

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

A393435040

FACILITY: Great Lakes Castings LLC		SRN / ID: A3934
LOCATION: 800 N. Washington Ave., LUDINGTON		DISTRICT: Cadillac
CITY: LUDINGTON		COUNTY: MASON
CONTACT: Robert Ellis , Environmental, Health and Safety Manager		ACTIVITY DATE: 05/26/2016
STAFF: Caryn Owens	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Site Inspection and Records Review		
RESOLVED COMPLAINTS:		

On Thursday, May 26, 2016, Caryn Owens and Eric Grinstern of the Department of Environmental Quality (DEQ) – Air Quality Division (AQD) conducted a scheduled field inspection of Great Lakes Castings LLC (GLC) (SRN: A3934) located at 800 North Washington Avenue, Ludington, Mason County, Michigan. The site is located on the east side of North Washington Avenue, approximately 1/10 mile north of East Tinkham Avenue and consists of one main building in the central portion of the site. The field inspection and records review were to determine compliance with the Renewable Operating Permit (ROP) MI-ROP-A3934-2015. The site is currently an area (a synthetic minor) source for hazardous air pollutants (HAPs), and is subject to the following National Emission Standard for Hazardous Air Pollutants (NESHAP): National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries in Area Sources 40 CFR Part 63, Subpart ZZZZ; and for Stationary Reciprocating Internal Combustion Engines in 40 CFR, Part 63, Subpart ZZZZ (RICE MACT). Additionally, the following emission units are subject to federal Compliance Assurance Monitoring (CAM) Rule in 40 CFR Part 64: EUHUNTERSAND, EUHUNTER, EUDISA, EUCLEANING, and EUCUPOLA. It should be noted that the DEQ does not have delegation of the area source RICE MACT and this MACT was not reviewed during the field inspection and records review.

Summary:

The activities covered during the field inspection and records review for the facility indicates the facility was in compliance with ROP MI-ROP-A3934-2015 and no additional actions are necessary at this time. Specific permit conditions that were reviewed are discussed below.

On-site Inspection:

Great Lakes Castings LLC (GLC) is a gray iron foundry that produces cast iron products. The major production operations are raw material handling and preparation, mold and core production, metal melting, pouring and cooling, and casting finishing/heat treating. Molten iron is produced in a cupola controlled with an afterburner, wet cap, quencher, venturi scrubber and demister. The molten metal is stored in a holding furnace. Green sand molds are produced on two separate mold lines, a Hunter and a DISA line which are controlled by baghouses and scrubbers. The molten metal is poured in the Hunter and DISA lines from portable ladles. The molds utilize shell and cold box cores which are also produced on-site. Finishing operations at the facility primarily consist of three Rotoblast (shot blasting) units.

Prior to entering the facility I observed that the cupola appeared to be in operation (substantial water vapor plume). I did not observe other visible emissions from any emission point upon entering the facility. During the field inspection it was mostly sunny with wind speeds about 10 miles per hour out of the south-southwest, and approximately 75 degrees Fahrenheit. At the time of the inspection I met with Mr. Bob Ellis, Environmental, Health, and Safety Manager for GLC who provided records, accompanied me on the inspection, and answered my questions. At the time of the inspection I provided Mr. Ellis with a copy of the Environmental Inspections Brochure. During the inspection, I observed the all the emission units listed in the ROP, which are discussed in more detail below, in each section of this inspection report. Through discussions with Mr. Ellis, the foundry melts approximately 53, 895 tons of steel per year, operating 5 to 6 days per week, 24-hours per day. The foundry is limited to operating every other week for 6 days in a row. Additionally, during the field inspection, DEQ staff and Mr. Ellis walked on the roof to observe stacks for the emission units. While on the roof, sand was loaded into a silo just south of the building, and one of the bin vents appeared to be malfunctioning because a dust plume was observed coming out of the top side of the silo during the loading process. The dust plume dissipated quickly, and did not travel off site. According to Mr. Ellis, a work order was going to be put in to have the bin vent repaired.

Source Wide Conditions:

I. Emission Limits:

HAP emissions are limited to 10 tons per individual HAP and 25 tons aggregate HAPs. Compliance with these limits is demonstrated through calculation of emissions based on emission factors associated with iron and sand binder usage rates. Records of HAP emission over the last 12 months are attached. The most prominent individual HAP emitted by the facility is Benzene. Emissions of Benzene over the last 12 months total 1.1 tons per 12-month rolling time period. Total HAPs for the facility are 4.6 tons per 12-month rolling time period.

Opacity is also limited to 20% from any building. Testing for this is required once every six months, and was most recently completed April 14, 2016 and demonstrated compliance.

II. Material Limits:

There are no material limits associated with Source-Wide Conditions.

III. Process/Operational Restrictions:

The facility has a written scrap procurement plan that follows the mercury scrap management option of not accepting scrap that contains motor vehicle scrap. Compliance with this plan is required to be certified and reported semi-annually. The most recent reporting was submitted 1/28/16 for the period July 1, 2015 through December 31, 2015. The report and certification were submitted in a timely manner.

IV. Design/Equipment Parameters:

There are no design limits associated with Source-Wide Conditions.

V. Testing/Sampling:

Testing for fugitive emissions (opacity) from all buildings is required once every six months. Testing was performed most recently on April 14, 2016, which demonstrated compliance. Notification of this testing is required prior to testing and these notifications have been submitted in a timely and correct manner.

VI. Monitoring/Recordkeeping

Records regarding HAP emission calculations and scrap procurement and segregation are being kept by the facility and demonstrate compliance with applicable standards. A report regarding this is submitted every six months per the MACT.

VII. Reporting:

Semi-annual deviation reports, annual certifications of compliance and MACT reports were reviewed and documented as they were received. The required reporting was submitted in a timely and correct manner.

VIII. Stack/Vent Restrictions:

There are no specific stack parameters for Source-Wide Conditions.

IX. Other Requirements:

Malfunction Abatement Plans (MAP) are required for EUCUPOLA, EUCOLDBOXCORE, EUHUNTERSAND, EUDISASORM, FGDUSTAR, and FGCLEAN&FINISH. Plans for each have been developed and copies are on file with the AQD Cadillac District Office. There have not been any changes or updates to MAPs in the last 12 months. The latest MAPs on file were from 2013.

EUCUPOLA: Cupola and associated demister, afterburner, quencher, and venturi scrubber, metallic scrap storage area, coke storage area, and electric holding melting furnace. During the initial inspection of the EUCUPOLA, the Cupola was on relief. Toward the end of the inspection, the cupola was operating on blast.

I. Emission Limits:

The emission unit currently has the following emission limits:

Pollutant	Limit	Highest Reported Record
Particulate Matter (PM)	50.8 tons per year (tpy)	16.9 tpy
PM	1.4 pounds/ Ton of metal charged	0.807 pounds/ Ton of metal charged
PM	28 pounds per hour	12.589 pounds per hour
PM	0.25 pounds per 1,000 pounds of exhaust gases, calculated on a dry gas basis	0.176 pounds per 1,000 pounds of exhaust gases, calculated on a dry gas basis
PM-10	39.2 tons/year	13.6 tpy
PM-10	1.08 pounds/ Ton of metal charged	0.647 pounds/ Ton of metal charged
PM-10	21.6 pounds per hour	10.944 pounds per hour
Sulfur Dioxide (SO ₂)	54.4 tons/year	0.17 tpy
SO ₂	1.5 pounds/ Ton of metal charged	0.0064 pounds/ Ton of metal charged
SO ₂	30.0 pounds per hour	0.18 pounds per hour
Carbon Monoxide (CO)	408.0 tons/year	10.6 tpy
CO	11.25 pounds/ Ton of metal charged	0.394 pounds/ Ton of metal charged

CO	225 pounds per hour	6.72 pounds per hour
Volatile Organic Compounds (VOC)	13.6 tons/year	0.35 tpy
VOC	0.42 pounds/ Ton of metal charged	0.013 pounds/ Ton of metal charged
VOC	8.4 pounds per hour	0.218 pounds per hour
Lead (Pb)	0.76 tons/year	0.15 tpy
Pb	0.02 pounds/ Ton of metal charged	0.00178 pounds/ Ton of metal charged
Pb	0.4 pounds per hour	0.0278 pounds per hour
Arsenic	0.0036 pounds per hour	0.00059 pounds per hour
Manganese	0.87 pounds per hour	0.544 pounds per hour
PM or Total Metal HAP	0.8 or 0.06 pounds per ton of metal charged	0.0371 pounds of Total Metal HAPs per ton of metal charged

Compliance with the emission limits is demonstrated through stack testing and calculations based on emission factors developed during stack testing. Records of annual emissions (attached) indicate compliance with each of the limits.

II. Material Limits:

The sulfur content of the coke is limited to 2.5%, by weight. The facility currently has two separate supplies of coke. One from a foreign source and one from an American source. They are used separately since they have different burning properties. According to Mr. Ellis, they have similar sulfur content. Analytical results provided by GLC indicate that the sulfur content averaged 0.684% by weight, which demonstrates compliance with the limit. Copies of the most recent analysis are attached. I also collected a sample of coke from the fuel bunker during stack testing that was completed last November and submitted it to Merit Laboratories for analysis, and the analytical results indicated the sulfur content of the coke was 0.84 %, which is compliance with the sulfur content of the coke.

III. Process/Operational Restrictions:

The facility is restricted to melting no more than 20 tons of metal per hour. Records maintained by GLC indicate that the average melt rate in 2014 was 11.18 tons per hour.

Emission control device operating parameters are specified in the ROP. At the time of the inspection I recorded the following operational parameters during the field inspection. According to Mr. Ellis, and observed when the cupola was in relief, the air pollution control equipment operates when the system is on relief.

Parameter	Permit Limit	Actual (on Relief)	Actual (on Blast)
Venturi Delta P	> 33 inches wc	41" wc	47" wc
Venturi Flow	> 200 gallons per minute (gpm)	269.3 gpm	269.9 gpm
Demister Delta P	< 1.0 inches wc	0.189" wc	0.121" wc
Demister Flow	> 40 gpm	55.9 gpm	56.1 gpm
Quencher Flow	> 200 gpm	229.5 gpm	229.2 gpm
Cupola Upper Stack Temp	> 1150 degrees F	442 degrees F	1337 degrees F

The facility follows an O&M Plan, for the cupola venturi scrubber and the plan has daily, monthly and annual maintenance checks, and are recorded and kept onsite.

IV. Design/Equipment Parameters:

Devices to measure flow rate, pressure drop, and temperature across the various pieces of equipment were all installed and appeared to be operating properly.

V. Testing/Sampling:

The ROP requires testing for each of the pollutant limits every 5 years. The most recent test performed was to show compliance with the 40 CFR Part 63, Subpart ZZZZZ, which was completed on November 17, 2015 and demonstrated compliance with the associated emission limits. A stack test protocol was submitted to the DEQ on April 12, 2016, and

testing is scheduled for August 9, 2016 to show compliance with the remainder emission limits for EUCUPOLA.

VI. Monitoring/Recordkeeping:

Required monitoring within the ROP includes the charge weight and time and the ratio of iron to coke charged. Monitoring of these items is maintained electronically. The computer monitors the time and weight of each material charged to the cupola. The computer system is also set up so that the facility cannot exceed the 20 ton per hour melt rate limit. Records of monitored data were available at the time of the inspection and examples are attached. Inspection of the records demonstrates that the facility is maintaining the required records. Records associated with CAM are also being kept and were available on request.

As previously stated, the facility monitors and records the sulfur content of each shipment of coke received.

The facility calculates monthly and 12-month rolling emissions for PM, PM-10, SO₂, CO, VOC, and Pb using the most current stack test emission factors. As previously discussed above, the Cupola was operating within the permitted parameters. Any deviations to the established operating parameters are discussed below.

VII. Reporting:

The facility is required to report calendar year emissions to the AQD via the Michigan Air Emission Reporting System. The report was previously reviewed and documented. Semi-annual deviation reports and annual certifications of compliance were previously reviewed and documented. Reporting associated with CAM was submitted properly and was previously reviewed and documented. No CAM excursions or exceedances, and no monitor downtime were reported within the reporting time period. Additionally, reporting for 40 CFR Part 63, Subpart ZZZZZ was in compliance, and no deviations were reported within the reporting time period regarding segregation of certain types of scrap metal.

VIII. Stack/Vent Restrictions:

Stack parameters at the facility have not been modified and appear correct.

IX. Other Requirements:

There has been no need to modify the existing CAM plan.

EUCOLDBOXCORE: Cold box core machines with packed tower scrubber including ancillary core making equipment. During the inspection, the facility had one automated core machine in operation, and four manual core machines, which were not operating during the inspection. According to Mr. Ellis, two of the four manual core machines will operate at one time. This system is controlled by a sulfuric acid recirculating packed tower scrubber.

I. Emission Limits:

The facility is limited to 10 tons of VOC per year from this emission unit. Emissions are calculated using the resin manufacturer emission factor. Records (attached) indicate the 12 month rolling VOC emission rate was 0.5 tpy. The N, n-dimethylisopropanolamine (DMIPA) limit is 0.50 tpy. The attached records indicate 12-month rolling DMIPA emissions were 0.02 tpy. The ROP indicates that there must be no visible emissions from the emission unit. Records of visible emissions readings are maintained and indicate that no visible emissions were observed. I observed no visible emissions during the inspection.

II. Material Limits:

The emission unit is limited to using only 23,000 pounds of resin per calendar month. I requested records for the month of November 2015. Based on the records reviewed, the amount of resin used in November 2015 was 9,600 pounds of resin, which is below the permitted limit.

III. Process/Operational Restrictions:

During the inspection, the facility had one automated core machine in operation, and four manual core machines, which were not operating during the inspection. According to Mr. Ellis, two of the four manual core machines will operate at one time. The scrubber was operating during the inspection and the pH of the scrubber water was 2.86. The permitted limit to maintain the scrubber liquid pH is below 4.5. The scrubber differential pressure was 2.9 inches water column (wc).

IV. Design/Equipment Parameters:

The pH meter on the scrubber was installed and appeared to be operating properly.

V. Testing/Sampling:

Non-certified visible emissions observations are required on a weekly basis, whenever the equipment is operating. Records of visible emissions readings are maintained and indicate that no visible emissions were observed. Observations made during the inspection also confirmed no visible emissions were present.

VI. Monitoring/Recordkeeping:

Records indicate that GLC is monitoring and recording the pH of the scrubbing liquor, the VOC and DMIPA emissions from the emission unit, and the presence of any visible emissions as required by the permit.

VII. Reporting:

Semi-annual deviation reports and annual certifications of compliance were previously reviewed and documented. No deviations were reported for EUCOLDBOXCORE within the reporting period.

VIII. Stack/Vent Restrictions:

Stack parameters at the facility have not been modified and appear correct.

IX. Other Requirements:

There are no other requirements for EUCOLDBOXCORE.

EUHUNTERPOURING: Iron pouring process of the Hunter line. There are five pouring lines for EUHUNTERPOURING, but the facility typically uses three of the five lines. At the time of the field inspection, three of the lines were operating.

I. Emission Limits:

PM emissions are limited to 0.10 pounds per 1000 pounds of exhaust gases. Stack testing on June 16 – 18, 2015 demonstrated emissions were 0.0157 pounds per thousand pounds exhaust gas. Furthermore, the absence of visible emissions during the testing and the absence of visible emissions based upon observations by facility personnel indicate continuous compliance with the emission limit. I observed no visible emissions during the inspection.

II. Material Limits:

There is no material limits associated with EUHUNTERPOURING.

III. Process/Operational Restrictions:

The Hunter line has a pouring rate limit of 20 tons per hour this is equivalent to the cupola melt rate limit. Cupola melt rate has averaged around 10 tons per hour.

IV. Design/Equipment Parameters:

There are no design/equipment parameters for EUHUNTERPOURING.

V. Testing/Sampling:

As previously stated, the most recent stack test was completed June 16 – 18, 2015, and the facility was in compliance with the emission limits. The facility is required to perform non-certified visible emissions observations on a weekly basis when the emission unit is operating. Records of visible emissions readings are maintained and indicate that no visible emissions were observed. I observed no visible emissions during the inspection.

VI. Monitoring/Recordkeeping:

Records of the amount of metal poured are being maintained.

VII. Reporting:

Semi-annual deviation reports and annual certifications of compliance were previously reviewed and documented. No deviations were reported during the reporting period. Test protocols were submitted to the DEQ within required timeframes. Mr. Ellis included the late reporting as a deviation on his semi-annual and annual report.

VIII. Stack/Vent Restrictions:

There are no Stack parameter restrictions for EUHUNTERPOURING.

IX. Other Requirements:

There are no other requirements for EUHUNTERPOURING.

EUHUNTERSAND: Hunter line sand system controlled by the CSI Baghouse.

I. Emission Limits:

PM emissions from this emission unit are limited to 0.10 pounds per 1,000 pounds of exhaust gases, calculated on a dry gas basis. Stack testing on June 16 – 18, 2015 demonstrated emissions were 0.0027 pounds per thousand pounds exhaust gas. The facility demonstrates continuous compliance with this limit by maintaining the differential pressure across the CSI baghouse within the 0.2 to 7 inches wc range specified in the MAP, and 1 – 6 inches wc range specified in the CAM plan. Based upon a review of the records, the differential pressure has ranged from 2.0 inches wc to 3.5 inches wc, and was observed at 2.2 inches wc at the time of the inspection.

II. Material Limits:

There are no material limits associated with EUHUNTERSAND.

III. Process/Operational Restrictions:

The facility is not allowed to operate the emission unit unless the CSI baghouse differential pressure is within the range specified in the MAP. As mentioned previously, the CSI baghouse was operating within the acceptable range.

IV. Design/Equipment Parameters:

A device to measure differential pressure across the baghouse was installed and appeared to be operating properly.

V. Testing/Sampling:

PM testing is required every 5 years. GLC has fulfilled the testing requirements of the ROP by performing stack testing June 16 – 18, 2015. This testing demonstrated compliance with the PM emissions limit.

VI. Monitoring/Recordkeeping:

The facility is required to continuously monitor the differential pressure across the baghouse and record the parameter once per day. At the time of the inspection, the monitor was operating and the differential pressure was 2.2 inches wc. Based on the records reviewed, no malfunctions, excursions or exceedances of the monitoring data were documented.

VII. Reporting:

Semi-annual deviation reports and annual certifications of compliance were previously reviewed and documented. Reporting associated with CAM is being performed properly and was previously reviewed and documented. No monitor downtime, excursions or exceedances were reported to the DEQ within the past year of this inspection report. Test protocols were submitted to the DEQ within required timeframes. Mr. Ellis included the late reporting as a deviation on his semi-annual and annual report.

VIII. Stack/Vent Restrictions:

There are no Stack parameter restrictions for EUHUNTERSAND

IX. Other Requirements:

There has been no need to modify the existing CAM plan.

EUHUNTERMOLDCOOL: Hunter line mold cooling. No control equipment is associated with this emission unit.

I. Emission Limits:

This emission unit is limited to 0.10 pounds of particulate per 1,000 pounds of exhaust gases. Compliance with this limit is based on non-certified visible emission readings. Records of these readings are attached to this report and demonstrate zero visible emissions. No visible emissions were noted during the inspection.

II. Material Limits:

There are no material limits associated with EUHUNTERMOLDCOOL.

III. Process/Operational Restrictions:

There are no process restrictions for EUHUNTERMOLDCOOL.

IV. Design/Equipment Parameters:

There are no equipment restrictions for EUHUNTERMOLDCOOL.

V. Testing/Sampling:

The facility is required to perform non-certified visible emissions observations on a weekly basis when the emission unit is operating and conduct Method 9 readings if any visible emissions are observed. Records of visible emissions readings are maintained and indicate that no visible emissions were observed. I observed no visible emissions during the inspection.

VI. Monitoring/Recordkeeping:

Records of visible emissions readings are maintained and indicate that no visible emissions were observed. I observed no visible emissions during the inspection.

VII. Reporting:

Semi-annual deviation reports and annual certifications of compliance were previously reviewed and documented. No deviations were reported for EUHUNTERMOLDCOOL during the reporting period.

VIII. Stack/Vent Restrictions:

Stack parameters at the facility have not been modified and appear correct.

IX. Other Requirements:

There are no other requirements for EUHUNTERMOLDCOOL.

EUEASTCOREOVEN: East core oven and associated equipment. No pollution control is associated with this emission unit.

I. Emission Limits:

The ROP states that there shall be no visible emissions from the core oven. At the time of the inspection, I observed no visible emissions from the oven stack.

II. Material Limits:

There are no material limits associated with EUEASTCOREOVEN.

III. Process/Operational Restrictions:

There are no operational parameters associated with EUEASTCOREOVEN.

IV. Design/Equipment Parameters:

There are no design limits associated with EUEASTCOREOVEN.

V. Testing/Sampling:

The facility is required to perform non-certified visible emissions observations on a weekly basis when the emission unit is operating. Records of visible emissions readings are maintained and indicate that no visible emissions were observed. I observed no visible emissions during the inspection.

VI. Monitoring/Recordkeeping:

There are no monitoring requirements for EUEASTCOREOVEN.

VII. Reporting:

Semi-annual deviation reports and annual certifications of compliance were previously reviewed and documented. No deviations were reported for EUEASTCOREOVEN from April 2015 through April 2016.

VIII. Stack/Vent Restrictions:

Stack parameters at the facility have not been modified and appear correct.

IX. Other Requirements:

There are no other requirements for EUEASTCOREOVEN.

EUDISAEWETDC: Disamatic line shakeout and return mold sand system operations controlled by the east wet dust collector.

I. Emission Limits:

The ROP emission limits for PM-10 are 0.10 pound per 1,000 pounds of exhaust gases, calculated on a dry gas basis and 64.8 tpy. Demonstration of compliance is through stack testing and non-certified visible emissions readings. The facility performed stack testing June 16 – 18, 2015, which demonstrated PM-10 emissions were 0.0019 pounds per 1000 pounds of exhaust gases.

The East Wet Dust Collector controls emissions from DISA line cooling, most of the shakeout, and sand reclaim. Opacity from the DISA line is limited to 5% during normal operation and 20% during cleaning of the dust collector. This is demonstrated through weekly non-certified VE's. Records of these are being kept and are attached.

II. Material Limits:

There are no material limits associated with EUDISAEWETDC.

III. Process/Operational Restrictions:

The wet collector was in operation at the time of the inspection with a flow rate of 181 gallons per minute (gpm). The MAP specifies a normal operating range of 100 – 300 gpm and the CAM Plan requires 150 – 275 gpm. Operation of EUDISAEWETDC is also limited to 6,000 hours per year. The attached records indicate a 12-month rolling average of 4,182 hours.

IV. Design/Equipment Parameters:

A device to measure flow through the collector was installed and was operating properly as demonstrated by compliant flow rate and no visible emissions present.

V. Testing/Sampling:

The facility performed stack testing June 16 – 18, 2015, which demonstrated PM-10 emissions were 0.0019 pounds per 1000 pounds exhaust gases. The facility is also required to perform non-certified visible emissions observations on a weekly basis when EUDISAEWETDC is operating. Records of visible emissions readings are maintained and indicate that no visible emissions were observed. I observed no visible emissions during the inspection.

VI. Monitoring/Recordkeeping:

The facility is required to continuously monitor and record the liquid flow rate once per day through the collector. Inspection of the wet collector concluded that the monitor was installed and operating and records indicate that the flow rate is recorded. Flow rate through this collector averages around 166 gpm. Based on the records reviewed, no malfunctions, excursions or exceedances of the monitoring data were documented. The records are attached.

VII. Reporting:

Semi-annual deviation reports and annual certifications of compliance were previously reviewed and documented. Reporting associated with CAM is being performed properly and was previously reviewed and documented. No monitor

downtime, excursions or exceedances were reported to the DEQ within the past year of this inspection report. Test protocols were submitted to the DEQ within required timeframes. Mr. Ellis included the late reporting as a deviation on his semi-annual and annual report.

VIII. Stack/Vent Restrictions:

Stack parameters at the facility have not been modified and appear correct.

IX. Other Requirements:

There has been no need to modify the existing CAM plan.

FGDISALINE: This Flexible Group includes the: Hunter line mold cooling, shakeout, return mold sand system, and sandmulling (associated with EUHUNTERDUSTAR); Disamatic line pouring, mold cooling, and sand mulling operations (associated with EUDISADUSTAR); and sample shot blast unit (associated with EUOTHERDUSTAR). This flexible group is controlled by the Duster Baghouse.

I. Emission Limits:

The ROP emission limits for PM-10 are 0.0205 pound per 1,000 pounds of exhaust gases, calculated on a dry gas basis and 7.5 tpy for EUDISADUSTAR, 6.5 tons of PM-10 per year for EUHUNTERDUSTAR, and 3.6 tons of PM-10 per year for EUOTHERDUSTAR. The emission limits for VOCs are 14.0 pounds per hour and 42 tpy for EUDISADUSTAR. The emission limits for Formaldehyde were 2.0 milligrams per cubic meter for EUDISADUSTAR. Demonstration of compliance is through stack testing, through calculations using emission factors derived from stack testing, and via non-certified visible emissions readings. The facility performed stack testing June 16 – 18, 2015, stack test results and calculations using emission limits are in the table below.

Pollutant	Equipment	Limit	Highest Reported Record
PM-10	FGDISALINE	0.0205 pounds per 1,000 pounds of exhaust gases on a dry gas basis	0.0066 pounds per 1,000 pounds of exhaust gases on a dry gas basis
PM-10	EUHUNTERDUSTAR	6.5 tons per year	2.3 tons per year
PM-10	EUDISADUSTAR	7.5 tons per year	2.3 tons per year
PM-10	EUOTHERDUSTAR	3.6 tons per year	2.3 tons per year
VOC	EUDISADUSTAR	14.0 pounds per hour	3.87 pounds per hour
VOC	EUDISADUSTAR	42.0 tons per year	23.2 tons per year
Formaldehyde	EUDISADUSTAR	2.0 milligrams per cubic meter, corrected to 70°F and 29.92 inches Hg	Non-detect

The Duster Baghouse controls emissions from FGDISALINE. Opacity from the Duster Baghouse is limited to 5% during normal operation. This is demonstrated through weekly non-certified VE's. Records of these are being kept and are attached.

II. Material Limits:

There are no material limits associated with FGDISALINE.

III. Process/Operational Restrictions:

The Duster Baghouse was in operation at the time of the inspection with a differential pressure of 4 inches wc. The MAP specifies a normal operating range of 0.2 to 7.0 inches wc and the CAM Plan indicates proper function of the baghouse between 1.0 inches to 6.0 inches wc.

IV. Design/Equipment Parameters:

A device to measure the differential pressure across the baghouse was installed and was operating properly as demonstrated by compliant differential pressure readings and no visible emissions present.

V. Testing/Sampling:

The facility performed stack testing June 16 – 18, 2015, which demonstrated PM-10 emissions were 0.0066 pounds per 1000 pounds exhaust gases. The facility is also required to perform non-certified visible emissions observations on a weekly basis when FGDISALINE is operating. Records of visible emissions readings are maintained and indicate that no visible emissions were observed. I observed no visible emissions during the inspection.

VI. Monitoring/Recordkeeping:

The facility is required to continuously monitor and record the differential pressure once per day across the baghouse. Inspection of the Duster baghouse concluded that the gauge was installed and operating and records indicate that the

differential pressure is recorded. Based on the records reviewed, no malfunctions, excursions or exceedances of the monitoring data were documented.

Records associated with PM-10, VOC and formaldehyde emission calculations are maintained and demonstrate compliance with the emission limits. The records are attached.

VII. Reporting:

Semi-annual deviation reports and annual certifications of compliance were previously reviewed and documented. Reporting associated with CAM is being performed properly and was previously reviewed and documented. No monitor downtime, excursions or exceedances were reported to the DEQ within the past year of this inspection report. Test protocols were submitted to the DEQ within required timeframes. Mr. Ellis, notified the DEQ indicating that he forgot to submit the completed stack test report within the appropriate timeframe, and mailed it to the DEQ right away. Mr. Ellis included the late reporting as a deviation on his semi-annual and annual report.

VIII. Stack/Vent Restrictions:

Stack parameters at the facility have not been modified and appear correct.

IX. Other Requirements:

There has been no need to modify the existing CAM plan.

FGCLEAN&FINISH: This Flexible Group includes Shot blast machine used to clean castings prior to finishing (associated with EUCLEANING) and casting finishing process using grinding wheels (associated with EUFINISH). This Flexible Group is controlled by the AAF baghouse.

I. Emission Limits:

PM-10 emissions are limited to 0.10 pounds per 1,000 pounds of exhaust gases, calculated on a dry gas basis. Compliance with this emission limit is ensured by proper installation, operation and maintenance of the AAF baghouse.

II. Material Limits:

There are no material limits associated with FGCLEAN&FINISH.

III. Process/Operational Restrictions:

The ROP requires that the baghouse be installed and operating properly and that the differential pressure across the baghouse is within the normal operating range. At the time of the inspection, the differential pressure of the AAF baghouse was 3.2 inches wc, which is within the approved range specified in the MAP of 0.2 to 7.0 inches of water and 1 to 6 inches in the CAM plan.

IV. Design/Equipment Parameters:

A device to measure pressure drop was installed and appeared to be operating properly.

V. Testing/Sampling:

The facility is required to perform non-certified visible emissions observations on a weekly basis when FGCLEAN&FINISH is operating and conduct Method 9 readings if visible emissions are detected. Records of visible emissions readings are maintained and indicate that no visible emissions were observed. I observed no visible emissions during the inspection.

VI. Monitoring/Recordkeeping:

The differential pressure gauge was installed and operating at the time of the inspection. Records reviewed demonstrate that the differential pressure is recorded at least once per day as required by the ROP. The pressure drop averages 3.3 - 4.8 inches wc. At the time of the inspection the differential pressure was 3.2 inches wc.

VII. Reporting:

Semi-annual deviation reports and annual certifications of compliance were previously reviewed and documented. Reporting associated with CAM is being performed properly and was previously reviewed and documented. No monitor downtime, excursions or exceedances were reported to the DEQ within the past year of this inspection report. Test protocols and completed test reports were submitted to the DEQ within required timeframes.

VIII. Stack/Vent Restrictions:

There are no stack/vent restrictions associated with FGCLEAN&FINISH.

IX. Other Requirements:

There has been no need to modify the existing CAM plan.

FGCOLDCLEANERS:

There are two small cold cleaners at the facility. These are owned and serviced by an outside contractor. At the time of the

inspection, these appeared in good repair and the covers on them were closed. Associated MSDS information for them was available.

FGRULE290:

This flexible group covers EURIAPPLICATION, EUPATTERNMAKING, EUSHELLCORE, EURULE290, EUCOREWASH. GLC maintains material VOC content and use records (example attached) that demonstrate emissions are below the Rule 290 thresholds.

NAME Trump Owens

DATE 5/26/16

SUPERVISOR 