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

B199161830			
FACILITY: GM LLC Saginaw Metal Casting Operations		SRN / ID: B1991	
LOCATION: 1629 N. WASHINGTON, SAGINAW		DISTRICT: Bay City	
CITY: SAGINAW		COUNTY: SAGINAW	
CONTACT: Alex Thibeault ,		ACTIVITY DATE: 01/27/2022	
STAFF: Gina McCann COMPLIANCE STATUS: Non Compliance		SOURCE CLASS: MAJOR	
SUBJECT: PCE consisting of emission units that were not inspected on 10/26/2021 and 10/18/2021. FCE will include inspections on			
1/27/2022, 10/26/2021, and 10/18/2021.			
RESOLVED COMPLAINTS:			

I (glm) performed an announced inspection of the plant. The Saginaw plant had just transitioned to a new Environmental Professional and both Ken Fryer, the pervious EP, and Alex Thibeault, the current EP were with me during the inspection. Jeff Hummel, Project Engineer was also on the inspection. It seems Jeff's role is coordinating NSR and ROP permitting efforts for the Saginaw plant as well as other GM facilities.

Prior to the inspection I sent a records request. Attached is the request sent on January 24, 2022. On January 27, 2022, I toured the facility and viewed process and control device operations.

General Motors, LLC – Saginaw Metal Casting (SMCO), is located at 1629 North Washington, Saginaw, Michigan. The facility operates an aluminum casting foundry for the production of engine blocks and heads for the automotive industry. The facility is permitted for a green sand aluminum line, precision sand aluminum line and semi-permanent molding aluminum lines. The site has pre-machining, sand handling and casting, aluminum melting, pouring, cooling, and cast finishing. There are also several backup generators utilized in emergency situations.

GM SMCO was issued MI-ROP-B1991-2021 on August 17, 2021, which incorporated PTI 36-012J. Since the issuance of this ROP the facility had several PTI revisions and are currently awaiting issuance of PTI 36-12M. This inspection covered conditions in MI-ROP-B1991-2021a.

On November 24, 2021, the Bay City District office pursued escalated enforcement against GM SMCO based upon violations of Part 55, Air Pollution Control of the Natural Resources and Environmental Protection Act (NREPA), Air Pollution Control Rules R 336.1702, as well as conditions of MI-ROP-B1991-2021, EU-PSANDSCCSH, Special Condition I.4. issued to GM SMCO.

Stack test was performed on September 1-2, 2021 on EU-PSANDSCCSH. Stack test results indicate VOC emissions for EU-PSANDSCCSH were 6.46 pounds per hour (lb/hr) and in excess of the 3.99 lb/hr VOC emissions limit contained in special condition I.4.

On October 14, 2021, GM SMCO, was issued a new permit to install in an effort to resolve the VOC exceedance. PTI 36-12L allowed for emissions from the Didion Drum and conveyor system described in EU-PSANDSCCSH, to be routed to the regenerative thermal oxidizer (RTO) associated with EU-PSANDCASTLINE. These emissions were routed to the RTO and emission unit EU-PSANDSCCSH was redefined as EU-PSANDSH.

After the emissions were rerouted, GM SMCO realized the expected draw was not able to be achieved. GM SMCO has subsequently began working on an additional permit revision (36-12M) to route emissions back to the original path under EU-PSANDSCCSH and plans to request an increase in allowed VOC emissions.

Following the enforcement notice, GM SMCO tested EU-PSANDPROCESS (baghouses Z02-BH1 and Z02-BH2) and EU-SPMPROCESSAND (baghouse Z02-BH-4) for filterable particulate matter (PM), visible emissions (VE), and volatile organic compounds (VOC). PM emissions for EU-SPMPROCESSAND were 5.05 pounds per hour (lb/hr) with a PM limit 0.19 lb/hr. A violation notice (VN) was sent for the exceedance on January 6, 2022. The VN response indicated investigation into the baghouse showed 12 of 400+ bags were damaged and some of the compressed air pulse nozzles were also damaged. All repairs were made and retesting of EU-SPMPROCESSAND is rescheduled for February 23, 2022.

Following this inspection, we had an initial enforcement meeting with GM SMCO to go over the alleged violations and start conversations to resolving the violations. The facility is considered in non-compliance until we can enter into an administrative consent order.

### **EU-PSANDALUMINUM**

This emission unit is a supply of molten aluminum. It consists of two natural gas fired aluminum melting/holding furnace for aluminum/alloy production using "clean charge" with flux addition and drossing and degassing well (argon). For each furnace, reverberatory design melt heat input rate 40 MMBTU/hr for 6 tons/hr melt rate and 20 MMBTU/hr heat input in holding operational mode. Electrically heated launder system vented in-plant. Electrically heated furnace with pump well where metal is pumped to the molds, with degassing well (argon) vented in-plant. No pollution control equipment is associated with this emission unit.

Special condition (SC) III.1. restricts operation of the furnaces in EU-PSANDALUMINUM as a melting furnace for more than a combined total of 5,300 hours per 12-month rolling time period as determined at the end of each calendar month. SC VI.1.a. is the associated monitoring and recordkeeping requirement to maintain hours of operation of each furnace and the sum of the furnaces as a melting furnace. The unit operated for 4,468 hours as a melting furnace for the 12-month rolling time period ending November 2021.

NOx emissions are limited to 13.78 ton per year (tpy) based on a 12-month rolling time period as determined at the end of each calendar month. SC VI.1.c. is the associated monitoring and recordkeeping requirement that requires NOx emissions to be calculated monthly and for a 12-month rolling time period as determined at the end of each calendar month. NOx emissions were 2.06 tpy for the 12-month rolling time period ending November 2021.

Material usage is limited to 6 tons per hour for metal feed/charge rate based on a monthly average. Tons of metal fed/charged per hour ranged from 1.21 tph in September 2021 to 1.83 tph in January 2021.

Flux usage rate (total injection flux and broadcast flux) is limited to 11,316 pounds per year (lbs/yr) based on a 12-month rolling time period based at the end of each

calendar month. For the 12-month rolling time period ending November 2021 the flux usage rate was 2,057.5 lbs/yr.

A monthly and 12-month rolling time period, natural gas usage rate is required per special condition VI.1.b. The 12-month rolling time period ending November 2021 was 82.72 MMCF.

Special condition VI.1.d. requires average, monthly, PM, PM10 and PM2.5 emissions recorded in pph. Records are kept in tons per month and based off stack test data. For all species of PM emissions were 0.12 pph.

### **EU-PSANDPROCESS**

This is a sand processing unit, which consists of a 220 ton sand storage silo with bin vent filter that receives new sand from a blower truck. The unit also consists of two, 30 ton, pre-reclaim sand silos, which receive process sand recovered in the facility. Sand from both silos is transported to two natural gas fired fluidized bed sand reclaim systems for cleaning and preparation of sand. GM SMCO staff refer to this unit as the thermal sand reclaim.

This emission unit was inspected at the time of stack testing. A records review was also performed at that time. The report associated with the partial compliance evaluation (PCE), performed on October 26, 2021, can be found under "other" compliance activity in the AQD database. This PCE will be considered part of the full compliance evaluation (FCE) and reported out when the FCE is finished.

### **PSANDCOREROOM**

Core Room Processes include Sand Handling and Mixing which is sand from the prepared sand silo is pneumatically transported to the six core machine sand hoppers. The individual sand hoppers feed the sand mixers where polyurethane resin is mixed with the sand.

Core Making includes six cold box core machines. Dimethyl isopropylamine (DMIPA) is used to cure the mixed sand, in the core making machines.

Core Box Tooling Maintenance includes the use of a core release chemical, metal cleaner, a high pressure water wash, and core box washing station.

Cylinder Liner Cleaning and Heating is the cleaning by shot blast; induction heating used to preheat cylinder liners prior to contact with molten aluminum, vented inplant.

Final Mold Assembly is the physical assembly of the parts of the final mold/core package. The assembly process includes reusable chill plates. Emissions are negligible and vented in-plant.

This unit is subject to Compliance Assurance Monitoring (CAM) requirements, because it has a potential pre-control emissions of greater than the major source threshold levels for VOCs. The 25,000 scfm cyclone and packed tower acid scrubber are the CAM subject devices and they monitor liquid flow, pH and differential pressure. The facility measures pressure drop, scrubber flow, and pH and record every 15 minutes for an hourly average as an indicator of proper operation of the scrubber. The indicator range for pressure drop is 0.1 to 6 inches, pH is less than 4.5

and scrubber flow is greater than 190 gallons per minute (gpm). During the tour of the facility I viewed the flow at 223 gpm, pH at 3.25 and 3.02, and differential pressure at 4.4 "W.C. Collector Z03-CC-02 was operating at 1.44 "W.C. I also reviewed associated monitoring records for the months of January 2021, April 2021, September 2021 and December 2021. During times of operation the control devices were operating in a satisfactory manner.

SC II.1. restricts the amount of DMIPA used on a 12-month rollint time period as determined at the end of each calendar month 481 tpy. The facility used 16.84 tpy for the 12-month rolling time period ending November 2021.

VOCs are limited for each area in this process, based on a 12-month rolling time period as determined at the end of the month. The table below compares actual emissions with permit limits.

	Limit (tpy)	12-month rolling time period ending November 2021 (tpy)
Cold box core machines	22.00	7.60
Fugitive emissions from core handling	8.80	3.34
Cold box core machine cleaning	14.17	3.34
Core box cleaning	1.02	0.92

# EU-PSANDCASTLINE

This emission unit is the cast line processes and consists of activities such as pouring and cooling of castings in the molds, mold cooing, and chill plate cleaning. Shakeout, or separation of cooled castings from the molds is also part of this emission unit. The processed is heated by a 10 MMBtu/hr natural gas-fired duct burner.

Emissions are generated from pouring, cooling, and shakeout activities. Pouring and cooling emissions are controlled through a 30,000 scfm cartridge collector followed by a 60,000 scfm regenerative thermal oxidizer (RTO). Shakeout emissions are heated by the duct burner and controlled through a 30,000 scfm fabric filter collector then routed to the 60,000 scfm RTO it shares with the pouring and cooling activities.

Sand Core Cooling (SCC) – Emissions are controlled through the same 30,000 scfm fabric filter collector as Shakeout followed by a 60,000 scfm RTO.

The RTO is a CAM subject device for VOCs and both the cartridge collector and the fabric filter collector are CAM subject devices for particulate.

This emission unit was inspected at the time of stack testing. A records review was also performed at that time. The report associated with the PCE, performed on October 18, 2021, can be found under "other" compliance activity in the AQD database. This PCE will be considered part of the FCE and reported out when the FCE is finished.

### EU-PSANDSH

This emission unit consists of the scrap core sand handling equipment downstream of EU PSANDCASTLINE, EU PSANDCOREROOM and EU FINISH. It includes the Pre-Crusher, Didion Drum, Sand Transport Hoppers, and Pre-Reclaim Sand Silo. Most of the scrap core sand process in EU-PSANDSH comes from the shakeout system at the end of EU PSANDCASTLINE. The rest of the scrap core sand processed in EU-PSANDSH, coming from EU PSANDCOREROOM and EU FINISH, and are introduced through the Pre-Crusher. Scrap core sand is then broken down in the Didion Drum, before being conveyed to sand hoppers and pneumatically transferred to the Pre-Reclaim Sand Silo of EU PSANDPROCESS.

This emission unit is controlled by a 35,000 scfm fabric filter collector and is CAM subject for particulate.

The stack test performed on September 1-2, 2021 on EU-PSANDSCCSH. Stack test results indicate VOC emissions for EU-PSANDSCCSH were 6.46 pounds per hour (lb/hr) and in excess of the 3.99 lb/hr VOC emissions limit contained in special condition I.4. PTI 36-12L increased VOC emissions to 8.24 lb/hr.

This emission unit was inspected at the time of stack testing. A records review was also performed at that time. The report associated with the PCE, performed on October 18, 2021, can be found under "other" compliance activity in the AQD database. This PCE will be considered part of the FCE and reported out when the FCE is finished.

### <u>EU-FINISH</u>

This unit is utilized by both the precision sand (PS) and semi-permanent molding (SPM) operations. This process removes excess metal and residual sand from the casting. Emissions are controlled by cartridge collectors with air flow rates of 12,800 scfm total for the deflash, decore, and degate enclosures from PS and SPM molding operations. There is a 1,500 sfm unit for the shot blast cabinet associated with the PS finishing. The self-contained water blast cabinet associated with PS finishing uses a mist eliminator which is vented in-plant.

We viewed the monitoring parameters for this unit during the tour of the facility and the differential pressure for SV-Z03-CC-01 was 2.32 inches of water column ("W.C.)

and SV-Z05-CC-01 operated at 1.03 "W.C. The MAP defines proper operating values, for both units, between 0.1-10.0 "W.C. I reviewed differential pressure records for the months of January 2021, April 2021, September 2021 and December 2021. During times of operation the pressure differential was in the appropriate range.

The facility maintains monthly average records for PM, PM10 and PM2.5. I viewed records for the months of January, April, September, and December for both 2020 and 2021. PM emissions for deflash, decore, and degate were below permitted values for all species of PM.

Cartridge collectors were last inspected on December 3, 2021. The inspection appears to have consisted of a monthly mechanical and electrical inspection, which had no follow up work required.

### EU-SPMALUMINUM

This emission unit is a natural gas-fired stack melter aluminum melting/holding furnace for aluminum/alloy production using "clean charge" with flux addition, drossing, and degassing well (argon). The melt rate is 5.5 ton per hour (tph) and 4.25 MMBtu/hr heat input rate in holding operational mode. The electrically heated launder systems are vented in-plant as well as the four electric ladle furnaces with degassing (argon) capability and flux addition.

Emissions from the launder system, ladle furnaces and holding furnace are released to the internal plant environment. Prior to PTI 36-12I emissions were routed to a 33,000 scfm fabric filter collector. PTI 36-12I removed the requirements for the collector, because GM demonstrated, using stack test data, that this unit could meet PM limits prior to the collector.

SC I.6 restricts NOx emissions to 9.55 tpy based on a 12-month rolling time period as determined at the end of each calendar month. SC VI.1.d is the associated monitoring and recordkeeping requirement to maintain NOx emissions data on a monthly and 12-month rolling time period. NOx emissions for the 12-month rolling time period ending November 2021 was 3.19 tpy.

Tons of metal fed/charged is limited to 5.5 tph based on a monthly average. Charge rates ranged from 2.02 tph in December 2021 to 3.47 tph in January 2021. Total flux usage (total injection flux and broadcast flux) are limited to 7,332 pounds per 12-month rolling time period. Total flux usage for the 12-month rolling time period ending November 2021 was 1,078 lbs/yr. The facility is also restricted on the number of hours the stack melting/holding furnace can be operated as a melting furnace, to less than 6,032 hours per 12-month rolling time period. For the 12-month rolling time period ending November 2021 the facility operated the stack melter as a melting furnace for 5,236 hours. Natural gas usage was 49.39 MMCF for this same time period.

PM, PM10 and PM2.5 monthly average, emissions, are maintained and were below permitted values.

### EU-SPMPROCESSAND

The 120 ton sand storage silo with bin vent receives sand via blower truck and a 30ton pre-reclaim sand silo receives new process sand and sand recovered in the facility. Sand from both silos is transported to the natural gas fired fluidized bed sand reclaim process system for cleaning and preparation of sand. From there, sand is transferred to the prepared sand silo.

Top core, scrap cores, broken cores and process sand collected from EU-SPMCASTLINE and EU-SPMCASTLINE4 and scrap cores and process sand from EU-SPMCOREROOM are collected in a bin/hopper and taken to a sand load out station for reclaim or returned to the process by the receiving dump chute of EU-SPMPROCESSAND for transport by conveyor to the hopper/storage silo of EU-SPMPROCESSAND.

This emission unit was inspected at the time of stack testing. A records review was also performed at that time. The report associated with the PCE, performed on October 26, 2021, can be found under "other" compliance activity in the AQD database. This PCE will be considered part of the FCE and reported out when the FCE is finished.

During the records review for the January 27, 2022 inspection of the facility it was identified that GM SMCO was required to submit an updated MAP for EU-SPMPROCESSAND. SC VI.2 requires the plant to amend the MAP within 45 days after an event that identifies a situation the MAP fails to address or inadequately addresses an event. The updated MAP was sent February 15, 2022. The pressure differential operating range was not updated. Further conversations will be had to identify if the range should be updated.

## EU-SPMCOREROOM

The core room processes include sand handling and mixing via both conveyor and pneumatic systems. Sand and two-part epoxyacryclic resin mixing occurs. Prepared sand is transported to and received into the central sand hopper and mixer located above the core machines. The core is made using a sulfur dioxide co-reactant injection system which supplies mixed sulfur dioxide for the three cold box core machines. Core box tooling maintenance process is included in this unit and includes the use of a core release chemical, metal cleaner, a high-pressure water wash and core box washing station. The high-pressure water and core box washing station is also utilized by EU-PSANDCOREROOM. Scrap cores and process sand are placed in bins or hoppers and taken to a sand load out station for reclaim. Sand is added to the process by the receiving dump chute of EU-SPMPROCESSSAND. Fugitive emissions occur from storage of completed cores in a core buffer area that produces off-gassing emissions, which are released to the general ventilation system for the facility.

Emissions from the final sand transport, sand hopper, and mixer are controlled by a 5,000 scfm cartridge collector. Emissions from the core making machines are controlled by a cyclone and a packed tower caustic scrubber with a 20,000 scfm exhaust gas flow rate.

We viewed the caustic scrubber and cartridge collector during the facility tour. Control device operating parameters, at the time of the inspection, are listed in the table below. The scrubber has two pH probes installed as a redundancy.

EU/FG CONTROL ID

		Process/Operational Restrictions	OBSERVED VALUES
EU- SPMCOREROOM sand handling and mixing	Z-05-CC2	ΔP 0.1-10 "W.C.	2.15 " W.C.
EU- SPMCOREROOM core making processes ducted to acid scrubber	Z05-ISO-02	ΔΡ 0.1-12 "W.C.	2.39 "W.C
	Z05-ISO-02	> 390 gpm	397 gpm
	Z05-ISO-02	pH >7.5	11.06 and 10.94

SC I.10. restricts VOC emissions from the core box, core box machine cleaning, and core making areas of EU-SPMCOREROOM, based on a 12-month rolling time period determined at the end of each calendar month. VOC emissions and restrictions for the 12-month rolling time period ending November 2021 are listed in the table below.

Pollutant	Limit	Equipment	November 2021
			12-month rolling emissions
voc	3.72 tpy	Core Box of EU- SPMCOREROOM	1.56 tpy
voc	14.17 tpy	Core Box Core Machine cleaning (fugitives)	0.52 tpy
voc	4.96 tpy	Core Making (fugitives)	2.08 tpy

All species of PM have pound per hour emission limitations. PM, PM10 and PM2.5 emissions are monitored and recorded a monthly average recorded. Records were below permitted levels.

SC II.1. limits the amount of SO<sub>2</sub> catalyst to 307 tons SO<sub>2</sub> catalyst per year, based on a 12-month rolling time period as determined at the end of each calendar month. For the 12-month rolling time period ending November 2021 the plant used 162.7 tpy of SO<sub>2</sub> catalyst.

In addition to monitoring the various control parameters required by the MAP in SC VI.2 the plant is required to maintain a complete preventative maintenance plan. Monthly mechanical and electrical inspections were last performed 12/3/2021 and 12/10/2021.

# EU-SPMCASTLINE

This emission unit consists of three cast lines with a nominal maximum combined production rate of 106 castings per hour (2,460 castings per day) and a nominal maximum production rate of 53 castings per hour on any single casting line. Each line entails making a final mold, which includes mold and core assembly and mold heating with natural gas fired (16MMBtu/hr) burners/torches. Mold filling is conducted by gravity pour. The initial cooling and solidification of the molten metal occurs inside the mold. Extraction of the casting (including sand cores) from the steel mold is completed by the casting extraction unload robot. Top core and down sprue removal. Additional cooling and complete solidification occur in the casting solidification buffer area. Three identical modular units extended casting cooling in the cooling garage. During the tour of the facility, we viewed the cooling garages and discussed the cooling time was approximately 1.5-2 hours. Two identical modular units include deflas, decore and degate. Finishing operations include three removal of excess metal and sand from the casting (EU-FINISH). Metal removed from the casting is collected and transported to thermal sand pre-reclaim silos via the pneumatic transport system and the scrap remelt (runner, riser and gating) for SPM go into the stack melter.

Coating emissions are controlled by a 13,000 scfm cartridge collector. Emissions from each cast line in sections 1 and 2 are controlled by three, 60,000 scfm fabric filter collectors. Combined emissions from section 3 of both cast lines and precision sand finishing operations are routed to a 12,800 scfm cartridge collector (EU-FINISH). Decoating emissions are routed to a 7,500 scfm cartridge collector and then vented to the in-plant environment.

This unit is subject to CAM requirements, because each of the control devices have pre-controlled PM emissions greater than 100 tpy. The CAM plan monitoring requirements are for differential pressure on the (3) three, 60,000 scfm fabric filter collectors. The facility continuously monitors the pressure drop and during the walkthrough of the facility the differential pressures were as follows:

EU/FG	Control ID	Process/Operational Restrictions	Observed Values
	1		

	Z05-BH-01	ΔΡ 0.1-10 "W.C.	not operating
EU- SPMCASTLINE castlines 1,2,3	Z05-BH-02	ΔΡ 0.1-10 "W.C.	6.19 "W.C.
	Z05-BH-03	ΔP 0.1-10 "W.C.	1.43 "W.C.
EU- SMPCASTLINE - mold coating	Z05-CC-04	ΔΡ 0.1-10 "W.C.	3.83 "W.C.

NOx emissions are limited to 1.03 tpy, for offline mold, based on a 12-month rolling time period as determine at the end of each calendar month. For the 12-month rolling time period ending November 2021, NOx emissions were 0.33 tpy. Sections 1 & 2 and all three cast lines combined including mold preheating are limited to 1.41 tpy NOx emissions. For the 12-month rolling time period ending November 2021, NOx emissions were 0.13 tpy.

The facility maintains CO, PM, PM10 and PM2.5 monthly averages of emissions. I viewed monthly records for January, April, September, and December 2021. Emissions were below permitted values.

SC II.1. restricts the amount of aluminum poured to 19,412 tons per 12-monthr rolling time period as determined by the end of each calendar month. Aluminum poured for the 12-month rolling time period ending November 2021 was 8,105 tpy.

Hours of operation are restricted to 6,032 hours per 12-month rolling time period as determined at the end of each calendar month. For the 12-month rolling time period ending November 2021 EU-SPMCASTLINE operated for 2,683 hours.

Natural gas usage for this unit was a combined 6.3 MMCF for the 12-month rolling time period ending November 2021.

# EU-SPMCASTLINE4

This emission unit is one carousel cast line with a nominal maximum production rate of 50 molds per hour. The facility refers to this unit as the GAXX line. This line consists of three sections: Section #1: making a final mold; mold filling; initial cooling; extraction; and cut sprue. Making a final mold includes mold and core assembly and mold heating with natural gas fired 16 MMBtu/hr (total heat input rate) burners/torches. Mold filling is by gravity pour. Initial cooling and solidification of the molten metal occurs inside the mold. Extraction of the casting (including sand cores) from the steel mold is completed by the casting extraction unload robot. Core and down sprue removal. Additional cooling and complete solidification occur in the casting solidification buffer area. section #2: extended casting cooling in a cooling area and section #3: Deflash; Decore; Degate. Finishing operations include the removal of excess metal and sand from the casting. Process and scrap sand generated from EU SPMCASTLINE4 is collected and transported as described in EU SPMPROCESSAND.

Emissions are controlled for section1 and section2 by (2) two 30,000 scfm fabric filter collectors. Each filter is a CAM subject device for Particulate. I viewed differential pressure for each of these sections during the viewing of monitoring parameters. The east baghouse had a differential pressure of 0.20 "W.C. and the west was operating at 0.30 "W.C. Proper operating ranges are between 0.1 and 10 "W.C. I received printouts for January 2021, April 2021, September 2021, and December 2021. Differential pressures were within range for this time period and both baghouses tend to operate on the lower end of the range at approximately 0.2 "W.C.

The 30,000 scfm fabric filters as subject to CAM for PM. The combined, pre-control, PM emissions are 279 tpy, which are exhausted through one combined stack. Differential pressure is the CAM monitoring parameter with the satisfactory operating range the same as identified in the MAP. An excursion is defined as the presence of visible emissions which appears to be above 5% opacity if performed using USEPA Method 9. If the pressure differential is outside of the indicator range of 0.1 to 10.0 inches based on a 3-hour rolling average, then plant staff will do a visual observation of the stack. If visible emissions are identified above 5% then the plant follows MAP corrective action. The MAP requires visible emissions to be observed weekly, however the plant is performing these on a more frequent basis.

The MAP also states the facility will perform one of the following inspections: a semiannual check for sand on the clean side of the fabric filter collector and check bag integrity, or a continuous electronic leak detection monitoring. The maintenance records state that a baghouse filter inspection was performed in August 2021. However, the type of inspection is unclear. In an email dated, February 28, 2022 the EP said this is a semi-annual insepction since GM SMCO does not have continuous leak detection monitoring.

The facility maintains CO, PM, PM10 and PM2.5 monthly averages of emissions. I viewed monthly records for January, April, September, and December 2021. Emissions were below permitted values.

Tons of aluminum poured per year is limited to 12,288 tons per year based on a 12month rolling time period as determined at the end of each month. For the 12-month rolling time period ending November 2021 the unit poured 7,100 tons of aluminum. NOx emissions from this unit for the 12-month rolling time period ending November 2021 were 0.26 tpy, which was below the permitted level of 1.41 tpy.

### **EU-PREMACHINING**

This emission unit has multiple stations for machining to remove excess metal and for surface preparation, which includes the use of a coolant. The casting washing area uses water jets and a cleaning solution. The casting leak testing area uses compressed air.

Localize exhaust at each removal/prep machine uses a 2,000 scfm mist elimator, which is released to in-plant air. The localized exhaust at each casting washing machine uses a 2,000 scfm with mist eliminator, which is also released to general plant environment air.

No emission limits are required by the ROP for this unit. Fugitive VOC emissions on a monthly and 12-month rolling time period are required. I received emissions rates for the 12-month rolling time period ending November 2021. VOC emissions were 0.19 tpy.

### EU-MACHASM

This unit has multiple stations for machining to remove excess metal and for surface preparation (includes the use of a coolant); Casting washing uses water jets and a cleaning solution; Casting leak testing uses compressed air; dry machining and assembly operations.

Emissions are localized at each removal/preparation machine, utilizing a 2,000 scfm mist eliminator, released to general in-plant exhaust. Casting washing machine, utilizes a 2,000 cfm mist eliminator, released to general in-plant exhaust.

No emission limits are required by the ROP for this unit. Fugitive VOC emissions on a monthly and 12-month rolling time period are required. I received emissions rates for the 12-month rolling time period ending November 2021. VOC emissions were 0.045 tpy.

### EU-6ML-EF-02

Exhaust to Well #1&2 Furnace (Open ended duct at Launder, #1 & #2 furnace).

No pollution control devices are associated with this emission unit. Visible emissions from the #6 Mold Line are limited to less than 10 percent based on a 6-minute average. Weekly visual observations are only required when the unit is in operation. This unit did not operate in 2021.

PM-10 emissions are restricted to 13.5 tpy based on a 12-month rolling time period as determined at the end of each calendar month. PM-10 emissions for the 12-month rolling time period ending November 2021 were 0.00 tpy. This unit did not operate in 2021.

### FG-6ML-ALMELT

Aluminum Reverberatory Furnace #1 (West) and Aluminum Reverberatory Furnace #2 (East). No pollution control associated with this flexible group.

This unit has not operated since 2017.

#### FG-FACILITYPM

This flexible group covers the particulate emissions associated with the following units:

EU 6ML-EF-02. EU-6ML-GV-01, EU-6ML-GV-02, EU EU-PSANDALUMINUM, PSANDCOREROOM, PSANDPROCESS. EU EU PSANDCASTLINE. EU EU PSANDSCCSH, EU FINISH, EU SPMALUMINUM, SPMCASTLINE4. EU SPMPROCESSAND, EU SPMCOREROOM, EU SPMCASTLINE, EU PREMACHINING, EU-MACHASM.

PM, PM10 and PM2.5 emissions are limited to 128.99, 132.94 and 132.94 tpy, respectively, based on a 12-month rolling time period as determined at the end of each calendar month. PM, PM10 and PM2.5 emissions were 21.52 tpy, 20.04 tpy, and 19.24 tpy, respectively, for the 12-month rolling time period ending November 2021.

## **FG-EMERGENCYRICE**

The facility utilizes (3) three generators in emergency situations; EU-PATTERNSHOP, EU-FIREPUMP1, and EU-FIREPUMP2. These generators are subject to the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines (RICE), Title 40 of the Code of Federal Regulations (CFR), Part 63, Subpart ZZZZ (40 CFR 63.6580-6675). The engines are regulated as existing compression (CI) emergency RICE with a maximum site rate of less than 500 brake horsepower (HP) (EU-FIREPUMP1, EU-FIREPUMP2) and greater than 500 brake horsepower (HP) (EU-PATTERNSHOP) located at a Major Source of HAP emissions.

SC VI.2. requires the facility to maintain a record of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment. The units do not have air pollution control or monitoring equipment associated with them, therefore no records are required.

SC VI.3. requires the facility to maintain a record of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR 63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. The units do not have air pollution control or monitoring equipment associated with them, therefore no records are required.

SC VI.4. requires the facility top maintain records of the maintenance conducted on the stationary RICE in order to demonstrate that the stationary RICE was operated and maintained according to the facility maintenance plan. I reviewed maintenance records for the time period January 2021 through December 2021. The plant performed maintenance on each of the units in June and an oil analysis, which resulted in oil changes in July. SC VI.6. requires the plant to keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine if implementing an oil analysis program.

SC VI.5 requires the facility to maintain records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The records must document how many hours are spent for emergency operation; including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engines are used for demand response operation, the owner or operator must keep records of the notification of the emergency situation, and the time the engine was operated as part of demand response. For the time period January 2021 through December 2021, hours of operation for each of the engines were related to maintenance and testing. No hours of operation were related to a power outage or other non-emergency operations.

### **FG-EMERGENERATOR**

FG-EMERGENERATOR is comprised of EU-Z02EG001, EU-Z03EG001, EU-Z06EG001, EU-Z07EG001. These engines are subject to Standards of Performance for

Stationary Spark Ignition Internal Combustion Engines as found at 40 CFR Part 60, Subpart JJJJ.

NSPS JJJJ requires each engine to meet NOx, CO, and VOC emissions limitations. In lieu of annual testing the NSPS allows for a manufacturer's certification. SC VI.3c. requires the facility to maintain certification records. While on-site I viewed the certificate number for each of the engines. As part of the records request, GM SMCO sent the EPA certificate for each of the engines. Each engine is certified to meet the emission limits.

SC VI.2. requires the facility to monitor and record the total hours of operation and the hours of operation during non-emergencies for each engine covered by FG-EMERGENERATOR, on a monthly and calendar year basis, in a manner acceptable to the AQD District Supervisor. The permittee shall document how many hours are spent for emergency operation of FG-EMERGENERATOR, including what classified the operation as emergency and how many hours are spent for non-emergency operation. The generators were connected as plant emergency in December 2021 and each had a total of 2.5 hours of non-emergency operating time. These hours were for maintenance and testing.

SC VI.3.b. requires maintenance records to be maintained. The generators were connected as plant emergency in December 2021 and therefore had minimal maintenance records.

### **FGCOLDCLEANERS**

The cold cleaner uses and aqueous solution and therefore is not required to maintain the records associated with a true cold cleaner.

DATE 2/28/2022

SUPERVISOR\_ Chris Hare