

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Self Initiated Inspection

B201544455

FACILITY: Metal Technologies, Inc. Three Rivers Gray Iron		SRN / ID: B2015
LOCATION: 429 Fourth Street, THREE RIVERS		DISTRICT: Kalamazoo
CITY: THREE RIVERS		COUNTY: SAINT JOSEPH
CONTACT: Dan Plant , Corporate Environmental Manager		ACTIVITY DATE: 05/11/2018
STAFF: Rex Lane	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Self Initiated Inspection		
RESOLVED COMPLAINTS:		

On May 11, 2018, AQD staff (Rex Lane) conducted an unannounced air quality inspection of Metal Technologies, Inc. (MTI), Three Rivers Gray (TRG) Iron facility located at 429 Fourth Street, Three Rivers, Michigan. The purpose of the inspection was to determine the facility's compliance with Renewable Operating Permit (ROP) MI-ROP-B2015-2013c and all applicable state and federal air regulations. Required PPE includes a hard hat, steel toed boots, safety glasses and hearing protection. The following will summarize plant operations and facility compliance status based on pre-inspection review, inspection observations and records provided by the facility during and following the inspection.

Staff arrived at the facility at 10:50 a.m. and informed the receptionist the purpose of the visit and requested that they contact Mr. Tim Lawson, maintenance supervisor. Mr. Lawson came out shortly thereafter and staff informed him that they wanted to conduct an unannounced air quality inspection and we went out to the maintenance building prior to going through the foundry. MTI purchased the facility from Dock Foundry in 1999 and they have about 150 employees at the MTI-TRG facility. Their normal production operations are 24/7 (three 8-hour shifts) six days per week and production is shutdown on Sundays. 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. Greenhouse gas emissions from the facility were calculated to be < 100,000 tons CO₂e. The facility is subject as an existing source to applicable provisions of the National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries under 40 CFR Part 63, Subpart EEEEE. The facility is also subject to Compliance Assurance Monitoring (CAM) regulations under 40 CFR Part 64.

ROP Source-Wide Conditions:

The permittee is required to develop and implement a written operation and maintenance (O&M) plan, a startup, shutdown and malfunction (SSM) plan and for each segregated scrap storage area, comply with either scrap certification requirements or implement a plan for the selection and inspection of scrap per 40 CFR Part 63, Subpart EEEEE. MTI-TRG is using a Scrap Certification Program per 40 CFR Part 63.7700(b) 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. Staff went into the scrap bay during the inspection and observed metal chips, uncoated stampings and internal foundry returns (i.e. off-spec castings, sprues, etc.). No liquids were observed draining from the metal chips so the facility appears to be operating in compliance with 40 CFR Part 63.7700(b).

On a semi-annual basis, the permittee is required to perform and records the results of a six-minute visible emission (VE) check from building or structures per USEPA Method 9

procedures per 40 CFR 63.7730(a). Following the inspection, staff requested and received copies of the two most recent Method 9 semi-annual VE observations from Mr. Plant, MTI Corporate Environmental Manager, which were conducted on 11/20/17 and 4/30/18. A review of the VE results indicates that most readings were in the 0 – 5% opacity range which demonstrates compliance with the 20% opacity limit in 40 CFR 63.7690(a)(7).

EUSHAKEOUT: Process separates iron castings 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 the reverse air 2014 North Dustar baghouse (tool # 89-39).

Condition I.1 – Particulate matter (PM) emission limit is 0.04 lb./1000 lb. exhaust gas. Process was tested in February 2015 and the emission rate was 0.006 lb./1000 lb. exhaust gas.

I.2 – PM emission limit is 11.9 pounds/hour. Process emission rate during February 2015 testing was 1.72 pounds/hour.

I.3 - Opacity limit is 5% on a six minute average. Method 9 observations conducted of North Dustar baghouse on 11/15/17 and 4/30/18 were each 0% opacity.

IV.1 – Facility has equipped and maintained a pressure drop gauge on the baghouse. During the inspection, the baghouse differential pressure was 1.0”.

V1.1 – Staff requested daily visible emission observation records that are required to be maintained by the facility for April 2018. These records were reviewed following the inspection. Facility is required to perform daily check for visible emissions and record the results in the maintenance log. If any visible emissions are noted, a preventative maintenance work order is issued for the dust collector in question.

VI.2 – Facility is recording the daily pressure drop readings for each control device on a common log sheet for each baghouse by tool number.

VI.3 – Facility has implemented a preventative maintenance program for the baghouses which is included in the O & M plan revisions that are dated November 2017.

VI.4 – Process baghouses are checked monthly by maintenance with visolite powder for leaking bags. The inspection log will note whether any bags were replaced and their location inside the fabric filter along with any other maintenance activities that were performed. The facility also contracts with Waltz Holst to perform periodic black light tests and internal maintenance and these records for April and May 2018 are attached to this inspection report.

VI.5 - Facility provided monthly and 12-month rolling records for baghouse operations and PM, PM10 and PM2.5 emission rates for April 2017 through April 2018. Emission records indicate that PM, PM10 and PM2.5 emissions were below PSD significance levels during this period.

EUCORE5: This shell core machine has been permanently removed from the facility. The emission unit will be removed from the permit during the ROP application renewal process.

EUEMERGEN: The 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 hour meter. The current meter reading is 601.3 hours. Readiness testing is done automatically once per week for 10 – 15 minutes. Process is only capable of providing power to equipment in FGGRAYIRON in the event of a power outage. Maintenance on EUEMERGEN is contracted to an outside vendor, Total Energy

Systems, Inc. and is performed every six months.

FGGRAYIRON: This flexible group includes metal pre-heating (EUVANETTA), charge loading, melting and pouring activities. Process emissions are controlled by the south fuller and small dustar aka south sly (tool # 89-06) baghouses that share a common draft fan and stack. The stack is equipped with a broken bag detector (BBD) and the monitor readout is in the maintenance building that also displays instantaneous pressure drop readings for all baghouses. All four electric induction furnaces were in operation during the inspection. There are five general ventilation roof fans above the furnaces and pouring area. Staff went up on the roof and briefly observed these vents and no visible emissions were noted. These vents are subject to a 20% opacity limit under Rule 301. The facility has installed fabric over the roof vent openings partly in response to a recent MDEQ fallout investigation in Three Rivers. The facility has received capital funding from corporate office to duct the general ventilation vents to a new fabric filter to be installed adjacent to the existing FGGRAYIRON collectors. Staff discussed this project with Mr. Plant and indicated that it may be subject to new source review permitting.

I.1 – PM emission limit is 0.01 lb./1000 lb. exhaust gas. Process underwent emission testing in September 2017 and the tested emission rate was 0.00017 lb./1000 lb. exhaust gas.

I.2 – PM emission limit is 1.7 pounds/hour. Process emission rate during September 2017 testing was 0.037 pounds/hour.

I.3 – Process is subject to either a PM emission limit of 0.005 grains/dscf or a Total Metal HAP limit of 0.0004 grains/dscf. Process PM emission rate during September 2017 testing was 0.00009 grains/dscf.

II.1 – Process is limited to an iron melt of 219,000 tons/year on a 12-month rolling time period basis. Based on provided monthly production records for previous twelve months, the facility has averaged around 75% of their iron melt limit.

II.2 – This condition is not currently applicable since the facility has a scrap certification plan.

III.1 – During the inspection, staff verified during pre-heater operation that the natural gas flames were in direct contact with the charged scrap.

VI.1 – Facility is maintaining monthly records of iron weight processed in FGGRAYIRON.

V1.2 – Facility is conducting daily visible observations of the baghouse stack as part of the PM work activities. No visible emissions were noted from stack ID 84-951 during the inspection.

VI.3 – Facility is recording the daily pressure drop readings for each control device. During the inspection, the south fuller and small dustar baghouse had a pressure drop of 1.6" and 1.2" respectively, which is within the recommended range listed in their CAM plan.

VI.4 – Facility has implemented a preventative maintenance program for the baghouses which is included in the O & M plan revisions that are dated November 2017.

VI.5 – Staff reviewed maintenance and inspection records during and following the inspection.

VI.6 – Facility has installed a BBD system on the common stack ID 84-951 serving the two baghouses. The BBD reading was 3% during the inspection. The BBD system will alarm at 50% of scale (five second alarm delay) and typical baseline operating range is 2 – 10% of

scale.

IX.1 – Facility has submitted periodic revisions to their O & M plan.

FGMOLDCOOLING: There are four mold machines (DISAs) and cooling lines under this flexible group. All four DISAs and associated cooling lines were operating during the inspection. The molds appeared to be self-igniting during the inspection. Staff accessed the roof during the inspection and did not observe any visible emissions from the four mold cooling stacks during a brief observation.

I.1 – PM emission limit is 0.10 lb./1000 lb. exhaust gas. Facility tested process in June 2013 and the tested emission rate ranged between 0.0040 and 0.0093 lb./1000 lb. exhaust gas.

V.1 – Facility will be required to conduct another PM test prior to ROP expiration (10/17/2018). The facility has indicated that they anticipate completing testing in early September 2018.

VI.1 – Facility is conducting and recording daily non-certified visible emission checks.

FGWEFULLER: Sand handling and casting transfer operations. Process is controlled by the east fuller (tool # 89-04) and west fuller (tool # 89-05) baghouses with a common exhaust stack (SV1152-913).

I.1 – PM emission limit is 0.04 lb./1000 lb. exhaust gas. Facility tested process in June 2013 and the emission rate was 0.0040 lb./1000 lb. exhaust gas.

I.2 – PM emission limit is 15.8 pounds/hour. Facility tested process in June 2013 and the emission rate was 1.01 pounds/hour.

I.3 - Opacity limit is 5% on a six minute average. Facility conducted Method 9 observation on 4/30/18 and the average opacity was 0%. Staff briefly observed stack SV1152-913 during the inspection and no visible emissions were noted.

IV.1 – Facility has equipped the east and west fullers with pressure drop gauges. During the inspection, the east and west fuller baghouse pressure drop readings were 4.42" and 5.18", respectively.

V.1 - Facility will be required to conduct another PM test prior to ROP expiration (10/17/2018). The facility has indicated that they anticipate completing testing in early September 2018.

VI.1 –Facility is conducting and recording daily visible observations of the baghouse stack.

VI.2 – Facility is recording the daily pressure drop readings for each control device. During the inspection, the differential pressure for the east and west fuller baghouses was 5.3" and 6.6", respectively.

VI.3 – Facility has implemented a preventative maintenance program for the baghouses which is included in the O & M plan revisions dated November 2017.

VI.4 – Staff reviewed maintenance and inspection records during and following the inspection.

FGWDUSTAR: Process consists of casting accumulator, cast transfer and sand screens controlled by the west dustar baghouse (tool # 89-42). FGWDUSTAR and FGCLEANING share a common exhaust stack (SV565-932).

I.1 – PM emission limit is 13.5 pounds/hour. Facility tested process in June 2013 and the emission rate was 5.64 pounds/hour.

I.2 – PM emission limit is 0.02 lb./1000 lb. exhaust gas. Facility tested process in June 2013 and the emission rate was 0.011 lb./1000 lb. exhaust gas.

I.3 - Opacity limit is 5% on a six minute average. Facility conducted Method 9 observation on 4/30/18 and the average opacity was 0%. Staff briefly observed stack SV565-932 during the inspection and no visible emissions were noted.

IV.1 – Facility has equipped the west dustar baghouse with a pressure drop gauge. During the inspection, the gauge reading was 5.2”.

V.1 - Facility will be required to conduct a performance test for PM prior to ROP expiration (10/17/2018). The facility has indicated that they anticipate completing testing in early September 2018.

V1.1 –Facility is conducting and recording daily visible observations of the baghouse stacks as part of the PM work activities.

VI.2 – Facility is recording the daily pressure drop readings for each control device.

VI.3 – Facility has implemented a preventative maintenance program for the baghouses which is included in the O & M plan revisions dated November 2017.

VI.4 – Staff reviewed maintenance and inspection records during and following the inspection.

FGCLEANING: Iron castings are cleaned in one of four shotblast machines and/or one of seven stand grinders. The process is controlled by the north fuller baghouse (tool # 89-03). Due to the abrasive nature of this process, the facility changes out the bags in the north fuller baghouse on an annual basis. Their contractor, Waltz Holst replaced all bags in the north fuller baghouse on 3/4/18. FGCLEANING and FGWDUSTAR share a common exhaust stack (SV565-932).

I.1 – PM emission limit is 0.02 lb./1000 lb. exhaust gas. Facility tested process in June 2013 and the emission rate was 0.011 lb./1000 lb. exhaust gas.

V.1 - Facility will be required to conduct a performance test for PM prior to the expiration of the ROP (10/17/2018). The facility has indicated that they anticipate completing testing in early September 2018.

V1.1 –Facility is conducting and recording daily visible observations of the baghouse stacks.

VI.2 – Facility is recording the daily pressure drop readings for each control device. During the inspection, the gauge reading was 6.8”.

VI.3 – Facility has implemented a preventative maintenance program for the baghouses which is included in the O & M plan revisions dated November 2017.

VI.4 – Staff reviewed maintenance and inspection records during and following the inspection.

FGCOREMAKE: Cold box core machines with individual packed bed acid scrubbers for control have been permanently removed from the facility. The emission unit will be removed from the permit during the ROP application renewal process.

FGCAM UNITS: EUSHAKEOUT, FGGRAYIRON, FGEWFULLER, FGWDUSTAR and

FGCLEANING are subject to CAM regulations. Based on information provided in the facility's ROP renewal application submittal and information obtained during the 5/11/18 inspection, EUGRIND01 which consists of seven stand grinders is no longer subject to CAM regulations. Per 5/14/18 email correspondence from Mr. Plant, the stand grinders on the east-west finishing line were routed to an internally vented wheelabrator collector in July 2006. The stand grinders on the north-south finishing line were routed to another internally vented wheelabrator collector in June 2013. EUGRIND01 is no longer subject to a PM emission limit since it is internally vented, hence, it is exempt from CAM regulations.

III.1 – Facility has a malfunction abatement plan that was submitted in February 2013 and was revised in November 2017.

VI.1 – The facility is recording daily visible emission checks.

VI.2 – The facility is recording daily pressure drop readings on baghouses associated with the above equipment.

VI.3 – Staff reviewed the most recent semi-annual excursion/exceedance and monitor downtime reports for FGCAM_UNITS received on 2/12/18. During the last six-month reporting period in 2017, the facility reported that there were no CAM monitor downtimes or excursions/exceedances during the reporting period.

At the time of the inspection and based on records review, it appears that the facility is in compliance with ROP MI-ROP-B2015-2013c terms and conditions and applicable state and federal air regulations. -RIL

NAME RIL

DATE 5/23/18

SUPERVISOR YMA 5/30/2018