PLWP

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

N586650570

FACILITY: METAL TECHNOLOGIES, INC., RAVENNA DUCTILE IRON		**SRN / ID:** N5866
LOCATION: 3800 Adams Road, RAVENNA		**DISTRICT:** Grand Rapids
CITY: RAVENNA		**COUNTY:** MUSKEGON
CONTACT: Dan Plant , Corporate Environmental Manager		**ACTIVITY DATE:** ~~09/10/2019~~ 9/23/19 EG
STAFF: Eric Grinstern	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Unannounced inspection		
RESOLVED COMPLAINTS:		

METAL TECHNOLOGIES, INC. - RAVENNA DUCTILE IRON (N5866)

FACILITY DESCRIPTION

The facility is a ductile iron foundry that primarily casts automotive and small engine parts. Melting is performed in three electric induction furnaces with charge material that has been preheated. The molten metal is poured into green sand molds. The facility uses cores that are purchased. Emissions from the melting, pouring, cooling, finishing and sand handling operations are controlled by baghouses.

REGULATORY ANALYSIS

The facility is a Title V subject source (ROP No. MI-ROP-N5866-2014b) because emissions of CO over the major source threshold and because of it's PTE for HAPs. The facility's ROP is currently in the process of being renewed. The permit is in the 45-day EPA review period, which began on August 15, 2019. The facility is subject to the Iron and Steel Foundry NESHAP, Subpart EEEEE. NESHAP subject emission units are EU-PREHEATERS, EU-MELTING, and EU-POURING. The facility is also subject to PSD based on CO emissions. The emission units EU-CLEAN, EU-MELTING, EU-POURING, EU-COOLING, EU-SHAKEOUT and EU-SANDSYSTEM are subject to CAM requirements.

COMPLIANCE EVALUATION

Prior to entering the facility, a survey of the parameter was performed. No visible emissions or odors were noted prior to entering the facility.

At the facility, staff consisting of Eric Grinstern and Scott Evans met with Chris Stump, Controls Technician and Dean Lynn, Plant Manager.

Below is a summary of compliance based upon ROP emission units.

EU-CLEAN

Emission unit includes cast finishing operations, including (4) shotblasters, (1) tumblaster, (16) grinders and miscellaneous inspection/cleaning stations. All processes are captured and ducted to the West Blast Baghouse (SV-CLEAN-03).

This unit is subject to CAM for particulate matter.

Emission/Material Limits

Restricts the emissions of PM and opacity. Compliance with the emission limits for particulate and opacity are demonstrated through baghouse monitoring and compliance testing. Compliance is also demonstrated via monthly emission records that are calculated utilizing emission factors from testing and material usage/production rates.

The facility conducted emissions testing on September 10-12, 2019. Results of the testing are pending. Previously, compliance test was conducted in February 2015, at which time compliance with the particulate limits was demonstrated.

Baghouse monitoring is accomplished via the following permit requirements: daily VE observations, semi-annual

Method 9 readings, operation of the baghouse within PM plan specified pressure drop range, operating in accordance with a PM plan for the baghouse.

Review of facility records showed compliance with the above requirements. (Records Attached)
Pressure established drop range: 2 to 10", observed readings: 4.8 to 5.4"
Daily VE Readings: No Emissions
Semi-annual Method 9 readings: 0%

Process/Operational Restrictions/Design Parameters/Records

The permit requires instrumentation to continuously measure the pressure drop across the baghouse and to record the reading once per day. The facility is in compliance with this condition, based on records reviewed. The pressure drop observed during the inspection was 5.4" and no opacity was observed.

Testing/Sampling

Testing was conducted in September 2019, for which the test results are pending. Previously, testing was conducted in February 2015, for particulate matter. Test results showed compliance with the ROP emission limits.

	lb/1000lb dry	lb/hr
PM Limit:	0.01	2.2
PM Result:	0.00	0.2

Monitoring/Recordkeeping

Records of the hours of operation and calculated particulate emission rates were supplied by the facility (attached) Review of the previous 12-months of records show compliance with the pound per hour and ton per year emission limits. Facility records show the TPY PM emission rate, based on a 12-month rolling total, is 0.635 tons. This is in compliance with the permitted limit of 9.6 tons. The pound per hour emission rate used by the facility is based upon the most recent stack test (0.23 lb/hr). This emission rate is in compliance with the permitted limit of 2.2 lb/hr.

Reporting

Review of the most recent annual and semiannual ROP certification reports as well as CAM certification, showed that they were submitted by the deadline and that no deviations were reported.

Stack/Vent Restrictions

The stack associated with the West Blast is required to be a maximum of 60 inches in diameter and have a minimum height of 65 feet. Visual evaluation of the stack showed that it appeared to meet the required dimensions.

FG-MELTING

Flexible group that consists of metal processing operations that have combined emission limits. Includes: EU-PREHEATERS, EU-MELTING and EU-INOCULATION.

Emission/Material Limits

Restricts the emission of PM, CO, VOC, NOx, Lead, Total Chromium and Opacity. Compliance with the emission limits is demonstrated through baghouse monitoring and compliance testing. Compliance is also demonstrated via monthly emission records that are calculated utilizing emission factors from testing and material usage/production rates.

The facility conducted emissions testing on September 10-12, 2019. Results of the testing are pending. Previously, compliance testing was conducted in February 2015, at which time compliance with the limits was demonstrated.

Review of the previous 12-months of records showed compliance with the lb./hr. and ton per year limit for all pollutants with emission limits in the flexible group. (Records attached)

Baghouse monitoring is accomplished via the following permit requirements: daily VE observations, semi-annual Method 9 readings, operation of the baghouse within PM plan specified pressure drop range, operation of a bag leak detection system, operating in accordance with a PM plan for the baghouse. Review of facility records showed compliance with the above requirements.

Records of the hours of operation, material charge rates to the furnace were supplied by the facility (attached). Review of the facility records shows compliance with the charge limits. The previous 12-months of data showed compliance with the 27 ton per hour and 132,000 ton per year furnace charge limit. Actual 12-month total, 107,080 tons, Average tons per hour for August 2019, 15.36.

Review of facility records showed compliance with the above requirements. (Records Attached)

Pressure established drop range: W.Melt East 1-10", recorded readings: 4.0 to 5.8"
W.Melt West 2-10", recorded readings: 3.7-5.7"
E. Melt (Inn) 1-8", recorded readings: 0.4-3.7
Note: two days recorded under range, facility will be requested to determine cause
Daily VE Readings: No Emissions
Semi-annual Method 9 readings: 0%

Process/Operational Restrictions/Design Parameters/Records

As part of demonstrating proper operation of the baghouse, the O&M plan requires monitoring and recording of the pressure drop. The facility supplied pressure drop records, as requested.

Monitoring/Recordkeeping

Records of the hours of operation and calculated particulate emission rates were supplied by the facility. (attached) Review of the previous 12-months (ending August 2019) of records show compliance with the pound per hour and ton per year emission limits.

	Limit lb/hr	Limit ton/yr	Test data lb/hr	Calc. Ton/yr
PM	2.5	10.95	0.31	0.792
CO	15.1	42.8	6.3	13.628
VOC	4.4	10.8	2.33	5.431
NOx	3.1	13.2	1.4	3.115
Pb	0.07	0.16	0.0016	0.003
Total Cr	0.00078	NA	0.00073	NA

Testing/Sampling

Testing was conducted in September 2019, for which the test results are pending. Previously, testing was conducted in February 2015. Test results showed compliance with the ROP emission limits.

Reporting

Review of the most recent annual and semiannual ROP certification reports as well as CAM certification, showed that they were submitted by the deadline and that no deviations were reported, except for one deviation associated with NESHAP Method 9 readings (discussed below).

Stack/Vent Restrictions

Visual evaluation of the stacks (SV-MELT-01 and SV-INOCULATION-05) showed that they appeared to meet the required dimensions.

Notes: Observation of the baghouse stacks showed no VE during the on-site inspection.

FG-SAND

Flexible group that consists of sand related processes, including EU-COOLING, EU-SHAKEOUT, EU-POURING and EU-SANDSYSTEM.

Emission/Material Limits/Records

Compliance with the emission limits are demonstrated through baghouse monitoring and compliance testing. Compliance is also demonstrated via monthly emission records that are calculated utilizing emission factors from testing and material usage/production rates.

Testing was conducted in September 2019, for which the test results are pending. Previously, testing was conducted in November 2014/February 2015. Test results showed compliance with the ROP emission limits.

Review of the previous 12-months of records showed compliance with the lb. /hr. and ton per year limit for the pollutants with emission limits in the flexible group.

	Limit lb/hr	Limit ton/yr	Test data lb/hr	Calc. Ton/yr
PM	6.0	26.3	3.96	10.895
CO	98.5	270	32.67	85.546
VOC	4.0	12	2.56	6.516
Total Cr	0.00168	---	.0014	---

Baghouse monitoring is accomplished via the following permit requirements: daily VE observations, semi-annual Method 9 readings, operation of the baghouse within PM plan specified pressure drop range, operating in accordance with a PM plan for the baghouse

Review of facility records showed compliance with the above requirements.

Pressure established drop range: East Sand 2-10", recorded readings: 6.2 to 8.7"
West Sand 2-10", recorded readings: 7.0 to 9.0"
Daily VE Readings: No Emissions
Semi-annual Method 9 readings: 0%

Review of the previous 12-months of data showed compliance with the 600,000 ton per year sand limit. The facility records showed a 12-month usage of 463,121 tons.

Testing/Sampling

Testing was conducted in September 2019, for which the test results are pending. Previously, testing was conducted in November 2014/February 2015. Test results showed compliance with the ROP emission limits.

Reporting

Review of the most recent annual and semiannual ROP certification reports as well as CAM certification, showed that they were submitted by the deadline and that no deviations were reported.

Stack/Vent Restrictions

Visual evaluation of the stack (SV-SAND-02) showed that they appeared to meet the required dimensions.

FG-CAMUNITS

Flexible group consisting of the emission units subject to CAM requirements. Emission units include: EU-CLEAN, EU-MELTING, EU-POURING, EU-COOLING, EU-SHAKEOUT and EU-SANDSYSTEM are subject to CAM requirements.

Process/Operational Restrictions/Design Parameters/Records

For EU-CLEAN, requires instrumentation to continuously measure the pressure drop across the baghouse and to record the reading once per day. The facility is in compliance with this condition based on records reviewed.

For EU-MELTING, EU-POURING, EU-COOLING, EU-SHAKEOUT and EU-SANDSYSTEM, requires the operation and maintenance of bag leak detection systems. The facility has installed and is operating bag leak detection systems.

Testing/Sampling

For all CAM subject emission units, requires semi-annual Method 9 readings to demonstrate compliance with the opacity limit. Review of the Method 9 readings for the past year showed no exceedances of the opacity limit. (Records attached)

Monitoring/Recordkeeping

For all CAM subject emission units, requires daily non-certified visual inspections for opacity. Review of the daily records for visual opacity inspection showed that no opacity issues were noted. (Records attached)

NESHAP REQUIREMENTS – SUBPART EEEEE

FG-MACT EEEEE

Flex group covers the Iron and Steel Foundry NESHAP requirements.

EU-PREHEATER - Scrap Preheater
EU-MELTING – Melting Furnaces
EU-POURING – Metal Pouring

Emission/Material Limits

Compliance with the particulate matter limit is primarily demonstrated through compliance testing every 5 years and proper operation of the capture and control systems. Testing was performed in September 2019, for which test results are pending. Previously testing was conducted in November, 2014/February 2015, at which time compliance with the emission limits was demonstrated.

Design/Equipment Parameters

The NESHAP requires the capture and control system to be installed, operated and maintained in accordance with an approved O&M plan. The facility has an approved O&M plan that addresses capture and control O&M.

An evaluation of the capture system was conducted regarding compliance with the NESHAP.

Capture at the melt deck is achieved though rim vents on each furnace, two hoods in the roof and capture over the ladle during tapping/inoculation. The rim vents exhaust to the West Melt Baghouse, while the two roof vents and the mobile hood over tapping/inoculation exhaust to the Inoculation Baghouse.

Emissions from the furnaces are captured by the rim vents associated with each furnace. Observation of the three furnaces during melting showed better capture achieved from the rim vents on Furnaces No.1 and No. 3, compared to Furnace No.2. Mr. Stump explained that the furnace lid gap increases over time due to the connection point of the lid bending, resulting in an increase in fugitive emissions. Observation of the fugitive emissions showed that a portion were captured by the two roof hoods, while some where emitted uncontrolled through a roof gravity vent. Observation of Furnace No. 1 tapping showed some fugitive emissions escaping the rim vent and the mobile inoculation hood. Fugitive emissions resulting from tapping also went to the roof hoods or the roof gravity vent. Additionally, fugitive emissions were observed during slagging, which requires the hood to be moved off the furnace.

Testing/Sampling

Testing was performed in September 2019, for which test results are pending. Previously testing was conducted in November, 2014/February 2015, at which time compliance with the emission limits was demonstrated. In addition to performance testing, Method 9 readings are required no less than every 6-months. Review of the test results show compliance with the opacity limit. The facility reported that one reading was conducted late (discussed below).

Monitoring/Recordkeeping

The facility is using a bag leak detection system to monitor the relative change in PM loading.

Reporting

Review of the most recent NESHAP certification report showed that it was submitted by the deadline. For the semi-annual report for January 1 through June 30, 2019, the facility reported one deviation. The facility reported that the fugitive building opacity Method 9 reading was conducted late. The reading was required to be conduced at the end of February 2019, but was not conducted until March 19, 2019. The cause of the late Method 9 reading was due to the loss of the employee responsible for conducting the readings. In response to the late reading, the facility updated their compliance tracking system and Air Pollution Control Plan to assure that readings are conducted on time. No previous issues have been documented regarding fugitive emission opacity. The facility appears to have taken appropriate action regarding the deviation.

FG-IC RICE MACT EXEMPT

This flex group was added as part of the last renewal of the ROP, however it was determined during a previous inspection that they do not have an emergency generator at the facility.

Conclusion

Based on this inspection, the facility is in compliance with applicable air quality rules and regulations at this time.

NAME  DATE 9/26/19 SUPERVISOR