

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

N586668613

FACILITY: METAL TECHNOLOGIES, INC., RAVENNA DUCTILE IRON		SRN / ID: N5866
LOCATION: 3800 Adams Road, RAVENNA		DISTRICT: Grand Rapids
CITY: RAVENNA		COUNTY: MUSKEGON
CONTACT: Dan Schwab , EHS Manager		ACTIVITY DATE: 08/16/2023
STAFF: Eric Grinstern	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: On-site compliance 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 processed through a preheater. 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-N5866-2019) because emissions of CO are greater than the major source threshold and because the single and combined HAP PTEs exceed major source thresholds. 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 was 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 perimeter was made. No odors were noted from the facility. Fugitive emissions were observed being emitted from adjacent to the sand system duct work. It was later determined that the fugitive emissions were particulate from the general in-plant air of the sand tower being emitted from an opening adjacent to the sand system duct work. Observation of the emissions showed that they were less than 20% opacity. The facility provided follow-up stating that Walz Holst was scheduled to come on-site on August 16th to provide a quote to seal the opening.

At the facility EG met with Daniel Schwab, EHS Manager, and Jeff Ackerberg, Maintenance Supervisor.

Below is an evaluation of compliance based on ROP No. MI-ROP-N5866-2019 and applicable rules and regulations.

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 provided records documenting compliance with the PM emission limits.

The facility conducted emissions testing in September/October 2019, at which time compliance with the particulate and opacity 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. Additionally, the baghouse is equipped with a bag leak detection system, which is not required by permit.

Review of facility records showed compliance with the above requirements.

Established pressure drop range: 2 to 10", recorded readings: single reading of 1.5", all other readings between 2.0" – 5.0" Records show no emissions associated with the single 1.5" reading.

Daily VE Readings: Records document no emissions.

Semi-annual Method 9 readings: Submitted on March 15, 2023, and July 28, 2023, readings documented compliance with opacity limits.

The pressure drop observed during the on-site inspection was 4.5", the bag leak detector reading was -2, and no opacity was observed from the stack. The facility stated that the bag leak detector reading was an error, and the detector was scheduled for maintenance. The area around the baghouse showed good housekeeping.

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 and observations during the on-site inspection.

Testing/Sampling

Testing was conducted in September/October 2019, at which time compliance was demonstrated for particulate matter and opacity.

Monitoring/Recordkeeping

Records of the hours of operation and calculated particulate emission rates were supplied by the facility.

Reporting

Review of the most recent annual and semiannual ROP certification reports as well as CAM certification, showed that the facility reported one deviation associated with submitting the first semiannual report for 2022 late.

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 in September/October 2019, at which time compliance with the emission 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, 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. Review of the facility records shows compliance with the charge limits of 27 ton per hour and 132,000 ton per year. Actual 12-month total melt was 93,513 tons (ending in July 2023), Average tons per hour high, on a monthly basis, occurred in March 2023: 15.03 tons/hr.

Established pressure drop range: W.Melt East 1-10", recorded readings: 4.3 to 5.9"

W.Melt West 2-10", recorded readings: 4.5 to 5.9"

E. Melt (Inoc.) 1-8", recorded readings: 4.0 to 5.0"

Daily VE Readings: records document no emissions.

Semi-annual Method 9 readings: Submitted on March 15, 2023, and July 28, 2023, readings documented compliance with opacity limits.

During the on-site inspection the following readings were observed:

W.Melt East: pressure drop: 5.2", bag leak detector: 3

W.Melt West: pressure drop: 5.6", bag leak detector: 0

E. Melt (Inoc.): 5.1", bagleak detector: 1

No visible emissions were observed during the inspection. The area around the baghouse showed good housekeeping.

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. Review of the previous 12-months records show compliance with the pound per hour and ton per year emission limits.

Testing/Sampling

Testing was conducted in September/October 2019, 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 the facility reported one deviation associated with submitting the first semiannual report for 2022 late.

Stack/Vent Restrictions

Visual evaluation of the stacks showed that they appeared to meet the required dimensions.

(SV-MELT-01 and SV-INOCULATION-05)

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 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 in September/October 2019, at which time compliance with the emission limits was demonstrated following a failed test and subsequent retest that documented compliance.

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. Additionally, the baghouse is equipped with a bag leak detection system.

Review of facility records showed compliance with the above requirements.

Established pressure drop range: East Sand 2-10", recorded readings: 3.5 to 4.8"

West Sand 2-10", recorded readings: 3.1 to 4.8"

Daily VE Readings: No Emissions

Semi-annual Method 9 readings: Submitted on March 15, 2023, and July 28, 2023, readings documented compliance with opacity limits.

During the on-site inspection the following readings were observed:

East Sand: pressure drop: 4.0", bag leak detector: 0

West Sand: pressure drop: 4.2", bag leak detector: 0

No visible emissions were observed from the stack during the inspection. As previously noted, fugitive building emissions were observed from the sand tower. The facility has scheduled to have an outside company provide a quote to have the source of the fugitive emissions enclosed.

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 404,444 tons.

Testing/Sampling

The facility conducted emissions testing in September/October 2019, at which time compliance with the emission limits was demonstrated.

Reporting

Review of the most recent annual and semiannual ROP certification reports as well as CAM certification, show that the facility reported one deviation associated with submitting the first semiannual report for 2022 late.

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 and observations during the on-site inspection.

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.

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.

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/October 2019, at which time compliance was demonstrated.

Melting/Preheater PM Limit: 0.005 gr/dscf

Melting/Preheater PM test result: 0.000467 gr/dscf

The scrap preheater and melting have separate emission limits. Melting and preheating are ducted to the same baghouse at RDI and the facility demonstrates compliance with the gr/dscf limit from the combined emissions. The scrap preheater is also subject to a VOC limit; however, the VOC limit is not applicable if a facility utilizes a direct flame unit that contacts the charge material. The facility has a direct flame unit.

Pouring PM Limit: 0.010 gr/dscf

Pouring PM test result: 0.00507 gr/dscf

Fugitive Opacity Limit: 20%

Fugitive Opacity result: 3.16%

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. The facility provided work order records documenting O&M activities associated with the capture and control systems.

Testing/Sampling

Testing was performed in September/October 2019, at which time compliance was demonstrated. In addition to performance testing, Method 9 readings are required no less than every 6-months. Method 9 readings submitted on March 15, 2023, and July 28, 2023, readings documented compliance with opacity limits.

Monitoring/Recordkeeping

The facility is using a bag leak detection system to monitor the relative change in PM loading. While on-site, EG reviewed recent system alarms and corrective actions. The records showed all alarms to be properly addressed.

Reporting

Review of the most recent NESHAP certification reports show no reported deviations.

FG-RULE287(2)(c)

Emission units exempt from Rule 201 with coating usage under 200 gallons/month.

The facility provided material usage records for rust inhibitor. The facility records document a monthly high usage amount of 110 gallons.

Miscellaneous

The facility has two baghouses, East Desprue and West Desprue. The baghouses provide nuisance sand/dust control measures for the operators in the Desprue workstation. The primary purpose of the baghouses is to reduce the exposure to respirable crystalline silica to the operators. At the time of the inspection the West Desprue baghouse had a pressure drop of 4.9 inches and a bag leak detector reading of 0. The East Desprue baghouse had a pressure drop of 4.4 inches and a bag leak detector reading of -22. The facility stated that the bag leak detector for East Desprue was scheduled for maintenance.

Conclusion

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

NAME *Cec Guzman*

DATE 9/18/2023

SUPERVISOR *HH*