

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

A393454889

FACILITY: Great Lakes Castings LLC		SRN / ID: A3934
LOCATION: 800 N. Washington Ave., LUDINGTON		DISTRICT: Cadillac
CITY: LUDINGTON		COUNTY: MASON
CONTACT: Gordon Anderson , EHS Supervisor		ACTIVITY DATE: 08/19/2020
STAFF: Caryn Owens	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled Inspection and Records Review		
RESOLVED COMPLAINTS:		

On Wednesday, August 19, 2020, Caryn Owens of the Department of Environment, Great Lakes, and Energy (EGLE) – Air Quality Division (AQD) conducted a scheduled and announced field inspection and records review 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 surrounding area to the facility consists of a school adjacent to the facility to the south, and some commercial facilities and residential housing north of the facility. The remainder of the surrounding area is residential or vacant land.

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 (NESHAPs): National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries in Area Sources 40 CFR Part 63, Subpart ZZZZZ; 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. GLC submitted a ROP Renewal Application to AQD and was received by the Cadillac District Office on March 10, 2020.

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. It appears performance testing is necessary for EUCUPOLA, EUHUNTERPOURING, EUHUNTERSAND, EUDISAWETDC, and FGDISALINE to be completed by the end of year 2020. Specific permit conditions that were reviewed are discussed below.

On-site Inspection:

At the time of the inspection, I met with Mr. Gordon Anderson, the EHS Supervisor, who escorted me throughout the facility. When I first entered, I signed in and filled out a COVID -19 screening questionnaire. My temperature was taken and written by signature on the sign in sheet. I had general personal protection equipment (PPE) on, which included hard hat, safety glasses, hearing protection, steel toe shoes, a flame-resistant (FR) jacket, and a face mask.

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). During the field inspection the weather conditions were clear, with calm winds from the northeast about 0-5 miles per hour, and approximately 75 degrees Fahrenheit. My observations are discussed in more detail below.

During the inspection I observed the raw data from the monitoring systems for the cupola, and the pressure drops of each baghouse. There was an area of the foundry that is not accessible for inspection unless a N-95 respirator mask is used, this is the silica area and there is a wet scrubber and baghouse located here where I could see into the area, but I could not get close enough to the baghouse and scrubber to read the pressure drop and flow rate, so Mr. Anderson read the pressure and flow rate for me, since I did not have access to the required mask. The data recorded from the Cupola, baghouses/scrubbers, and pH monitor is addressed below in each section. According to Mr. Anderson, they are currently streamlining a bonding process, so there was extra storage in the northeastern portion of the plant. Additionally, Mr. Anderson indicated that they have purchased a new diesel engine, but it hasn't been connected to the facility. I mentioned that the ROP Renewal Application should be updated to include this engine.

The facility is claiming the following exemptions at the facility:

- Three metal natural gas-fired heat ovens with less than 10,000,000 Btu/hr input meets exemption Rule 336.1282(2)(b)(i).
- One 1,000 gallon propane storage tank meets exemption 336.1284(2)(b).
- Gas fired air make-up and Heating, Ventilation, and Air Conditioning (HVAC) Units with less than 10,000,000 heat input meets exemption Rule 336.1282(2)(b)(i).
- An existing Spark Ignition emergency generator engine with less than 500 horsepower meets exemption 336.1285(2)(g), this emission unit is covered in the ROP.
- Two small cold cleaners that meet exemption Rules 336.1281(h) and 336.1285(r)(iv), but these exemptions have reporting requirements and contains a small paragraph discussed below.
- A Rust Inhibitor application system, the pattern making process, the shell core machines, and core wash area meet exemption Rule 336.1290, but this exemption has recordkeeping requirements, and is discussed in a short paragraph below.

Source Wide Conditions:

I. Emission Limits:

HAPS 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 HAPS 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 3.19 tons per 12-month rolling time period. Total HAPS for the facility total 13.3 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 completed June 30, 2020 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 received by AQD for the period January 1, 2020 through June 30, 2020. 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, and was performed in June 30, 2020, which demonstrated compliance.

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 Area Source Iron and Steel Foundry Area Source MACT (40 CFR Part 63, Subpart ZZZZZ).

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. These plans have been recently updated and submitted with the ROP Renewal. AQD reviewed and approved the plans May

12, 2020.

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 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)	26.0 tpy
PM	1.4 pounds/ Ton of metal charged	0.931 pounds/ Ton of metal charged
PM	28 pounds per hour	13.43 pounds per hour
PM	0.25 pounds per 1,000 pounds of exhaust gases, calculated on a dry gas basis	0.179 pounds per 1,000 pounds of exhaust gases, calculated on a dry gas basis
PM-10	39.2 tpy	20.45 tpy
PM-10	1.08 pounds/ Ton of metal charged	0.986 pounds/ Ton of metal charged
PM-10	21.6 pounds per hour	14.22 pounds per hour
Sulfur Dioxide (SO ₂)	54.4 tpy	0.35 tpy
SO ₂	1.5 pounds/ Ton of metal charged	0.0133 pounds/ Ton of metal charged
SO ₂	30.0 pounds per hour	0.191 pounds per hour
Carbon Monoxide (CO)	408.0 tpy	167.79 tpy
CO	11.25 pounds/ Ton of metal charged	6.31 pounds/ Ton of metal charged
CO	225 pounds per hour	92.32 pounds per hour
Volatile Organic Compounds (VOCs)	13.6 tpy	0.59 tpy
VOC	0.42 pounds/ Ton of metal charged	0.022 pounds/ Ton of metal charged
VOC	8.4 pounds per hour	0.32 pounds per hour
Lead (Pb)	0.76 tpy	0.07 tpy
Pb	0.02 pounds/ Ton of metal charged	0.0018 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	0.807 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. Stack testing was completed November 9 and 10, 2016 for majority of the above pollutant emissions. Lead, arsenic, and manganese emissions were determined during the November 2015 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. Based on the records reviewed, the most recent coke shipments were in April, June, and July of 2020. Based on the results of the coke shipments, provided by GLC, the sulfur content was between 0.66 and 0.7%, which demonstrates compliance with the limit.

The facility is restricted to melting no more than 20 tons of metal per hour and 6,050 tons per month. Records maintained by GLC indicate that the highest melt rate observed was 19.27 tons per hour and 4,483.88 tons per month between August 1, 2019 through July 31, 2020, which demonstrates compliance with the limit.

III. Process/Operational Restrictions:

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.

Parameter	Permit Limit	Actual (on Blast)
Venturi Delta P	> 33 inches wc	49.6" wc
Venturi Flow	> 200 gallons per minute (gpm)	270.0 gpm
Demister Delta P	< 1.0 inches wc	0.16" wc
Demister Flow	> 40 gpm	60.1 gpm
Quencher Flow	> 200 gpm	212.7 gpm
Cupola Upper Stack Temp	> 1150 degrees F	1447 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.

Based on the records reviewed, the venturi scrubber is serviced 1 to 2 times a month. The demister and quencher are serviced 3 to 5 times a month.

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 9 and 10, 2016 and demonstrated compliance with the associated emission limits. Lead, arsenic, and manganese emissions were determined during the November 2015 stack testing.

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.

Additionally, the facility continuously monitors the flow rate of the quencher, the flow rate of the demister, and the upper stack temperature. They use the differential pressure and liquid flow rate data of the venturi scrubber and demister as well as the liquid flow rate of the quencher to determine continuous and proper operation of EUCUPOLA.

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 operating 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 performed properly and was previously reviewed and documented. There was no CAM monitor downtime or excursions/exceedances were reported within semi-annual and annual reports. Additionally, reporting for 40 CFR Part 63, Subpart ZZZZZ was in compliance.

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. 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 0.59 tpy.

The N, n-dimethylisopropanolamine (DMPA) limit is 0.50 tpy. The attached records indicate 12-month rolling DMPA 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. Based on the records reviewed, the highest amount of resin used in September 2019, January 2020 and June 2020 was 9,600 pounds of resin, which is below the permitted limit.

III. Process/Operational Restrictions:

EUCOLDBOXCORE was operating during the inspection. The scrubber was operating with a pH of the scrubber at 0.80. According to Mr. Anderson, when the pH is around 4, then they will replace the acid in the scrubber. The permit requires the scrubber liquid pH to be maintained below 4.5.

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 DMPA emissions from the emission unit, and the presence of any visible emissions as required by the permit.

The facility records the differential pressure on a daily basis when the scrubber is operating. The scrubber differential pressure was 4.6 inches water column (wc). The visible inspections of the packed bed scrubber are required on a quarterly basis but happen more frequent then that.

VII. Reporting:

Semi-annual deviation reports and annual certifications of compliance were previously reviewed and documented. One deviation was reported for EUCOLDBOXCORE from the 2019 First semi-annual report and appropriate action was taken.

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 one to three of the five lines.

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. The highest Cupola melt rate was observed at 19.27 tons per hour between August 1, 2019 through July 31, 2020

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 complete stack testing every five years, as the date of this inspection report, AQD has not received a test protocol from GLC, but will observe whether a test protocol is received by the end of the 2020 year. 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 from August 1, 2019 through July 31, 2020. Test protocols were submitted to the AQD within required timeframes.

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 1.7 inches wc to 4.0 inches wc, and was observed at 2.7 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. As previously stated, stack testing was completed June 16 – 18, 2015, and testing demonstrated compliance with the PM emissions limit. The facility is required to complete stack testing every five years, as the date of this inspection report, AQD has not received a test protocol from GLC, but will observe whether a test protocol is received by the end of the 2020 year.

VI. Monitoring/Recordkeeping:

The facility is required to continuously monitor the differential pressure across the baghouse and record the parameter once per day during operation. At the time of the inspection, the monitor was operating, and the differential pressure was 2.7 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 AQD within the past year of this inspection report. Test protocols were submitted to the AQD within required timeframes.

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 from August 1, 2019 through July 31, 2020.

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 August 1, 2019 through July 31, 2020.

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 0.019 pounds per 1000 pounds of exhaust gases, and records showed PM-10 was at 17.2 tons per year and within permitted limits.

The East Wet Dust Collector controls emissions from DISA line cooling, most of the shakeout, and sand reclaim. Opacity from the East Wet Dust Collector 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 dust collector was in operation at the time of the inspection with a flow rate of 148 gallons per minute (gpm). The MAP specifies a normal operating range of 100 – 300 gpm and the CAM Plan requires 150 – 275 gpm. According to Mr. Anderson, he was going to look into the flow rate since he likes to see the flow rate between 150 and 170 gpm, and it was running a little low during the inspection, which is required under CAM guidance. According to the daily records reviewed for the months of September 2019, January 2020, and June 2020, the flow rates ranged between 157-201 gallons per minute.

Operation of the emission unit is also limited to 6,000 hours per year, and based on the records reviewed, the hours operated until the end of June 2020 was 2,213 hours, and operates around 350 to 450 hours per month.

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 0.019 pounds per 1000 pounds exhaust gases. As previously stated, the facility is required to complete stack testing every five years, as of the date of this inspection report, AQD has not received a test protocol from GLC, but will observe whether a test protocol is received by the end of the 2020 year.

The facility is also 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:

The facility is required to continuously monitor and record the liquid flow rate once per day through the collector during operation. Inspection of EUDISAEWETDC, the monitor was installed and operating, and records indicated that the flow rate was recorded on a daily basis. As previously stated the flow rate through this collector is between 157 to 201 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 AQD within the past year of this inspection report. Test protocols were submitted to the AQD within required timeframes.

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.

EUEMER-GEN: Existing Spark ignition (SI) emergency reciprocating internal combustion engine (RICE) less than 500 HP at an area source for HAPs, as identified within 40 CFR, Part 63, Subpart ZZZZ, 63.6590(a)(1). EUEMER-GEN is not connected to the public electrical grid and is only used to provide a backup to supply power internally. At the time when this Emission Unit was permitted, the facility supplied the Conditions in accordance with 40 CFR, Part 63, Subpart ZZZZ (RICE MACT) since AQD did not have delegation over the RICE MACT. Therefore, AQD did not review this portion of the ROP, but will be reviewed in the future once the ROP Renewal for GLC has been completed.

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 EUDISALINE, 6.5 tons of PM-10 per year for EUDISASTAR, and 3.6 tons of PM-10 per year for EUOTHERSTAR. The emission limits for VOCs are 14.0 pounds per hour and 42 tpy for EUDISASTAR. The emission limits for Formaldehyde were 2.0 milligrams per cubic meter. 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, which demonstrated PM-10 emissions were 0.0066 pounds per 1000 pounds of exhaust gases. The stack testing had no detection of formaldehyde emissions, and demonstrated the VOC emissions were 3.87 pounds per hour. Based on the records reviewed, emissions for FGDISALINE was 1.9 tons of PM-10 per year and 19.0 tons of VOC per year.

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 Dostar Baghouse was in operation at the time of the inspection with a differential pressure of 2.5 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. Based on the daily records reviewed for the months of September 2019, January 2020, and June 2020 of the Dostar Baghouse ranged between 2.7 to 5.7 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. As previously stated, the facility is required to complete stack testing every five years. As of the date of this inspection report, AQD has not received a test protocol from GLC, but will observe whether a test protocol is received by the end of the 2020 year.

The facility is also 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:

The facility is required to continuously monitor and record the differential pressure once per day across the baghouse. Inspection of the emission unit 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 AQD within the past year of this inspection report. Test protocols were submitted to the AQD within required timeframes.

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 4.0 inches wc, which is within the approved range specified in the MAP of 0.2 to 7.0 inches wc, and 1 to 6 inches wc as specified 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 the emission unit 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. Daily records reviewed for the months of September 2019, January 2020, and June 2020, demonstrate that the differential pressure is recorded at least once per day during operation as required by the ROP. Based on the records reviewed, the pressure drop ranges between 2.5 to 4.8 inches wc. At the time of the inspection the differential pressure was 4.0 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. One CAM excursion was recorded in the October 4, 2019 semi-annual report where the pressure drop was low for 2 hours, and corrective actions were taken to address the low pressure drop. No monitor downtime was reported to the AQD in the semi-annual and annual reports. Test protocols and completed test reports were submitted to the AQD 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:

This flexible group includes any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278 and Rule 281(2)(h) or Rule 285(2)(r)(iv), existing cold cleaners that were placed into operation prior to July 1, 1979, and new cold cleaners that were placed into operation on or after July 1, 1979. There are two small cold cleaners at the facility, EUCOLDCLEANERM and EUCOLDCLEANERF. These are maintained 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.

I. Emission Limits:

Emission Limits are not applicable for FGCOLDCLEANERS.

II. Material Limits:

Cleaning Solvents containing more than 5 percent by weight of the following halogenated compounds: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chloroform, or any combination thereof shall not be used. A subcontractor services the cold cleaners and replaces any solution that is necessary.

III. Process/Operational Restrictions:

The facilities parts cleaner appeared to be well maintained. According to Mr. Anderson, the parts are dried appropriately, and as previously stated, routine maintenance is completed by an outside contract.

IV. Design/Equipment Parameters:

During the inspection, the cold cleaners appeared to be in compliance with the listed design and equipment parameters. The solvents are not agitated or heated to clean the parts. AQD observed the lids closed and proper instructions on the part cleaners.

V. Testing/Sampling:

Testing/Sampling requirements are not applicable for FGCOLDCLEANERS.

VI. Monitoring/Recordkeeping:

Records are maintained on file on the side of the cold cleaner that gave proper use instructions of the cold cleaner, and the file listed: the serial number; the date the unit was installed; the Reid vapor pressure of each solvent used. Additionally, monthly records showed the amount of solvent evaporated into the atmosphere, and what was replaced back into the container.

VII. Reporting:

Reporting of any semi-annual reports, and annual compliance reports for ROP certification were submitted to AQD in a timely manner. No deviations were reported for FGCOLDCLEANERS.

VIII. Stack/Vent Restrictions:

Stack/Vent Restrictions requirements are not applicable for FGCOLDCLEANERS.

IX. Other Requirements:

Other Requirements are not applicable for FGCOLDCLEANERS.

FGRULE290:

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



10/2/20

