four mold machines (DISAs) and cooling lines under this flexible group. Sand is delivered daily. It is mixed on site with bond which is made of clay and sea coal and water. MTI is considered a green sand foundry. The sand is mixed above the DISA machines and dropped into the molds. The molds are then pressed, one side at a time, placed together, and then the molten metal is poured. These molds are then sent down the cooling lines to the shakeout. All four DISAs and associated cooling lines were operated during the inspection. No visible emissions were observed during the inspection.

The facility reuses about 99% of the sand delivered to the site. The only way sand is shipped out is from the dust collectors or from the screens once the particles are too small for the molds. Approximately 10,000 tons of waste sand is shipped out a year.

Daily visible emissions records are being kept for this flexible group as described in EUSHAKEOUT.

**FGGEWFULLER**

This flexible group covers the sand handling and casting transfer operations which includes the casting accumulator, transfer, shot sand reclaim magnet, sand screens, and separators (EUSAND1 and EUCASTTRANSFER1). The process is controlled by the East/West Fuller baghouses with a common exhaust stack.

During the inspection, East Fuller readings were 5.4" H2O pressure drop and 21.5 pA and West Fuller readings were 5.3" H2O pressure drop and 72.0 pA.

Cleaning is completed as needed but daily sweeping is done. During the April 2022 visolite, both east and west fuller baghouse each had two broken bags. The previous visolite inspection was completed on January 9, 2022 and one broken bag in east fuller and two broken bags in west fuller were identified. The third quarter visolite inspection is scheduled for September. Daily records are being kept for daily baghouse pressure drops and visible emissions checks.

#### **FGWDUSTAR**

This flexible group includes the sand system conveyors, mullers, didion and flat deck, and vibratory shakeout controlled by the West Dustar baghouse (EUSAND2 and EUCASTTRANSFER2).

During the inspection, the pressure drop was 2.2" H2O and BBD was 1.5 pA. The April 2022 visolite showed no broken bags. The previous visolite inspection was completed on January 9, 2022 and no broken bags were identified. The third quarter visolite inspection is scheduled for September. There were no visible emissions noted during the inspection. Daily records are being kept for daily baghouse pressure drops and visible emissions checks.

#### **FGCLEANING**

This flexible unit contains the four shotblast machines which are used to clean the iron castings. This is controlled by the North Fuller baghouse (EUBLAST1/2/3/4).

The April 2022 visolite showed no broken bags. The previous visolite inspection was completed on January 9, 2022 and no broken bags were identified. The third quarter visolite inspection is scheduled for September. The pressure drop reading was 5.7" H2O and 320 pA for the BLD system. The baghouse is set to pulse by the control system. It varies by baghouse and only pulses as needed but during operation, it's basically all the time.

Daily records are being kept for daily baghouse pressure drops and visible emissions checks. Sweeping is done as needed but it's done daily at a minimum. There were no visible emissions noted during the inspection.

#### **FGCAMUNITS**

EUSHAKEOUT, EUSAND1, EUCASTTRANSFER1, EUVANETTA, EUBBFURN1, EUBBFURN2, EUBBFURN3, EUBBFURN4, EUSAND2, EUCASTTRANSFER2, EUBLAST1, EUBLAST2, EUBLAST3, EUBLAST4

Compliance with FGCAMUNITS is contained within the emission units or flexible group recordkeeping conditions.

**FGMACTEEEE**

This flexible group contains equipment covered under the existing iron/steel foundry NESHAP. This includes EUVANETTA, EUBBFURN1, EUBBFURN2, EUBBFURN3, EUBBFURN4.

The scrap certification plan is discussed in the introduction paragraph in more detail. The plan appears to comply with the requirements in the MACT EEEEE regulation. The required BLD monitoring requirements and associated recordkeeping requirements are contained within the associated EU or FG.

**General Records:**

Preventative Maintenance Logs are kept daily, weekly, monthly, quarterly, semi-annual, and annual for certain equipment. As an example, the weekly PM for West Fuller baghouse includes inspection of rotary valves, fan vibration noise, general cleanliness, guarding in place, and operation of motors. The maintenance personnel check valves, material buildup in hopper, lubricate fan bearings, and check sill plates for buildup. A monthly PM for West Fuller includes a check of the dry sheaves, drive belt, duct inspection, lubricate rotary valve, auger drive gearbox, visolite inspection, capture system check, remove probe for cleaning, and dust check for BLD operation.

Based on the records review and onsite inspection, and the on-site inspection, the facility appears to be in compliance with the permit MI-ROP-B2015-2019.

NAME Annelle Cross

DATE 9/1/22

SUPERVISOR RIL 9/1/22