STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF THE DIRECTOR

In the matter of administrative proceedings against **GENERAL MOTORS, LLC,** a corporation organized under the laws of the State of Delaware and doing business at 1629 North Washington, City of Saginaw, County of Saginaw, State of Michigan	AQD No. 53-2014 SRN: B1991

STIPULATION FOR ENTRY OF FINAL ORDER
BY CONSENT

This proceeding resulted from allegations by the Michigan Department of Environmental Quality (MDEQ) Air Quality Division (AQD) against General Motors LLC (Company), a company doing business at its Saginaw Metal Casting Operations located at 1629 North Washington, Saginaw, Michigan, with State Registration Number (SRN) B1991. The MDEQ alleges that the Company is in violation of Renewable Operating Permit (ROP) MI-ROP-B1991-2009a. Specifically, the MDEQ alleges that the Company exceeded the particulate matter less than 10 microns (PM-10) and Volatile Organic Compounds (VOC) limits from EU-6ML-GV-02, exceeded the PM-10 limits from EU-6ML-EF-04, and exceeded the PM-10 limits from EU-6ML-DC-67 as cited herein and in the Violation Notice dated January 23, 2014. The Company and MDEQ stipulate to the termination of this proceeding by entry of this Stipulation for Entry of a Final Order by Consent (Consent Order).

The Company and MDEQ stipulate as follows:

1. The Natural Resources and Environmental Protection Act, 1994 PA 451 (Act 451), MCL 324.101 *et seq.* is an act that controls pollution to protect the environment and natural resources in this State.

2. Article II, Pollution Control, Part 55 of Act 451 (Part 55), MCL 324.5501 *et seq.* provides for air pollution control regulations in this State.

3. The MDEQ was created as a principal department within the Executive Branch of the State of Michigan pursuant to Executive Order 2011-1 and has all statutory authority, powers, duties, functions and responsibilities to administer and enforce all provisions of Part 55.

4. The Director has delegated authority to the Chief of the AQD (AQD Chief) to enter into this Consent Order.

5. The termination of this matter by a Consent Order pursuant to Section 5528 of Part 55 is proper and acceptable.

6. The Company and the MDEQ agree that the signing of this Consent Order is for settlement purposes only and does not constitute an admission by the Company that any laws or regulations have been violated.

7. This Consent Order becomes effective on the date of execution (effective date of this Consent Order) by the AQD Chief.

8. The Company shall achieve compliance with the aforementioned regulations in accordance with the requirements contained in this Consent Order.

COMPLIANCE PROGRAM AND IMPLEMENTATION SCHEDULE

9. A. Permit

1. On July 31, 2014, Permit to Install (PTI) No. 36-12B was issued by the AQD. PTI No. 36-12B and any subsequent permit revision shall be attached hereto as Exhibit A of this Consent Order.

2. Upon such date that the conditions of PTI No. 36-12B or subsequent permit revision are rolled into the Company's ROP, then that ROP will be attached as Exhibit A of this Consent Order.

B. Emission Limitations

1. On and after the effective date of this Consent Order, the Company shall not exceed the PM-10 emission limit during flux operations associated with EU-6ML-GV-02 in Exhibit A.

2. On and after the effective date of this Consent Order, the Company shall not exceed the VOC emission limit during flux or dross operations associated with EU-6ML-GV-02 in Exhibit A.

3. On and after the effective date of this Consent Order, the Company shall not exceed the PM-10 emission limit associated with FG-6ML-MOLDCNVYR in Exhibit A.

4. On and after the effective date of this Consent Order, the Company shall not exceed the PM-10 emission limit associated with EU-6ML-DC-67 in MI-ROP-B1991-2009a or subsequent ROP renewal.

C. Testing

1. The Company shall conduct stack testing for PM-10 and VOC in accordance with methods and procedures approved by the AQD Saginaw Bay District Supervisor to demonstrate compliance with the emission limitations specified in paragraphs 9.B.1, 9.B.2, and 9.B.3 of this Consent Order. Testing shall be conducted in accordance with the following schedule:

a. Not less than thirty (30) days prior to testing, the Company shall submit a test plan to the AQD Saginaw Bay District Supervisor and the Technical Programs Unit Supervisor for approval prior to testing.

b. Not less than seven (7) days prior to testing, the Company or its authorized agent, shall notify the AQD Saginaw Bay District Supervisor and the Technical Programs Unit Supervisor, in writing, of the time and place of the tests and who shall conduct them. A representative of the AQD shall have the opportunity to witness the tests.

c. Not more than one (1) year after the effective date of this Consent Order, the Company shall have completed the testing in accordance with the approved test plan.

d. Not more than sixty (60) days after completing testing, the Company shall submit to the AQD Saginaw Bay District Supervisor and Technical Programs Unit Supervisor a test report, which includes the test data and results.

GENERAL PROVISIONS

10. This Consent Order in no way affects the Company's responsibility to comply with any other applicable state and federal, or local laws or regulations, including without limitation, any amendments to the federal Clean Air Act, 42 USC 7401 *et seq.*, Act 451, Part 55 or their rules and regulations, or to the State Implementation Plan.

11. This Consent Order constitutes a civil settlement and satisfaction as to the resolution of the alleged violations specifically addressed herein; however, it does not resolve any criminal action that may result from these same alleged violations.

12. Within sixty (60) days after the effective date of this Consent Order, the Company shall pay to the General Fund of the State of Michigan, in the form of a check made payable to the "State of Michigan" and mailed to the Michigan Department of Environmental Quality, Accounting Services Division, Cashier's Office, P.O. Box 30657, Lansing, Michigan 48909-8157, a settlement amount of $70,000.00, which includes AQD costs for investigation and enforcement. This total settlement amount shall be paid within sixty (60) days of the effective date of this Consent Order. To ensure proper credit, all payments made pursuant to this Consent Order shall include the "Payment Identification Number AQD40062" on the front of the check and/or in the cover letter with the payment. This settlement amount is in addition to any fees, taxes, or other fines that may be imposed on the Company by law.

13. On and after the effective date of this Consent Order, if the Company fails to comply with paragraph 9.B.1, 9.B.2, 9.B.3, or 9.B.4 of this Consent Order, the Company is subject to a stipulated fine of up to $7,500.00 per violation. On and after the effective date of this Consent Order, if the Company fails to comply with paragraph 9.C.1 of this Consent Order, the Company is subject to a stipulated fine of up to $2,500.00 per violation. The amount of the stipulated fines imposed pursuant to this paragraph shall be within the discretion of the MDEQ. Stipulated fines submitted under this Consent Order shall be by check, payable to the State of Michigan within sixty (60) days of written demand and shall be mailed to the Michigan Department of Environmental Quality, Accounting Services Division, Cashier's Office, P.O. Box 30657, Lansing, Michigan 48909 8157. To ensure proper credit, all payments shall include the "Payment Identification Number AQD40062-S" on the front of the check and/or in the cover letter with the payment. Payment of stipulated fines shall not alter or modify in any way the Company's obligation to comply with the terms and conditions of this Consent Order.

14. The AQD, at its discretion, may seek stipulated fines or statutory fines for any violation of this Consent Order which is also a violation of any provision of applicable federal and state law, rule, regulation, permit, or MDEQ administrative order. However, the AQD is precluded from seeking both a stipulated fine under this Consent Order and a statutory fine for the same violation.

15. To ensure timely payment of the settlement amount assessed in paragraph 12 and any stipulated fines assessed pursuant to paragraph 13 of this Consent Order, the Company shall pay an interest penalty to the State of Michigan each time it fails to make a complete or timely payment under this Consent Order. The interest payment shall be determined at a rate of interest that is equal to one percent (1%) plus the average interest rate paid at auctions of 5-year United States treasury notes during the six months immediately preceding July 1 and January 1, as certified by the state treasurer, compounded annually, and using the full increment of amount due as principal, calculated from the due date specified in this Consent Order until the date that delinquent payment is finally paid in full. Payment of an interest penalty by the Company shall be made to the State of Michigan in accordance with paragraph 13 of this Consent Order. Interest payments shall be applied first towards the most overdue amount or outstanding interest penalty owed by the Company before any remaining balance is applied to subsequent payment amount or interest penalty.

16. The Company agrees not to contest the legal basis for the settlement amount assessed pursuant to paragraph 12. The Company also agrees not to contest the legal basis for any stipulated fines assessed pursuant to paragraph 13 of this Consent Order, but reserves the right to dispute in a court of competent jurisdiction the factual basis upon which a demand by MDEQ of stipulated fines is made. In addition, the Company agrees that said fines have not been assessed by the MDEQ pursuant to Section 5529 of Part 55 and therefore are not reviewable under Section 5529 of Part 55.

17. This compliance program is not a variance subject to the 12 month limitation specified in Section 5538 of Part 55.

18. This Consent Order shall remain in full force and effect for a period of at least three (3) years. Thereafter, the Consent Order shall terminate only upon written notice of termination issued by the AQD Chief. Prior to issuance of a written notice of termination, the Company shall submit a request, to the AQD Chief at the Michigan Department of Environmental Quality, Air Quality Division, P.O. Box 30260, Lansing, Michigan 48909-7760, consisting of a written certification that the Company

has fully complied with all the requirements of this Consent Order and has made all payments including all stipulated fines required by this Consent Order. Specifically, this certification shall include: (i) the date of compliance with each provision of the compliance program and the date any payments or stipulated fines were paid; (ii) a statement that all required information has been reported to the AQD Saginaw Bay District Supervisor; (iii) confirmation that all records required to be maintained pursuant to this Consent Order are being maintained at the facility; and, (iv) such information as may be requested by the AQD Chief.

19. In the event the Company sells or transfers the facility, with SRN B1991, it shall advise any purchaser or transferee of the existence of this Consent Order in connection with such sale or transfer. Within thirty (30) calendar days, the Company shall also notify the AQD Saginaw Bay District Supervisor, in writing, of such sale or transfer, the identity and address of any purchaser or transferee, and confirm the fact that notice of this Consent Order has been given to the purchaser and/or transferee. As a condition of the sale, the Company must obtain the consent of the purchaser and/or transferee, in writing, to assume all of the obligations of this Consent Order. A copy of that agreement shall be forwarded to the AQD Saginaw Bay District Supervisor within thirty (30) days of assuming the obligations of this Consent Order.

20. Prior to the effective date of this Consent Order and pursuant to the requirements of Sections 5511 and 5528(3) of Part 55, the public was notified of a 30-day public comment period and was provided the opportunity for a public hearing.

21. Section 5530 of Part 55 may serve as a source of authority but not a limitation under which the Consent Order may be enforced. Further, Part 17 of Act 451 and all other applicable laws and any other legal basis or applicable statute may be used to enforce this Consent Order.

22. The Company hereby stipulates that entry of this Consent Order is a result of an action by MDEQ to resolve alleged violations of its facility located at 1629 North Washington, Saginaw, Michigan. The Company further stipulates that it will take all lawful actions necessary to fully comply with this Consent Order, even if the Company files for bankruptcy in the future. The Company will not seek discharge of the settlement amount and any stipulated fines imposed hereunder in any future bankruptcy proceedings, and the Company will take necessary steps to ensure that the settlement amount and any future stipulated fines are not discharged. The Company, during and after any future bankruptcy

proceedings, will ensure that the settlement amount and any future stipulated fines remain an obligation to be paid in full by the Company to the extent allowed by applicable bankruptcy law.

The undersigned certifies that he/she is fully authorized by the Company to enter into this Consent Order and to execute and legally bind the Company to it.

GENERAL MOTORS, LLC

On Behalf of General Motors, LLC

John W. Lancaster
Print Name and Title

Signature Date: 9/30/14

The above signatory subscribed and sworn to before me this 30th day of September, 2014.

JUDY A. NAPIERALA
NOTARY PUBLIC
Saginaw County, State of Michigan
My Commission Expires: December 31, 2019

Judy A. Napierala
Notary Public

Approved as to Content:

Lynn Fiedler, Acting Chief
AIR QUALITY DIVISION
DEPARTMENT OF
ENVIRONMENTAL QUALITY

Dated: 10/23/14

Approved as to Form:

Neil Gordon, Section Head
ENVIRONMENTAL REGULATION SECTION
ENVIRONMENT, NATURAL RESOURCES,
AND AGRICULTURE DIVISION
DEPARTMENT OF ATTORNEY GENERAL

Dated: 10/20/2014

FINAL ORDER

The Chief of the Air Quality Division having had opportunity to review the Consent Order and having been delegated authority to enter into Consent Orders by the Director of the Michigan Department of Environmental Quality pursuant to the provisions of Part 55 of Act 451 and otherwise being fully advised on the premises,

HAS HEREBY ORDERED that the Consent Order is approved and shall be entered in the record of the MDEQ as a Final Order.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

Lynn Fiedler, Acting Chief
Air Quality Division

Effective Date: 10/23/14

Exhibit A

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

March 4, 2015

PERMIT TO INSTALL
36-12C

ISSUED TO
General Motors, LLC – Saginaw Metal Casting Operations

LOCATED AT
1629 North Washington Avenue
Saginaw, Michigan

IN THE COUNTY OF
Saginaw

STATE REGISTRATION NUMBER
B1991

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: **December 17, 2014**	
DATE PERMIT TO INSTALL APPROVED: **March 4, 2015**	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

Common Acronyms		Pollutant / Measurement Abbreviations	
AQD	Air Quality Division	Btu	British thermal unit
BACT	Best Available Control Technology	°C	Degrees Celsius
CAA	Clean Air Act	CO	Carbon monoxide
CEM	Continuous Emission Monitoring	dscf	Dry standard cubic foot
CFR	Code of Federal Regulations	dscm	Dry standard cubic meter
CO_2e	Carbon Dioxide Equivalent	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H_2S	Hydrogen sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
GHGs	Greenhouse Gases	kW	Kilowatt
HAP	Hazardous Air Pollutant	m	Meter
HVLP	High Volume Low Pressure *	mg	Milligram
ID	Identification	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram
MAP	Malfunction Abatement Plan	NO_x	Oxides of nitrogen
MDEQ	Michigan Department of Environmental Quality (Department)	PM	Particulate matter
MSDS	Material Safety Data Sheet	PM10	PM with aerodynamic diameter ≤10 microns
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM2.5	PM with aerodynamic diameter ≤ 2.5 microns
NSPS	New Source Performance Standards	pph	Pounds per hour
NSR	New Source Review	ppm	Parts per million
PS	Performance Specification	ppmv	Parts per million by volume
PSD	Prevention of Significant Deterioration	ppmw	Parts per million by weight
PTE	Permanent Total Enclosure	psia	Pounds per square inch, absolute
PTI	Permit to Install	psig	Pounds per square inch, gauge
RACT	Reasonably Available Control Technology	scf	Standard cubic feet
ROP	Renewable Operating Permit	sec	Seconds
SC	Special Condition	SO_2	Sulfur dioxide
SCR	Selective Catalytic Reduction	THC	Total hydrocarbons
SRN	State Registration Number	tpy	Tons per year
TAC	Toxic Air Contaminant	µg	Microgram
TEQ	Toxicity Equivalence Quotient	VOC	Volatile organic compound
VE	Visible Emissions	yr	Year

* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**

2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**

3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**

4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**

5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R 336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**

6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**

7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**

8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.

9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
    a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
    b) A visible emission limit specified by an applicable federal new source performance standard.
    c) A visible emission limit specified as a condition of this Permit to Install.

12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EU-PSANDALUMINUM	Molten Aluminum Supply-- natural gas-fired aluminum melting/holding furnace for aluminum/alloy production using "clean charge" with flux addition and drossing and degassing well (argon). 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. Stack melting/holding furnace design melt heat input rate 10.5 MMBtu/hr for 2.5 tons/hr melt rate and 4.25 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. Emissions from the stack melting/holding furnace are controlled by a 23,500 scfm fabric filter collector.	11-17-2003/7-2014	FG-FACILITYPM
EU-PSANDPROCESS	Sand Processing---- 220 ton new sand storage silo with bin vent filter receives sand via blower truck and two 30 ton pre-reclaim sand silos receive process sand recovered in the facility. Sand from both silos is transported to two natural gas fired fluidized bed sand reclaim systems (sand reclaim furnace, sand cooler, sand screen, and deduster) (design heat input rate of 15 MMBtu/hr—total for two sand reclaim systems) for cleaning and preparation of sand. From there, sand is transferred to the prepared sand silo. PM emissions from the pre-reclaim sand silo, sand transfer system, fluidized bed sand reclaim and prepared sand silo are controlled by two 31,200 scfm fabric filter collectors, one for each sand reclaim system.	11-17-2003/7-2014	FG-FACILITYPM

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EU-PSANDCOREROOM	Core Room Processes Sand Handling and Mixing—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. Emissions from the sand hoppers and sand mixers are collected for control through a 15,000 scfm cartridge collector. Core Making—six cold box core machines. ventilated at 25,000 scfm to a cyclone and a packed tower acid scrubber. 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. High pressure water wash emissions are controlled with a mist collector and are vented in-plant. Cylinder Liner Cleaning and Heating—cleaning by shot blast with a 2,500 scfm cartridge collector control vented in-plant; induction heating used to preheat cylinder liners prior to contact with molten aluminum, vented in-plant Final Mold Assembly—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. Core Room Fugitive Emissions -- general core handling.	11-17-2003/7-2014	FG-FACILITYPM
EU-PSANDCASTLINE	Cast Line processes Pouring and Cooling—pouring and cooling of castings in the molds, mold cooling, and chill plate cleaning. Emissions from cooling are controlled through a 30,000 scfm cartridge collector followed by the 60,000 scfm regenerative thermal oxidizer. Shakeout—separation of cooled castings from the molds. Emissions control through a 30,000 scfm fabric filter collector followed by the 60,000 scfm regenerative thermal oxidizer. 10 MMBtu/hr natural gas-fired duct burner	11-17-2003/7-2014	FG-FACILITYPM

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EU-PSANDSCCSH	Solidification & Casting Cooling—enclosed ambient air cooling of castings Sand Handling—primarily sand from shakeout in the form of broken cores and molds that is pneumatically transferred to the rotary drum. Scrap cores from EU-PSANDCOREROOM will also be transported to the rotary drum for processing. Emissions are vented to a 35,000 scfm cartridge collector control. Sand output from the rotary drum will be pneumatically transferred to the pre-reclaim sand silo of EU-PSANDPROCESS. Smaller amounts of granular sand from the core machines, cooling conveyor, and EU-PSANDFINISH will also be moved to the pre-reclaim sand silo by conveyor or by fork truck in hoppers.	11-17-2003/7-2014	FG-FACILITYPM
EU-FINISH	Finishing—(precision sand and semi-permanent molding operations) processes to remove excess metal and residual sand from the castings including Deflash/Decore/Degate (precision sand and semi-permanent mold), shot blast, and water blast. Emissions are controlled by cartridge collectors with air flow rates of 10,000 scfm total for the Deflash, Decore, and Degate enclosures from precision sand and semi-permanent mold operations. 1,500 scfm for the shot blast cabinet associated with precision sand finishing. The self-contained water blast cabinet associated with precision sand finishing will use a mist eliminator vented in-plant.	11-17-2003/7-2014	FG-FACILITYPM
EU-SANDSEP	Sand Separator--internal aluminum gate, runner, and sprue sand separator. Internal aluminum scrap from EU-FINISH is collected in hoppers and transported to the sand separator for the removal of sand before the metal is used as “clean charge” feed in EU-PSANDALUMINUM or EU-SPMALUMINUM, as appropriate. Emissions are routed to a 15,625 scfm fabric filter dust collector.	11-17-2003/7-2014	FG-FACILITYPM

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EU-SPMALUMINUM	Molten Aluminum Supply—two natural gas-fired stack melter aluminum melting/holding furnaces for aluminum/alloy production using “clean charge” with flux addition, drossing, and degassing well (argon).. One furnace has a design heat input rate of 14.5 MMBtu/hr gas-fired for 5.5 tons/hr melt rate and 4.25 MMBtu/hr heat input rate in holding operational mode. One furnace has a design heat input rate of 10.5 MMBtu/hr gas-fired for 2.5 tons/hr melt rate and 4.25 MMBtu/hr heat input rate in holding operational mode. Electrically heated launder systems vented in-plant. Three electric Ladle furnaces also with degassing (argon) capability and flux addition, vented in-plant. Emissions from each of the melting/holding furnaces, including products of combustion and fluxing are vented to and controlled by a 33,000 and a 23,500 scfm fabric filter collector.	7-2014	FG-FACILITYPM
EU-SPMPROCESSAND	Sand Processing---- 120 ton new sand storage silo with bin vent filter receives sand via blower truck and a 30 ton pre-reclaim sand silo receives process sand recovered in the facility. Sand from both silos is transported to the natural gas fired fluidized bed sand reclaim process system (sand reclaim furnace, sand cooler, sand screen, and deduster) (design heat input rate is 4 MMBtu/hr) 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 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. PM emissions from these sand handling processes and sand handling transfer points including the pre-reclaim sand silo, sand transfer system, fluidized bed sand reclaim, and prepared sand silo in EU-SPMPROCESSAND are controlled by a single 34,000 scfm fabric filter collector. There is no emission control on the remaining sand handling or transfer points (bin/hopper, Sand Load Out Station, receiving dump chute).	7-2014	FG-FACILITYPM

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EU-SPMCOREROOM	Core Room Processes Sand Handling & Mixing – via both enclosed conveyor and pneumatic systems prepared sand is transported to and received into the central sand hopper and mixer located above the core machines. Sand and two-part epoxyacryllic resin mixing. Emissions from the final sand transport, sand hopper, and mixer are controlled by a 5,000 scfm cartridge collector. Core Making – sulfur dioxide co-reactant injection system which supplies mixed sulfur dioxide for the three cold box core machines. Sulfur dioxide is stored in 2,000 pound compressed gas cylinders 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. Core Box Tooling Maintenance – includes the use of a core release chemical, metal cleaner, a high pressure water wash and core box washing station. High pressure water wash and core box washing station is carried out within 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-SPMPROCESSAND. Core Room Fugitive Emissions - storage of completed cores in a core buffer area produces off-gassing emissions (core making fugitives) which are released to the general ventilation system for the building.	2014	FG-FACILITYPM

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EU-SPMCASTLINE	Cast Lines – 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. The cast lines consist of the following: *Section #1:* (3 modular units) 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 18 MMBtu/hr (total heat input rate) burners/torches. Mold filling is conducted 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. Top core and down sprue removal. Additional cooling and complete solidification occur in the casting solidification buffer area. Sprue is collected and transported to the sand separator (EU-SANDSEP). *Section #2:* (3 identical modular units) extended casting cooling in the cooling garage. *Section #3:* (2 identical modular units) Deflash; Decore; Degate. Finishing operations include the removal of excess metal and sand from the casting. Metal removed from the casting is collected and transported to the sand separator (EU-SANDSEP). Emissions control for Section #1 and Section#2 is three 60,000 scfm fabric filter collectors (one for each cast line). Combined emissions from Section #3 of both cast lines and precision sand finishing operations are routed to a 10,000 scfm cartridge collector (EU-FINISH). Process and scrap sand generated from SPMCASTLINE is collected and transported as described in EU-SPMSANDHAND. Mold Preparation – Offline mold preparation benches with steel mold heating using natural gas fired burners. Total heat input rate of 3 MMBtu/hr. Mold Coating Repair – One coating repair booth including a decoating process using inert media. Coating emissions are controlled by a 10,000 scfm cartridge collector. Decoating emissions are routed to a 7,500 scfm cartridge collector, vented in-plant.	2014	FG-FACILITYPM

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EU-PREMACHINING	Multiple stations for machining to remove excess metal and for surface preparation (includes the use of a coolant); localized exhaust at each machine, 2,000 scfm with mist eliminator, released to general in-plant exhaust; Casting washing using water jets and a cleaning solution; localized exhaust at each machine, 2,000 cfm with mist eliminator, released to general in-plant exhaust casting leak testing using compressed air	2014	FG-FACILITYPM
EU-6ML-GV-01	Aluminum Reverberatory Furnace #1 (West)	10/26/1994	FG-6ML-ALMELT
EU-6ML-GV-02	Aluminum Reverberatory Furnace #2 (East)	10/26/1994	FG-6ML-ALMELT
EU-6ML-EF-03	#6ML mold conveyor (Basement cooling conveyor enclosure)	10/26/1994	FG-6ML-MOLDCNVYR
EU-6ML-EF-04	#6ML mold conveyor (Basement cooling conveyor enclosure, 1st floor conveyor hood enclosure).	10/26/1994	FG-6ML-MOLDCNVYR
EU-6ML-DC-67	#6 Mold Line Aluminum degate cells #1, #2, & #3.	2015	FG-6ML-MOLDCNVYR
EU-6ML-DC-68	#6 Mold Line Aluminum degate cells #4 & #5 #6 Drag flask Pick-off. Unit #9 secondary scalping screen in basement	2015	FG-6ML-MOLDCNVYR
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.			

The following conditions apply to: EU-PSANDALUMINUM

DESCRIPTION: Molten Aluminum Supply-- natural gas-fired aluminum melting/holding furnace for aluminum/alloy production using "clean charge" with flux addition and drossing and degassing well (argon). 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. Stack melting/holding furnace design melt heat input rate 10.5 MMBtu/hr for 2.5 tons/hr melt rate and 4.25 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.

Flexible Group ID: FG-FACILITYPM

POLLUTION CONTROL EQUIPMENT: Emissions from the stack melting/holding furnace are controlled by a 23,500 scfm fabric filter collector.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	2.25 pph	Test Protocol* charging/holding	melting/holding furnace	SC V.1	R 336.1331(1)(c)
2. PM10	1.91 pph	Test Protocol* charging/holding	melting/holding furnace	SC V.1	R 336.2810 and 40 CFR 52.21(j)
3. PM2.5	1.91 pph	Test Protocol* charging/holding	melting/holding furnace	SC V.1	R 336.2810 and 40 CFR 52.21(j)
4. PM	5.07 pph	Test Protocol* fluxing/drossing	melting/holding furnace	SC V.1	R 336.1331(1)(c)
5. PM10	4.31 pph	Test Protocol* fluxing/drossing	melting/holding furnace	SC V.1	R 336.2810 and 40 CFR 52.21(j)
6. PM2.5	4.31 pph	Test Protocol* fluxing/drossing	melting/holding furnace	SC V.1	R 336.2810 and 40 CFR 52.21(j)
7. VOC	0.60 pph	Test Protocol*	melting/holding furnace	SC V.1	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
8. NO_x	3.92 pph	Test Protocol*	melting/holding furnace	SC V.1	R 336.2810 and 40 CFR 52.21(j)
9. NO_x	13.78 tpy	12-month rolling time period as determined at the end of each calendar month	melting/holding furnace	SC VI.1	R 336.2810 and 40 CFR 52.21(j)
10. CO	3.29 pph	Test Protocol*	melting/holding furnace	SC V.1	R 336.2810 and 40 CFR 52.21(j)
11. PM	0.30 pph	Test Protocol*	stack melting/holding furnace	SC V.1	R 336.1331(1)(c)
12. PM10	0.30 pph	Test Protocol*	stack melting/holding furnace	SC V.1	R 336.2810 and 40 CFR 52.21(j)
13. PM2.5	0.30 pph	Test Protocol*	stack melting/holding furnace	SC V.1	R 336.2810 and 40 CFR 52.21(j)
14. VOC	0.60 pph	Test Protocol*	stack melting/holding furnace	SC V.1	R 336.1702, R 336.2810 and 40 CFR 52.21(j)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
15. NO_x	1.15 pph	Test Protocol*	stack melting/holding furnace	SC V.1	R 336.2810 and 40 CFR 52.21(j)
16. NO_x	3.84 tpy	12-month rolling time period as determined at the end of each calendar month	stack melting/holding furnace	SC VI.3	R 336.2810 and 40 CFR 52.21(j)
17. CO	0.86 pph	Test Protocol*	stack melting/holding furnace	SC V.1	R 336.2810 and 40 CFR 52.21(j)
* Test Protocol shall specify averaging time.					

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. metal feed/charge rate	6 tons per hour	monthly average	melting/holding furnace	SC VI.5	R 336.1205(1)
2. metal feed/charge rate	2.5 tons per hour	monthly average	stack melting/holding furnace	SC VI.5	R 336.1205(1)
3. flux usage rate (total injection flux and broadcast flux)	11,316 pounds per year	12-month rolling time period as determined at the end of each calendar month	melting/holding furnace, launder, and pump well	SC VI.6	R 336.1205(1) R 336.1225

4. The permittee shall not melt in EU-PSANDALUMINUM any material other than clean charge, customer returns, or internal scrap, as defined by 40 CFR Part 63 Subpart RRR. This condition is necessary to avoid requirements of 40 CFR Part 63 Subpart RRR, National Emission Standards for Secondary Aluminum Production. **(R 336.1224 and R 336.1225, 40 CFR Part 63 Subpart RRR)**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate the furnace in EU-PSANDALUMINUM as a melting furnace for more than 5,300 hours per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

V. DESIGN/EQUIPMENT PARAMETERS

1. The design maximum heat input ratings of each natural gas-fired melting/holding furnace in EU-PSANDALUMINUM shall not exceed 40 million British thermal units per hour (MMBtu/hr) during charging/melting or 20 MMBtu/hr when operated in holding only furnace mode. **(R 336.1205(1)(a))**

2. The design maximum heat input ratings of the natural gas-fired stack melting/holding furnace in EU-PSANDALUMINUM shall not exceed 10.5 million British thermal units per hour (MMBtu/hr) during charging/melting or 4.25 MMBtu/hr when operated in holding only furnace mode. **(R 336.1205(1)(a))**

3. The permittee shall not operate the stack melting/holding furnace of EU-PSANDALUMINUM unless the fabric filter collector is installed, maintained, and operated in a satisfactory manner. Satisfactory operation may include bypass of the fabric filter during operation in holding mode if compliance with the PM, PM10, and PM2.5 emission limits is demonstrated in the testing required in SC V.1. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 60 days of achieving the maximum production rate, but not later than 365 days after commencement of trial operation, the permittee shall verify PM, PM10, PM2.5, NO_x, VOC, and CO emission rates from EU-PSANDALUMINUM by testing at owner's expense, in accordance with Department requirements. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

The permittee shall monitor and record, in a satisfactory manner, all data as specified in the following table. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2802, 40 CFR 52.21)**

Equipment	Parameter	Time Frame Basis
1. Each Furnace in EU-PSANDALUMINUM	hours of operation as a melting furnace	monthly and 12-month rolling time period as determined at the end of each calendar month
2. Each Furnace in EU-PSANDALUMINUM	natural gas usage rate	monthly and 12-month rolling time period as determined at the end of each calendar month
3. Each Furnace in EU-PSANDALUMINUM	NO_x emissions in tpy calculated using AP-42 factors for natural gas combustion	monthly and 12-month rolling time period as determined at the end of each calendar month
4. Each Furnace in EU-PSANDALUMINUM	PM, PM10, and PM2.5 emissions in pph	monthly average
5. Each Furnace in EU-PSANDALUMINUM	metal feed/charge rate	monthly average
6.Melting/holding furnace, launder, and pump well	flux usage rate (total injection flux and broadcast flux)	monthly and 12-month rolling time period as determined at the end of each calendar month
7. EU-PSANDALUMINUM	fabric filter monitoring as required in SC VI.8.	As defined in the MAP required in SC VI.8.

8. The permittee shall not operate EU-PSANDALUMINUM unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the air cleaning devices, has been submitted before trial operation, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of EU-PSANDALUMINUM. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-Z02-BH-5	66	125	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
2. SV-Z02-GV-1	60	80	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
3. SV-Z02-GV-2	60	80	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENTS

1. The permittee shall not operate the natural gas-fired aluminum melting/holding furnace in EU-PSANDALUMINUM simultaneously with either existing Precision Sand furnace Aluminum Gas-fired Receiving/Holding Furnace #1 or Aluminum Gas-fired Receiving/Holding Furnace #2, designated as emission units EU-PSAND-GV-01 and EU-PSAND-GV-02 in ROP No. MI-ROP-B1991-2009a. **(R 336.1205, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

Footnotes:
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: EU-PSANDPROCESS

DESCRIPTION: Sand Processing---- 220 ton new sand storage silo with bin vent filter receives sand via blower truck and two 30 ton pre-reclaim sand silos receive process sand recovered in the facility. Sand from both silos is transported to two natural gas fired fluidized bed sand reclaim systems (sand reclaim furnace, sand cooler, sand screen, and deduster) (design heat input rate of 15 MMBtu/hr—total for two sand reclaim systems) for cleaning and preparation of sand. From there, sand is transferred to the prepared sand silo.

Flexible Group ID: FG-FACILITYPM

POLLUTION CONTROL EQUIPMENT: The new sand storage silo has a bin vent filter. PM emissions from the pre-reclaim sand silo, sand transfer system, fluidized bed sand reclaim and prepared sand silo are controlled by two 31,200 scfm fabric filter collectors, one for each sand reclaim system.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. VE	No visible emissions	Test Protocol*	new sand storage silo	EPA Method 22 SC VI.1	R 336.1301(1)(c)
2. VE	10 percent opacity	Test Protocol*	Two fluidized bed sand reclaim process units	SC V.1	40 CFR 60.732
3. PM	0.13 pph	Test Protocol*	new sand storage silo	GC 13	R 336.1331(1)(c)
4. PM10	0.13 pph	Test Protocol*	new sand storage silo	GC 13	R 336.2810 and 40 CFR 52.21(j)
5. PM2.5	0.13 pph	Test Protocol*	new sand storage silo	GC 13	R 336.2810 and 40 CFR 52.21(j)
6. PM	0.87 pph	Test Protocol*	Two fluidized bed sand reclaim process units and associated system	SC V.1	R 336.1331(1)(c) 40 CFR 60.732
7. PM10	0.23 pph	Test Protocol*	Two fluidized bed sand reclaim process units and associated system	GC 13	R 336.2810 and 40 CFR 52.21(j)
8. PM2.5	0.23 pph	Test Protocol*	Two fluidized bed sand reclaim process units and associated system	GC 13	R 336.2810 and 40 CFR 52.21(j)
9. VOC	0.08 pph	Test Protocol*	Two fluidized bed sand reclaim process units and associated system	GC 13	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
10. NOx	1.47 pph	Test Protocol*	Two fluidized bed sand reclaim process units and associated system	GC 13	R 336.2810 and 40 CFR 52.21(j)
11. NOx	3.90 tpy	12-month rolling time period as determined at the end of each calendar month	Two fluidized bed sand reclaim process units and associated system	SC VI.3	R 336.2810 and 40 CFR 52.21(j)
12. CO	1.24 pph	Test Protocol*	Two fluidized bed sand reclaim process units and associated system	GC 13	R 336.2810 and 40 CFR 52.21(j)
* Test Protocol shall specify averaging time.					

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. new and recovered core sand throughput	73,339 tons	12-month rolling time period as determined at the end of each calendar month	EU-PSANDPROCESS	SC VI.1	R 336.2810 and 40 CFR 52.21(j)

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The maximum total heat input rate of the two natural gas fired fluidized bed sand reclaim process units in EU-PSANDPROCESS shall not exceed 15 million British thermal units per hour (MMBtu/hr). **(R 336.1205(1)(a))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate the pre-reclaim sand silo, sand transfer system, fluidized bed sand reclaim system, and prepared sand silo of EU-PSANDPROCESS unless the fabric filter collector is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the fabric filter dust collector requires a pressure drop range between 0.5 and 10 inches of water column. The minimum pressure drop shall not be less than 1 inch, water gauge, except when a large number of filter bags have been replaced or other reason acceptable to the AQD. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

2. The permittee shall not operate the new sand storage silo of EU-PSANDPROCESS unless the bin vent filter is installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 60 days of achieving the maximum production rate, but not later than 365 days after commencement of trial operation, the permittee shall verify VE and PM emission rates from the two natural gas fired fluidized bed sand reclaim process units in EU-PSANDPROCESS by testing at owner's expense, in accordance with Department requirements. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 60.736)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

The permittee shall monitor and record, in a satisfactory manner, all data as specified in the following table. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2802, 40 CFR 52.21)**

Equipment	Parameter	Time Frame Basis
1. EU-PSANDPROCESS	new and recovered core sand throughput rate	monthly and 12-month rolling time period as determined at the end of each calendar month
2. sand reclaim unit	natural gas usage rate	monthly and 12-month rolling time period as determined at the end of each calendar month
3. sand reclaim unit	NO_x emissions in tpy calculated using AP-42 factors for natural gas combustion	monthly and 12-month rolling time period as determined at the end of each calendar month
4. EU-PSANDPROCESS	PM, PM10, and PM2.5 emissions in pph	monthly average
5. fabric filter collector for pre-reclaim sand silo, sand transfer system, fluidized bed sand reclaim system, and prepared sand silo in EU-PSANDPROCESS	fabric filter monitoring as required in SC VI.7	As defined in the MAP required in SC VI.7
6. new sand storage silo	Presence or absence of visible emissions from the bin vent filters during loading of sand into the silo as determined by an observer using EPA Method 22	Monthly during loading of sand into the silo in the first three months of operation of the new sand silo and once annually thereafter.

7. The permittee shall not operate EU-PSANDPROCESS unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the air cleaning devices, has been submitted before trial operation, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-Z02-BH-1	52	113	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
2. SV-Z02-BH-2	52	113	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENTS

NA

Footnotes:
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: EU-PSANDCOREROOM

DESCRIPTION: Core Room Processes
Sand Handling and Mixing—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—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—cleaning by shot blast; induction heating used to preheat cylinder liners prior to contact with molten aluminum, vented in-plant

Final Mold Assembly—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.
Core Room Fugitive Emissions -- general core handling.

Flexible Group ID: FG-FACILITYPM

POLLUTION CONTROL EQUIPMENT: Sand Handling and Mixing— Emissions from the sand hoppers and sand mixers are collected for control through a 15,000 scfm cartridge collector.

Core making—the six cold box core machines are ventilated at 25,000 scfm to a cyclone and a packed tower acid scrubber.

Core Box Tooling Maintenance-- Emissions from the high pressure water wash are controlled with a mist collector and are vented in-plant.

Cylinder Liner Cleaning and Heating—cleaning by shot blast uses a 2,500 scfm cartridge collector control vented in-plant.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	1.35 pph	Test Protocol*	sand hoppers and sand mixers	GC 13	R 336.1331(1)(c)
2. PM-10	1.35 pph	Test Protocol*	sand hoppers and sand mixers	GC 13	R 336.2810 and 40 CFR 52.21(j)
3. PM-2.5	1.35 pph	Test Protocol*	sand hoppers and sand mixers	GC 13	R 336.2810 and 40 CFR 52.21(j)
4. VOC	1.35 pph	Test Protocol*	sand hoppers and sand mixers	GC 13	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
5. PM	0.56 pph	Test Protocol*	cold box core machines	GC 13	R 336.1331(1)(c)
6. PM-10	0.56 pph	Test Protocol*	cold box core machines	GC 13	R 336.2810 and 40 CFR 52.21(j)
7. PM-2.5	0.56 pph	Test Protocol*	cold box core machines	GC 13	R 336.2810 and 40 CFR 52.21(j)
8. VOC	8.10 pph	Test Protocol*	cold box core machines	GC 13	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
9. VOC	22.00 tpy	12-month rolling time period as determined at the end of each calendar month	cold box core machines	GC 13	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
10. VOC	3.24 pph	Test Protocol*	fugitive emissions from core handling	GC 13	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
11. VOC	8.80 tpy	12-month rolling time period as determined at the end of each calendar month	fugitive emissions from core handling	GC 13	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
12. VOC	14.17 tpy	Test Protocol*	cold box core machine cleaning	GC 13	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
13. VOC	1.02 tpy	Test Protocol*	core box cleaning	GC 13	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
* Test Protocol shall specify averaging time.					

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Dimethyl isopropylamine (DMIPA)	481 tons of DMIPA per year	12-month rolling time period as determined at the end of each calendar month	EU-PSANDCOREROOM	SC VI.1	R 336.1225

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate the sand hoppers and sand mixers of EU-PSANDCOREROOM unless the cartridge collector is installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

2. The permittee shall not operate the six cold box core machines of EU-PSANDCOREROOM unless the cyclone and packed tower acid scrubber are installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the packed tower acid scrubber requires a pressure drop range between 0.1 and 6 inches of water column, a scrubber liquid flow rate greater than 190 gallons per minute and a scrubber liquid pH less than 4.5. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

3. The permittee shall not operate the cylinder liner cleaning operations of EU- PSANDCOREROOM unless the cartridge collector is installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 60 days of EU-PSANDALUMINUM achieving the maximum production rate, but not later than 365 days after commencement of trial operation of EU-PSANDALUMINUM, the permittee shall verify DMIPA emission rates from the core making process of EU-PSANDCOREROOM by testing at owner's expense, in accordance with Department requirements. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

The permittee shall monitor and record, in a satisfactory manner, all data as specified in the following table. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2802, 40 CFR 52.21)**

Equipment	Parameter	Time Frame Basis
1. EU-PSANDCOREROOM	DMIPA and core sand throughput rates	monthly and 12-month rolling time period as determined at the end of each calendar month
2. EU-PSANDCOREROOM	PM, PM10, and PM2.5 emissions in pph	monthly average
3. EU-PSANDCOREROOM	VOC emissions in tpy	monthly and 12-month rolling time period as determined at the end of each calendar month
4. acid scrubber for EU- PSANDCOREROOM	acid scrubber monitoring as required in SC VI.6.	as defined in the MAP required in SC VI.6.
5. cartridge collector for EU-PSANDCOREROOM	cartridge collector monitoring as required in SC VI.6.	as defined in the MAP required in SC VI.6.

6. The permittee shall not operate EU-PSANDCOREROOM unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the air cleaning devices, has been submitted before trial operation, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

7. The permittee shall calculate the VOC emission rate from fugitive and cleaning operations in EU-PSANDCOREROOM monthly, for the preceding 12-month rolling time period as determined at the end of each calendar month, using a method acceptable to the AQD District Supervisor. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205, R 336.1702, R 336.2802, 40 CFR 52.21)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-Z03-CC-2	27	113	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
2. SV-Z03-ISO-1	36	60	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENTS

NA

Footnotes:

[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: EU-PSANDCASTLINE

DESCRIPTION: Cast Line processes
Pouring and Cooling—pouring and cooling of castings in the molds, mold cooling, and chill plate cleaning.
Shakeout—separation of cooled castings from the molds. 10 MMBtu/hr natural gas-fired duct burner

Flexible Group ID: FG-FACILITYPM

POLLUTION CONTROL EQUIPMENT: Pouring and Cooling--emissions from cooling are controlled through a 30,000 scfm cartridge collector followed by the 60,000 scfm regenerative thermal oxidizer.
Shakeout—emissions are heated by the duct burner and controlled through a 30,000 scfm fabric filter collector followed by the 60,000 scfm regenerative thermal oxidizer.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	2.85 pph	Test Protocol*	EU-PSANDCASTLINE	SC V.1	R 336.1331(1)(c)
2. PM10	5.55 pph	Test Protocol*	EU-PSANDCASTLINE	SC V.1	R 336.2810 and 40 CFR 52.21(j)
3. PM2.5	5.55 pph	Test Protocol*	EU-PSANDCASTLINE	SC V.1	R 336.2810 and 40 CFR 52.21(j)
4. VOC	3.92 pph	Test Protocol*	EU-PSANDCASTLINE	SC V.1	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
5. NO_x	4.46 pph	Test Protocol*	EU-PSANDCASTLINE	SC V.1	R 336.2810 and 40 CFR 52.21(j)
6. NO_x	15.21 tpy	12-month rolling time period as determined at the end of each calendar month	EU-PSANDCASTLINE	SC VI.6	R 336.2810 and 40 CFR 52.21(j)
* Test Protocol shall specify averaging time.					

II. MATERIAL LIMITS

1. Permittee shall not pour more than 16,854 tons of aluminum annually through EU-PSANDCASTLINE based on a 12-month rolling time period, as determined at the end of each calendar month. **(R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The maximum heat input rate of the natural gas fired regenerative thermal oxidizer (RTO) shall not exceed 10 million British thermal units per hour (MMBtu/hr). **(R 336.1205(1)(a))**

2. The maximum heat input rate of the natural gas fired duct burner shall not exceed 10 million British thermal units per hour (MMBtu/hr). **(R 336.1205(1)(a))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EU-PSANDCASTLINE unless the RTO and fabric filter collectors are installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the RTO requires a minimum temperature of 1400^{o} F. Satisfactory operation of the fabric filter dust collector requires a pressure drop range between 1.0 and 7.0 inches of water column. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 60 days of EU-PSANDALUMINUM achieving the maximum production rate, but not later than 365 days after commencement of trial operation of EU-PSANDALUMINUM, the permittee shall verify PM, PM10, PM2.5, VOC, and NOx emission rates from EU-PSANDCASTLINE by testing at owner's expense, in accordance with Department requirements. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

The permittee shall monitor and record, in a satisfactory manner, all data as specified in the following table. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2802, 40 CFR 52.21)**

Equipment	Parameter	Time Frame Basis
1. EU-PSANDCASTLINE	aluminum throughput rate	monthly and 12-month rolling time period as determined at the end of each calendar month
2. fabric filter collector for EU- PSANDCASTLINE	fabric filter monitoring as required in SC VI.7.	As defined in the MAP required in SC VI.7.
3. RTO for EU-PSANDCASTLINE	RTO monitoring as required in SC VI.7.	As defined in the MAP required in SC VI.7.
4. RTO and duct burner in EU-PSANDCASTLINE	natural gas usage rate	monthly and 12-month rolling time period as determined at the end of each calendar month
5. EU-PSANDCASTLINE	PM, PM10, and PM2.5 emissions in pph	monthly average
6.EU-PSANDCASTLINE—pouring, cooling, and combustion	Annual NOx emissions—using test data	monthly and 12-month rolling time period as determined at the end of each calendar month

7. The permittee shall not operate EU- PSANDCASTLINE unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the air cleaning devices, has been submitted before trial operation, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-Z02-RTO-3	66	125	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENTS

NA

Footnotes:
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: EU-PSANDSCCSH

DESCRIPTION: Solidification & Casting Cooling—enclosed ambient air cooling of castings

Sand Handling—primarily sand from shakeout in the form of broken cores and molds that is pneumatically transferred to the rotary drum. Scrap cores from EU-PSANDCOREROOM will also be transported to the rotary drum for processing. Sand output from the rotary drum will be pneumatically transferred to the pre-reclaim sand silo of EU-PSANDPROCESS. Smaller amounts of granular sand from the core machines, cooling conveyor, and EU-PSANDFINISH will also be moved to the pre-reclaim sand silo by conveyor or by fork truck in hoppers.

Flexible Group ID: FG-FACILITYPM

POLLUTION CONTROL EQUIPMENT: Emissions are vented to a 35,000 scfm cartridge collector control.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	2.36 pph	Test Protocol*	EU-PSANDSCCSH	GC13	R 336.1331(1)(c)
2. PM10	4.73 pph	Test Protocol*	EU-PSANDSCCSH	GC13	R 336.2810 and 40 CFR 52.21(j)
3. PM2.5	4.73 pph	Test Protocol*	EU-PSANDSCCSH	GC13	R 336.2810 and 40 CFR 52.21(j)
4. VOC	3.89 pph	Test Protocol*	EU-PSANDSCCSH	GC13	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
* Test Protocol shall specify averaging time.					

II. MATERIAL LIMITS

N/A

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate the rotary drum in EU-PSANDSCCSH for more than 5,300 hours per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EU-PSANDSCCSH unless the cartridge collector is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the cartridge collector requires a pressure drop range between 0.1 and 10 inches of water column. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

The permittee shall monitor and record, in a satisfactory manner, all data as specified in the following table. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2802, 40 CFR 52.21)**

Equipment	Parameter	Time Frame Basis
1. rotary drum in EU-PSANDSCCSH	hours of operation	monthly and 12-month rolling time period as determined at the end of each calendar month
2. EU-PSANDSCCSH	PM, PM10, and PM2.5 emissions in pph	monthly average
3. EU-PSANDSCCSH	cartridge collector monitoring as required in SC VI.4.	As defined in the MAP required in SC VI.4.

4. The permittee shall not operate EU-PSANDSCCSH unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the air cleaning devices, has been submitted before trial operation, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-Z02-CC-1	42	85	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENTS

NA

Footnotes:

[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: EU-FINISH

DESCRIPTION: Finishing—(precision sand and semi-permanent molding operations) processes to remove excess metal and residual sand from the castings including Deflash/Decore/Degate (precision sand and semi-permanent mold), shot blast, and water blast.

Flexible Group ID: FG-FACILITYPM

POLLUTION CONTROL EQUIPMENT: Emissions are controlled by cartridge collectors with air flow rates of 10,000 scfm total for the Deflash, Decore, and Degate enclosures from precision sand and semi-permanent molding operations. 1,500 scfm for the shot blast cabinet associated with precision sand finishing. The self-contained water blast cabinet associated with precision sand finishing will use a mist eliminator vented in-plant.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.68 pph	Test Protocol*	Deflash, Decore, and Degate	GC13	R 336.1331(1)(c)
2. PM10	0.90 pph	Test Protocol*	Deflash, Decore, and Degate	GC13	R 336.2810 and 40 CFR 52.21(j)
3. PM2.5	0.90 pph	Test Protocol*	Deflash, Decore, and Degate	GC13	R 336.2810 and 40 CFR 52.21(j)
4. VOC	1.46 pph	Test Protocol*	Deflash, Decore, and Degate	GC13	R 336.2810 and 40 CFR 52.21(j)
5. PM	0.20 pph	Test Protocol*	Shotblast	GC13	R 336.1331(1)(c)
6. PM10	0.20 pph	Test Protocol*	Shotblast	GC13	R 336.2810 and 40 CFR 52.21(j)
7. PM2.5	0.20 pph	Test Protocol*	Shotblast	GC13	R 336.2810 and 40 CFR 52.21(j)
* Test Protocol shall specify averaging time.					

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate Deflash, Decore, and Degate and the shotblast cabinet of EU-FINISH unless the respective cartridge collector is installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

The permittee shall monitor and record, in a satisfactory manner, all data as specified in the following table. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2802, 40 CFR 52.21)**

Equipment	Parameter	Time Frame Basis
1. EU-FINISH	PM, PM10, and PM2.5 emissions in pph	monthly average
2. EU-FINISH	cartridge collector monitoring as required in SC VI.3.	As defined in the MAP required in SC VI.3.

3. The permittee shall not operate Deflash, Decore, and Degate and the shotblast cabinet of EU-FINISH unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the air cleaning devices, has been submitted before trial operation, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

VII. REPORTING

N/A

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-Z05-CC-1	42	63	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
2. SV-Z03-CC-1	21	56	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENTS

NA

Footnotes:

[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: EU-SANDSEP

DESCRIPTION: Sand Separator--internal aluminum gate, runner, and sprue sand separator. Internal aluminum scrap from EU-FINISH is collected in hoppers and transported to the sand separator for the removal of sand before the metal is used as "clean charge" feed in EU-PSANDALUMINUM or EU-SPMALUMINUM, as appropriate.

Flexible Group ID: FG-FACILITYPM

POLLUTION CONTROL EQUIPMENT: Emissions are routed to a 15,625 scfm fabric filter dust collector.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.35 pph	Test Protocol*	EU-SANDSEP	GC 13	R 336.1331(1)(c)
2. PM10	0.35 pph	Test Protocol*	EU-SANDSEP	GC 13	R 336.2810 and 40 CFR 52.21(j)
3. PM2.5	0.35 pph	Test Protocol*	EU-SANDSEP	GC 13	R 336.2810 and 40 CFR 52.21(j)
* Test Protocol shall specify averaging time.					

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EU-SANDSEP unless the fabric filter dust collector is installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

The permittee shall monitor and record, in a satisfactory manner, all data as specified in the following table. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2802, 40 CFR 52.21)**

Equipment	Parameter	Time Frame Basis
1. EU-SANDSEP	PM, PM10, and PM2.5 emissions in pph	monthly average
2. EU-SANDSEP	fabric filter dust collector monitoring as required in SC VI.3.	As defined in the MAP required in SC VI.3.

3. The permittee shall not operate EU-SANDSEP unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the air cleaning devices, has been submitted before trial operation, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-Z02-BH-6	38	73	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENTS

NA

Footnotes:

[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: EU-SPMALUMINUM

DESCRIPTION: Molten Aluminum Supply—two natural gas-fired stack melter aluminum melting/holding furnaces for aluminum/alloy production using "clean charge" with flux addition, drossing, and degassing well (argon). One furnace has a design heat input rate of 14.5 MMBtu/hr gas-fired for 5.5 tons/hr melt rate and 4.25 MMBtu/hr heat input rate in holding operational mode. One furnace has a design heat input rate of 10.5 MMBtu/hr gas-fired for 2.5 tons/hr melt rate and 4.25 MMBtu/hr heat input rate in holding operational mode. Electrically heated launder systems vented in-plant. Three electric Ladle furnaces also with degassing (argon) capability and flux addition, vented in-plant.

Flexible Group ID: FG-FACILITYPM

POLLUTION CONTROL EQUIPMENT: Emissions from each of the melting/holding furnaces, including products of combustion and fluxing are vented to and controlled by a 33,000 and a 23,500 scfm fabric filter collector.

Emissions from the launder systems and ladle furnaces are released to the internal plant environment.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.90 pph	Test Protocol*	All melting/holding furnaces in EU-SPMALUMINUM	SC V.1	R 336.1331(1)(c)
2. PM10	0.90 pph	Test Protocol*	All melting/holding furnaces in EU-SPMALUMINUM	SC V.1	R 336.2810 and 40 CFR 52.21(j)
3. PM2.5	0.90 pph	Test Protocol*	All melting/holding furnaces in EU-SPMALUMINUM	SC V.1	R 336.2810 and 40 CFR 52.21(j)
4. VOC	1.20 pph	Test Protocol*	All melting/holding furnaces in EU-SPMALUMINUM	SC V.1	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
5. NOx	2.75 pph	Test Protocol*	All melting/holding furnaces in EU-SPMALUMINUM	SC V.1	R 336.2810 and 40 CFR 52.21(j)
6. NOx	9.55 tpy	12-month rolling time period as determined at the end of each calendar month	All melting/holding furnaces in EU-SPMALUMINUM	SC VI.4	R 336.2810 and 40 CFR 52.21(j)
7. CO	2.06 pph	Test Protocol*	All melting/holding furnaces in EU-SPMALUMINUM	SC V.1	R 336.2810 and 40 CFR 52.21(j)
* Test Protocol shall specify averaging time.					

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. metal feed/charge rate	8 tons metal per hour	monthly average	Combined total for melting/holding furnaces in EU-SPMALUMINUM	SC VI.5	R 336.1205(1)
2. flux usage rate (total injection flux and broadcast flux)	7,332 pounds	12-month rolling time period as determined at the end of each calendar month	Combined total for melting/holding furnaces in EU-SPMALUMINUM	SC VI.6	R 336.1205(1) R 336.1225

3. The permittee shall not melt in EU-SPMALUMINUM any material other than clean charge, customer returns, or internal scrap, as defined by 40 CFR Part 63 Subpart RRR. This condition is necessary to avoid requirements of 40 CFR Part 63 Subpart RRR, National Emission Standards for Secondary Aluminum Production. **(R 336.1224 and R 336.1225, 40 CFR Part 63 Subpart RRR)**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate each stack melting/holding furnace in EU-SPMALUMINUM as a melting furnace for more than 6,032 hours per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The design maximum heat input rating of one stack melting/holding furnace in EU-SPMALUMINUM shall not exceed 14.5 million British thermal units per hour (MMBtu/hr) during charging/melting or 4.25 MMBtu/hr when operated in holding only furnace mode. The design maximum heat input rating of one stack melting/holding furnace in EU-SPMALUMINUM shall not exceed 10.5 million British thermal units per hour (MMBtu/hr) during charging/melting or 4.25 MMBtu/hr when operated in holding only furnace mode. **(R 336.1205(1)(a))**

2. The permittee shall not operate EU-SPMALUMINUM unless the fabric filter collector for each stack melting/holding furnace is installed, maintained, and operated in a satisfactory manner. Satisfactory operation may include bypass of the fabric filter during operation in holding mode if compliance with the PM, PM10, and PM2.5 emission limits is demonstrated in the testing required in SC V.1. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 60 days of achieving the maximum production rate, but not later than 365 days after commencement of trial operation, the permittee shall verify PM, PM10, PM2.5, NO_x, VOC, and CO emission rates from at least one of the furnaces in EU-SPMALUMINUM by testing at owner's expense, in accordance with Department requirements. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

The permittee shall monitor and record, in a satisfactory manner, all data as specified in the following table. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2802, 40 CFR 52.21)**

Equipment	Parameter	Time Frame Basis
1. each stack melting/holding furnace in EU-SPMALUMINUM	hours of operation as a melting furnace	monthly and 12-month rolling time period as determined at the end of each calendar month
2. each stack melting/holding furnace in EU-SPMALUMINUM	natural gas usage rate	monthly and 12-month rolling time period as determined at the end of each calendar month
3. each stack melting/holding furnace in EU-SPMALUMINUM	PM, PM10, and PM2.5 emissions in pph	monthly average
4. each stack melting/holding furnace in EU-PSANDALUMINUM	NO_x emissions in tpy calculated using AP-42 factors for natural gas combustion	monthly and 12-month rolling time period as determined at the end of each calendar month
5. each stack melting/holding furnace in EU-SPMALUMINUM	metal feed/charge rate	monthly average
6. melting/holding furnace, launder, and pump well	total flux usage rate (total injection flux and broadcast flux)	monthly and 12-month rolling time period as determined at the end of each calendar month
7. each stack melting/holding furnace in EU-SPMALUMINUM	fabric filter monitoring as required in SC VI.8.	As defined in the MAP required in SC VI.8.

8. The permittee shall not operate EU-SPMALUMINUM unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the air cleaning devices, has been submitted before trial operation, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of EU-SPMALUMINUM. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-Z05-BH-4	66	125	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
2. SV-Z05-BH-5	66	125	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENTS

1. The permittee shall not operate the natural gas-fired aluminum melting/holding furnaces in EU-SPMALUMINUM simultaneously with either existing Precision Sand furnace Aluminum Gas-fired Receiving/Holding Furnace #1 or Aluminum Gas-fired Receiving/Holding Furnace #2, designated as emission units EU-PSAND-GV-01 and EU-PSAND-GV-02 in ROP No. MI-ROP-B1991-2009a. **(R 336.1205, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

Footnotes:
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: EU-SPMPROCESSAND

DESCRIPTION: Sand Processing---- 120 ton new sand storage silo with bin vent filter receives sand via blower truck and a 30 ton pre-reclaim sand silo receives process sand recovered in the facility. Sand from both silos is transported to the natural gas fired fluidized bed sand reclaim process system (sand reclaim furnace, sand cooler, sand screen, and deduster) (design heat input rate is 4 MMBtu/hr) 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 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.

Flexible Group ID: FG-FACILITYPM

POLLUTION CONTROL EQUIPMENT: The new core sand storage silo has a bin vent filter. PM emissions from these sand handling processes and sand handling transfer points including the pre-reclaim sand silo, sand transfer system, fluidized bed sand reclaim, and prepared sand silo in EU-SPMPROCESSAND are controlled by a single 34,000 scfm fabric filter collector. There is no emission control on the remaining sand handling or transfer points (bin/hopper, Sand Load Out Station, receiving dump chute).

1. **EMISSION LIMITS**

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. VE	No visible emissions	Test Protocol*	new sand storage silo	VI.6 Method 22	R 336.1301(1)(c)
2. VE	10 percent opacity	Test Protocol*	fluidized bed sand reclaim	SC V.1	40 CFR 60.732
3. PM	0.13 pph	Test Protocol*	new sand storage silo	GC 13	R 336.1331(1)(c)
4. PM10	0.13 pph	Test Protocol*	new sand storage silo	GC 13	R 336.2810 and 40 CFR 52.21(j)
5. PM2.5	0.13 pph	Test Protocol*	new sand storage silo	GC 13	R 336.2810 and 40 CFR 52.21(j)
6. PM	0.19 pph	Test Protocol*	sand reclaim, pre-reclaim sand silo, and prepared sand silo	SC V.1	R 336.1331(1)(c) 40 CFR 60.732
7. PM10	0.05 pph	Test Protocol*	sand reclaim, pre-reclaim sand silo, and prepared sand silo	GC 13	R 336.2810 and 40 CFR 52.21(j)
8. PM2.5	0.05 pph	Test Protocol*	sand reclaim, pre-reclaim sand silo, and prepared sand silo	GC 13	R 336.2810 and 40 CFR 52.21(j)
9. VOC	0.02 pph	Test Protocol*	sand reclaim, pre-reclaim sand silo, and prepared sand silo	GC 13	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
10. NOx	0.39 pph	Test Protocol*	sand reclaim, pre-reclaim sand silo, and prepared sand silo	GC 13	R 336.2810 and 40 CFR 52.21(j)
11. NOx	1.18 tpy	12-month rolling time period as determined at the end of each calendar month	sand reclaim, pre-reclaim sand silo, and prepared sand silo	GC 13	R 336.2810 and 40 CFR 52.21(j)
12. CO	0.33 pph	Test Protocol*	sand reclaim, pre-reclaim sand silo, and prepared sand silo	GC 13	R 336.2810 and 40 CFR 52.21(j)
* Test Protocol shall specify averaging time.					

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. new and recovered core sand throughput	19,182 tons	12-month rolling time period as determined at the end of each calendar month	EU-SPMPROCESSAND	SC VI.1	R 336.2810 and 40 CFR 52.21(j)

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The maximum heat input rate of the natural gas fired fluidized bed sand reclaim process unit in EU-SPMPROCESSAND shall not exceed 4 million British thermal units per hour (MMBtu/hr). **(R 336.1205(1)(a))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate the pre-reclaim sand silo, sand transfer system, fluidized bed sand reclaim system, and prepared sand silo of EU-SPMPROCESSAND unless the fabric filter collector is installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

2. The permittee shall not operate the new sand storage silo of EU-SPMPROCESSAND unless the bin vent filter is installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 60 days of achieving the maximum production rate, but not later than 365 days after commencement of trial operation, the permittee shall verify VE and PM emission rates from the natural gas fired fluidized bed sand reclaim process unit in EU-SPMPROCESSAND by testing at owner's expense, in accordance with Department requirements. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 60.736)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

The permittee shall monitor and record, in a satisfactory manner, all data as specified in the following table. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2802, 40 CFR 52.21)**

Equipment	Parameter	Time Frame Basis
1. EU-SPMPROCESSAND	sand throughput rate	monthly and 12-month rolling time period as determined at the end of each calendar month
2. sand reclaim unit	natural gas usage rate	monthly and 12-month rolling time period as determined at the end of each calendar month
3. EU-SPMPROCESSAND	PM, PM10, and PM2.5 emissions in pph	monthly average
4. sand reclaim unit	NO_x emissions in tpy calculated using AP-42 factors for natural gas combustion	monthly and 12-month rolling time period as determined at the end of each calendar month
5. fabric filter collector for pre-reclaim sand silo, sand transfer system, fluidized bed process and prepared sand silo in EU-SPMPROCESSAND	fabric filter monitoring as required in SC VI.7.	As defined in the MAP required in SC VI.7.
6. new sand storage silo	Presence or absence of visible emissions from the bin vent filters during loading of sand into the silo as determined by an observer using EPA Method 22	Monthly during loading of sand into the silo in the first three months of operation of the new sand silo and once annually thereafter.

7. The permittee shall not operate EU-SPMPROCESSAND unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the air cleaning devices, has been submitted before trial operation, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-Z02-BH-4	52	113	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENTS

NA

Footnotes:
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: EU-SPMCOREROOM

DESCRIPTION: Core Room Processes

Sand Handling & Mixing – via both enclosed conveyor and pneumatic systems prepared sand is transported to and received into the central sand hopper and mixer located above the core machines.

Sand and two-part epoxyacryllic resin mixing.

Core Making – sulfur dioxide co-reactant injection system which supplies mixed sulfur dioxide for the three cold box core machines. Sulfur dioxide is stored in 2,000 pound compressed gas cylinders

Core Box Tooling Maintenance – includes the use of a core release chemical, metal cleaner, a high pressure water wash and core box washing station. High pressure water wash and core box washing station is carried out within 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-SPMPROCESSAND.

Core Room Fugitive Emissions - storage of completed cores in a core buffer area produces off-gassing emissions (core making fugitives) which are released to the general ventilation system for the building.

Flexible Group ID: FG-FACILITYPM

POLLUTION CONTROL EQUIPMENT: 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.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.17pph	Test Protocol*	Sand hoppers and sand mixers of EU-SPMCOREROOM	GC 13	R 336.1331(1)(c)
2. PM10	0.17 pph	Test Protocol*	Sand hoppers and sand mixers of EU-SPMCOREROOM	GC 13	R 336.2810 and 40 CFR 52.21(j)
3. PM2.5	0.17 pph	Test Protocol*	Sand hoppers and sand mixers of EU-SPMCOREROOM	GC 13	R 336.2810 and 40 CFR 52.21(j)
4. VOC	0.36 pph	Test Protocol*	Sand hoppers and sand mixers of EU-SPMCOREROOM	GC 13	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
5. PM	0.45 pph	Test Protocol*	Core Box of EU-SPMCOREROOM	GC 13	R 336.1331(1)(c)
6. PM10	0.45 pph	Test Protocol*	Core Box of EU-SPMCOREROOM	GC 13	R 336.2810 and 40 CFR 52.21(j)
7. PM2.5	0.45 pph	Test Protocol*	Core Box of EU-SPMCOREROOM	GC 13	R 336.2810 and 40 CFR 52.21(j)
8. VOC	1.08 pph	Test Protocol*	Core Box of EU-SPMCOREROOM	GC 13	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
9. SO_2	2.54 pph	Test Protocol*	Core Box of EU-SPMCOREROOM	SC V.1	R 336.2810 and 40 CFR 52.21(j)
10. VOC	3.26 tpy	12-month rolling time period as determined at the end of each calendar month	Core Box of EU-SPMCOREROOM	GC 13	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
11. VOC	14.17 tpy	Test Protocol*	Core Box Core Machine cleaning (fugitives)	GC 13	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
12. VOC	1.44 pph	Test Protocol*	Core Handling (fugitives)	GC 13	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
13. VOC	4.34 tpy	12-month rolling time period as determined at the end of each calendar month	Core Making (fugitives)	GC 13	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
* Test Protocol shall specify averaging time.					

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. SO_2 Catalyst	153.5 tons SO_2 per year	monthly and 12-month rolling time period as determined at the end of each calendar month	EU-SPMCOREROOM	SC VI.2	R 336.1225

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate the sand hoppers and sand mixers of EU-SPMCOREROOM unless the cartridge collector is installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

2. The permittee shall not operate the three cold box core machines of EU-SPMCOREROOM unless the cyclone and packed tower caustic scrubber are installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 60 days of EU-SPMALUMINUM achieving the maximum production rate, but not later than 365 days after commencement of trial operation of EU-SPMALUMINUM, the permittee shall verify SO_2 emission rates from the core making process of EU-SPMCOREROOM by testing at owner's expense, in accordance with Department requirements. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

The permittee shall monitor and record, in a satisfactory manner, all data as specified in the following table. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2802, 40 CFR 52.21)**

Equipment	Parameter	Time Frame Basis
1. EU-SPMCOREROOM	PM, PM10, and PM2.5 emissions in pph	monthly average
2. EU-SPMCOREROOM	SO_2 and core sand throughput rates	monthly and 12-month rolling time period as determined at the end of each calendar month
3. EU-SPMCOREROOM	VOC emissions in tpy	monthly and 12-month rolling time period as determined at the end of each calendar month
4. caustic scrubber for EU-SPMCOREROOM	caustic scrubber monitoring as required in SC VI.6.	as defined in the MAP required in SC VI.6.
5. cartridge collector for EU-SPMCOREROOM	cartridge collector monitoring as required in SC VI.6.	as defined in the MAP required in SC VI.6.

6. The permittee shall not operate EU-SPMCOREROOM unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the air cleaning devices, has been submitted before trial operation, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

7. The permittee shall calculate the VOC emission rate from fugitive and cleaning operations in EU-SPMCOREROOM monthly, for the preceding 12-month rolling time period as determined at the end of each calendar month, using a method acceptable to the AQD District Supervisor. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205, R 336.1702, R 336.2802, 40 CFR 52.21)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-Z05-CC-2	23	86	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
2. SV-Z05-ISO-2	36	86	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENTS

NA

Footnotes:
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: EU-SPMCASTLINE

DESCRIPTION: Cast Lines – 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.

The cast lines consist of the following: *Section #1:* (3 modular units) 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 18 MMBtu/hr (total heat input rate) burners/torches. Mold filling is conducted 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. Top core and down sprue removal. Additional cooling and complete solidification occur in the casting solidification buffer area. Sprue is collected and transported to the sand separator (EU-SANDSEP). *Section #2:* (3 identical modular units) extended casting cooling in the cooling garage. *Section #3:* (2 identical modular units) Deflash; Decore; Degate. Finishing operations include the removal of excess metal and sand from the casting.
Metal removed from the casting is collected and transported to the sand separator (EU-SANDSEP).

Process and scrap sand generated from SPMCASTLINE is collected and transported as described in EU-SPMSANDHAND.

Mold Preparation – Offline mold preparation benches with steel mold heating using natural gas fired burners. Total heat input rate of 3 MMBtu/hr.

Mold Coating Repair – One coating repair booth including a decoating process using inert media.

Flexible Group ID: FG-FACILITYPM

POLLUTION CONTROL EQUIPMENT: Coating emissions are controlled by a 10,000 scfm cartridge collector. Emissions control for Section #1 and Section#2 is three 60,000 scfm fabric filter collectors (one for each cast line). Combined emissions from Section #3 of both cast lines and precision sand finishing operations are routed to a 10,000 scfm cartridge collector (EU-FINISH).

Decoating emissions are routed to a 7,500 scfm cartridge collector, vented in-plant.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NOx	0.29 pph	Test Protocol*	Off line mold prep	GC 13	R 336.2810 and 40 CFR 52.21(j)
2. NOx	0.89 tpy	12-month rolling time period as determined at the end of each calendar month	Off line mold prep	GC 13	R 336.2810 and 40 CFR 52.21(j)
3. PM	6.72 pph	Test Protocol*	Section 1 & 2 all three cast lines combined	SC V.1	R 336.1331(1)(c)
4. PM10	6.72 pph	Test Protocol*	Section 1 & 2 all three cast lines combined	SC V.1	R 336.2810 and 40 CFR 52.21(j)
5. PM2.5	6.72 pph	Test Protocol*	Section 1 & 2 all three cast lines combined	SC V.1	R 336.2810 and 40 CFR 52.21(j)
6. VOC	10.20 pph	Test Protocol*	Section 1 & 2 all three cast lines combined	SC V.1	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
7. NOx	0.33 pph	Test Protocol*	Section 1 & 2 process emissions	SC V.1	R 336.2810 and 40 CFR 52.21(j)
8. NOx	1 tpy	12-month rolling time period as determined at the end of each calendar month	Section 1 & 2 process emissions	SC V.1	R 336.2810 and 40 CFR 52.21(j)
9. NOx	1.76 pph	Test Protocol*	Section 1 & 2 mold preheating emissions	SC V.1	R 336.2810 and 40 CFR 52.21(j)
10. NOx	0.46 tpy	12-month rolling time period as determined at the end of each calendar month	Section 1 & 2 mold preheating emissions	SC V.1	R 336.2810 and 40 CFR 52.21(j)
11. CO	0.33 pph	Test Protocol*	Section1 & 2	SC V.1	R 336.2810 and 40 CFR 52.21(j)
12. PM	0.68 pph	Test Protocol*	Mold Coating	GC 13	R 336.1331(1)(c)
13. PM10	0.68 pph	Test Protocol*	Mold Coating	GC 13	R 336.2810 and 40 CFR 52.21(j)
14. PM2.5	0.68 pph	Test Protocol*	Mold Coating	GC 13	R 336.2810 and 40 CFR 52.21(j)
15. VOC	1.46 pph	Test Protocol*	Section 3	GC 13	R 336.1702, R 336.2810 and 40 CFR 52.21(j)
* Test Protocol shall specify averaging time.					

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Aluminum	17,600 tons poured per year	12-month rolling time period as determined at the end of each calendar month	EU-SPMCASTLINE	SC VI.1	R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The maximum heat input rate of the natural gas fired equipment in EU-SPMCASTLINE shall not exceed a total of 18 million British thermal units per hour (MMBtu/hr). **(R 336.1205(1)(a))**

2. The permittee shall not operate EU-SPMCASTLINE for more than 6,032 hours per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EU-SPMCASTLINE unless the respective air cleaning devices are installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

2. The permittee shall not operate Section #1 and/or Section #2 of EU-SPMCASTLINE unless the fabric filter collector associated with the individual cast line is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the fabric filter dust collector requires a pressure drop range between 0.5 and 10 inches of water column. The minimum pressure drop shall not be less than 1 inch, water gauge, except when a large number of filter bags have been replaced or other reason acceptable to the AQD. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 60 days of EU-SPMALUMINUM achieving the maximum production rate, but not later than 365 days after commencement of trial operation of EU-SPMALUMINUM, the permittee shall verify PM, PM10, PM2.5, VOC, and NOx emission rates from EU-SPMCASTLINE (excluding bench heaters) by testing at owner's expense, in accordance with Department requirements. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

The permittee shall monitor and record, in a satisfactory manner, all data as specified in the following table. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2802, 40 CFR 52.21)**

Equipment	Parameter	Time Frame Basis
1. Off line mold prep area of EU-SPMCASTLINE	natural gas usage rate	monthly and 12-month rolling time period as determined at the end of each calendar month
2. EU-SPMCASTLINE	PM, PM10, and PM2.5 emissions in pph	monthly average
3. Off line mold prep area of EU-SPMCASTLINE	NO_x emissions in tpy calculated using AP-42 factors for natural gas combustion	monthly and 12-month rolling time period as determined at the end of each calendar month
4. Air cleaning devices for EU-SPMCASTLINE	Monitoring as required in SC VI.5.	As defined in the MAP required in SC VI.5.

5. The permittee shall not operate EU-SPMCASTLINE unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the air cleaning devices, has been submitted before trial operation, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-Z05-BH-1	53	160	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
2. SV-Z05-BH-2	53	160	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
3. SV-Z05-BH-3	53	160	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
4. SV-Z02-CC-5	30	73	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENTS

NA

Footnotes:

[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: EU-PREMACHINING

DESCRIPTION: Multiple stations for machining to remove excess metal and for surface preparation (includes the use of a coolant);

Casting washing using water jets and a cleaning solution;

casting leak testing using compressed air

Flexible Group ID: FG-FACILITYPM

POLLUTION CONTROL EQUIPMENT: Localized exhaust at each removal/preparation machine, 2,000 scfm with mist eliminator, released to general in-plant exhaust. Localized exhaust at each casting washing machine, 2,000 cfm with mist eliminator, released to general in-plant exhaust.

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

The permittee shall monitor and record, in a satisfactory manner, all data as specified in the following table. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2802, 40 CFR 52.21)**

Equipment	Parameter	Time Frame Basis
1. EU-PREMACHINING	Fugitive VOC emission rate in tpy using available emission factors	monthly and 12-month rolling time period as determined at the end of each calendar month

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

Footnotes:
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-FACILITYPM	Particulate emissions associated with the project (SPM, PSAND, Pre-machining) and existing Mold Line 6 operations.	EU-PSANDALUMINUM, EU-PSANDPROCESS, EU-PSANDCOREROOM, EU-PSANDCASTLINE, EU-PSANDSCCSH, EU-FINISH, EU-SANDSEP, EU-SPMALUMINUM, EU-SPMPROCESSAND, EU-SPMCOREROOM, EU-SPMCASTLINE, EU-PREMACHINING, EU-6ML-DC-67, EU-6ML-DC-68, all Mold Line 6 under ROP No. MI-ROP-B1991-2009a
FG-6ML-ALMELT	Aluminum Reverberatory Furnace #1 (West) and Aluminum Reverberatory Furnace #2 (East)	EU-6ML-GV-01 EU-6ML-GV-02
FG-6ML-MOLDCNVYR	#6ML mold conveyor (Basement cooling conveyor, degate cells #1-#5), #6 Drag flask Pick-off. Unit #9 secondary scalping screen in basement. #6ML mold conveyor (Basement cooling conveyor, 1st floor conveyor).	EU-6ML-EF-03 EU-6ML-EF-04 EU-6ML-DC-67 EU-6ML-DC-68

The following conditions apply to: FG-FACILITYPM

DESCRIPTION: Particulate emissions associated with the project (SPM, PSAND, Pre-machining) and existing Mold Line 6 operations.

Emission Units: EU-PSANDALUMINUM, EU-PSANDPROCESS, EU-PSANDCOREROOM, EU-PSANDCASTLINE, EU-PSANDSCCSH, EU-FINISH, EU-SANDSEP, EU-SPMALUMINUM, EU-SPMPROCESSAND, EU-SPMCOREROOM, EU-SPMCASTLINE, EU-PREMACHINING, EU-6ML-DC-67, EU-6ML-DC-68, all Mold Line 6 under ROP No. MI-ROP-B1991-2009a

POLLUTION CONTROL EQUIPMENT: various collection and control equipment for each emission unit

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	113.09 tpy	12-month rolling time period as determined at the end of each calendar month	FG-FACILITYPM	GC 13	R 336.1331(1)(c)
2. PM10	123.44 tpy	12-month rolling time period as determined at the end of each calendar month	FG-FACILITYPM	GC 13	R 336,2810, 40 CFR 52.21(j)
3. PM2.5	123.44 tpy	12-month rolling time period as determined at the end of each calendar month	FG-FACILITYPM	GC 13	R 336,2810, 40 CFR 52.21(j)

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

The permittee shall monitor and record, in a satisfactory manner, all data as specified in the following table. . **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, R 336.2802, 40 CFR 52.21)**

Equipment	Parameter	Time Frame Basis
1. FG-FACILITYPM	PM, PM10, and PM2.5 in tpy	monthly and 12-month rolling time period as determined at the end of each calendar month

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

Footnotes:

[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: FG-6ML-ALMELT

DESCRIPTION: Aluminum Reverberatory Furnace #1 (West) and Aluminum Reverberatory Furnace #2 (East)

Emission Units: EU-6ML-GV-01 and EU-6ML-GV-02

POLLUTION CONTROL EQUIPMENT: NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario**	Equipment***	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM-10	0.02 lb/1,000 lb on a dry gas basis	Test Method/Holding, Charging	EU-6ML-GV-01 and EU-6ML-GV-02	V.1	R336.1331
2. PM-10	2.3 pph	Test Method/Holding, Charging	EU-6ML-GV-01 and EU-6ML-GV-02	V.1, VI.1, VI.2	R336.1331
3. PM-10	9.8 tpy	12-Month rolling*/Holding, Charging	EU-6ML-GV-01 and EU-6ML-GV-02	VI.1, VI.2	R336.1331, R336.1205(3)
4. CO	3.5 pph	Test Method/Holding, Charging	EU-6ML-GV-01 and EU-6ML-GV-02	V.1, VI.1, VI.2	R336.1201
5. CO	15 tpy	12-Month rolling*/Holding, Charging	EU-6ML-GV-01 and EU-6ML-GV-02	VI.1, VI.2	R336.1201, R336.1205(3)
6. NOx	4.2 pph	Test Method/Holding, Charging	EU-6ML-GV-01 and EU-6ML-GV-02	V.1, VI.1, VI.2	R336.1201
7. NOx	18 tpy	12-Month rolling*/Holding, Charging	EU-6ML-GV-01 and EU-6ML-GV-02	VI.1, VI.2	R336.1201, R336.1205(3)
8. VOC	0.46 pph	Test Method/Holding, Charging	EU-6ML-GV-01 and EU-6ML-GV-02	V.1, VI.1, VI.2	R336.1201 R 336.1702
9. VOC	2.02 tpy	12-Month rolling*/Holding, Charging	EU-6ML-GV-01 and EU-6ML-GV-02	VI.1, VI.2	R336.1201, R336.1205(3) R 336.1702
10. Hydrogen chloride (HCl)	2.4 pph	Test Method/Charging	EU-6ML-GV-01 and EU-6ML-GV-02	V.1, VI.1, VI.2	R336.1201
11. HCl	7.2 tpy	12-Month rolling*/ Charging	EU-6ML-GV-01 and EU-6ML-GV-02	VI.1, VI.2	R336.1201, R336.1205(3)
12. Chlorine (Cl_2)	0.6 pph	Test Method/Charging	EU-6ML-GV-01 and EU-6ML-GV-02	V.1, VI.1, VI.2	R336.1201
13. Cl_2	1.8 tpy	12-Month rolling*/ Charging	EU-6ML-GV-01 and EU-6ML-GV-02	VI.1, VI.2	R336.1201, R336.1205(3)
14. PM-10	0.08 lb/1,000 lb on a dry gas basis	Test Method/Fluxing, Drossing	EU-6ML-GV-01 and EU-6ML-GV-02	V.1	R336.1331
15. PM-10	8.3 pph	Test Method/ Fluxing, Drossing	EU-6ML-GV-01 and EU-6ML-GV-02	V.1, VI.1, VI.2	R336.1331
16. PM-10	1.4 tpy	12-Month rolling*/ Fluxing, Drossing	EU-6ML-GV-01 and EU-6ML-GV-02	VI.1, VI.2	R336.1331, R336.1205(3)
17. CO	3.5 pph	Test Method/ Fluxing, Drossing	EU-6ML-GV-01 and EU-6ML-GV-02	V.1, VI.1, VI.2	R336.1201

Pollutant	Limit	Time Period/ Operating Scenario**	Equipment***	Monitoring/ Testing Method	Underlying Applicable Requirements
18. CO	0.64 tpy	12-Month rolling*/ Fluxing, Drossing	EU-6ML-GV-01 and EU-6ML-GV-02	VI.1, VI.2	R336.1201, R336.1205(3)
19. NOx	4.2 pph	Test Method/ Fluxing, Drossing	EU-6ML-GV-01 and EU-6ML-GV-02	V.1, VI.1, VI.2	R336.1201
20. NOx	0.76 tpy	12-Month rolling*/ Fluxing, Drossing	EU-6ML-GV-01 and EU-6ML-GV-02	VI.1, VI.2	R336.1201, R336.1205(3)
21. VOC	0.92 pph	Test Method/ Fluxing, Drossing	EU-6ML-GV-01 and EU-6ML-GV-02	V.1, VI.1, VI.2	R336.1201 R 336.1702
22. VOC	0.17 tpy	12-Month rolling*/ Fluxing, Drossing	EU-6ML-GV-01 and EU-6ML-GV-02	VI.1, VI.2	R336.1201, R336.1205(3) R 336.1702
23. HCl	2.2 pph	Test Method/ Fluxing	EU-6ML-GV-01 and EU-6ML-GV-02	V.1, VI.1, VI.2	R336.1201
24. HCl	0.4 tpy	12-Month rolling*/ Fluxing	EU-6ML-GV-01 and EU-6ML-GV-02	VI.1, VI.2	R336.1201, R336.1205(3)
25. Cl_2	0.5 pph	Test Method/ Fluxing	EU-6ML-GV-01 and EU-6ML-GV-02	V.1, VI.1, VI.2	R336.1201
26. Cl_2	0.1 tpy	12-Month rolling*/ Fluxing	EU-6ML-GV-01 and EU-6ML-GV-02	VI.1, VI.2	R336.1201, R336.1205(3)
27. Hydrogen Fluoride (HF)	1.9 pph	Test Method/ Fluxing	EU-6ML-GV-01 and EU-6ML-GV-02	V.1, VI.1, VI.2	R336.1201
28. HF	0.34 tpy	12-Month rolling*/ Fluxing	EU-6ML-GV-01 and EU-6ML-GV-02	VI.1, VI.2	R336.1201, R336.1205(3)

* 12-Month Rolling Time period, as determined at the end of each calendar month.

** Operating Scenario Definitions:

Holding: Molten aluminum is held at temperature waiting to be poured into molds.

Charging: Molten aluminum is being received from an outside supply into the furnace

Fluxing: Molten aluminum bath is in the process of chemical purification via the addition of HCl or HF flux media that attracts impurities and floats them to the surface for removal. Fluxing includes reaction time up to one hour after flux addition begins.

Drossing: The removal of the impurities (dross) from the surface of the molten aluminum after fluxing.

*** All limits apply to each furnace separately

II. MATERIAL LIMIT(S)

1. Permittee shall not process more than 156.5 tons of injection and broadcast flux annually through FG-6ML-ALMELT based on a 12-month rolling time period, as determined at the end of each calendar month.[1] **(R336.1225)**

2. Permittee shall only input through FG-6ML-ALMELT clean liquid aluminum, clean aluminum charges (ingots, sows, or pigs) or clean internal aluminum reruns (scrap, gating, sprue).[1] **(R336.1225)**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Permittee shall only actively add flux to one of the aluminum furnaces during any one-hour period. Permittee shall not flux more than 180 hours per year per furnace of FG-6ML-ALMELT. Permittee shall not dross more than 180 hours per year per furnace of FG-6ML-ALMELT.[1] **(R336.1225)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Verification of emission rates from the holding/charging operating scenario and the fluxing/drossing operating scenario by testing at owner's expense, in accordance with Department requirements, on or before six months of the ROP expiration date. Verification of emission rates includes the submittal of complete report of the test results. **(R 336.1201(3), R 336.2001(a)(e))**

    a. The permittee shall submit a complete test protocol to the AQD for approval at least 30 days prior to the anticipated test date. **(R 336.1201(3))**
    b. The permittee shall notify the District Supervisor or the Technical Programs Unit no less than 7 days prior to the anticipated test date. **(R 336.2001(3))**
    c. The permittee shall submit a complete test report of the test results to the District Supervisor or the Technical Programs Unit within 60 days following the last date of the test. **(R 336.2001(4))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Permittee shall record monthly flux usage and duration in hours (rounded to 1/4 hour) of the fluxing for the aluminum furnaces (EU-6ML-GV-01, EU-6ML-GV-02). Fluxing includes reaction time up to one hour after flux addition begins. **(R336.1205(3))**

2. Permittee shall record the monthly natural gas usage on the aluminum furnaces (EU-6ML-GV-01, EU-6ML-GV-02). **(R336.1205(3))**

3. Within 30 days following the end of each calendar month, permittee shall calculate and record emissions from the process for the previous calendar month to demonstrate compliance with the 12-month rolling time period emission limits specified in this table. These records shall be made available to the AQD upon request. **(R336.1201(3))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-6ML-GV-01	60	71	R 336.2803, R 336.2804, 40 CFR 52.21 (c) and (d)
2. SV-6ML-GV-02	60	71	R 336.2803, R 336.2804, 40 CFR 52.21 (c) and (d)

IX. OTHER REQUIREMENT(S)

1. Visible emissions from the FG-6ML-ALMELT shall not exceed a 6-minute-average of 10% opacity, except during flux and dross on the reverberatory furnaces, where opacity may not exceed 20%, except for one 6-minute average of 27%. **(R336.1301(c))**

Footnotes:
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: FG-6ML-MOLDCNVYR

DESCRIPTION: #6ML mold conveyor (Basement cooling conveyor, degate cells #1-#5), #6 Drag flask Pick-off. Unit #9 secondary scalping screen in basement. #6ML mold conveyor (Basement cooling conveyor, 1st floor conveyor).

Emission Units: EU-6ML-EF-03 EU-6ML-EF-04 EU-6ML-DC-67 EU-6ML-DC-68

POLLUTION CONTROL EQUIPMENT: 47,000 acfm wet collector (6ML-DC-67) 40,000 acfm wet collector (6ML-DC-68)

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM10	0.1 lb/1000lb exhaust gas; dry gas basis	Test Protocol*	EU-6ML-EF-03 EU-6ML-EF-04	SC V.1	R 336.1201 R 336.1331
2. PM10	22.6 pph	Test Protocol*	EU-6ML-EF-03 EU-6ML-EF-04	SC V.1	R 336.1201 R 336.1331
3. PM10	0.01 lb/1000lb exhaust gas; dry gas basis	Test Protocol*	EU-6ML-DC-67	SC V.1	R 336.1201 R 336.1331
4. PM10	0.01 lb/1000lb exhaust gas; dry gas basis	Test Protocol*	EU-6ML-DC-68	SC V.1	R 336.1201 R 336.1331
5. PM10	3.6 pph	Test Protocol*	EU-6ML-DC-67 EU-6ML-DC-68	SC V.1	R 336.1201 R 336.1331
6. VOC	10.5 pph	Test Protocol*	EU-6ML-EF-03	SC V.1	R 336.1201 R 336.1702
7. VOC	7.3 pph	Test Protocol*	EU-6ML-EF-04	SC V.1	R 336.1201 R 336.1702
8. VOC	10.5 pph	Test Protocol*	EU-6ML-DC-67	SC V.1	R 336.1201 R 336.1702
9. VOC	10.5 pph	Test Protocol*	EU-6ML-DC-68	SC V.1	R 336.1201 R 336.1702
10. VOC	84 tpy	12-month rolling time period as determined at the end of each calendar month	EU-6ML-EF-03 EU-6ML-EF-04 EU-6ML-DC-67 EU-6ML-DC-68	SC VI.1 & 2	R 336.1201, R 336.1205(3) R 336.1702
11. CO	2.2 pph	Test Protocol*	EU-6ML-EF-03	SC V.1	R 336.1201
12. CO	6.6 tpy	12-month rolling time period as determined at the end of each calendar month	EU-6ML-EF-03	SC VI.1 & 2	R 336.1201, R 336.1205(3)
13. CO	2.2 pph	Test Protocol*	EU-6ML-EF-04	SC V.1	R 336.1201
14. CO	6.6 tpy	12-month rolling time period as determined at the end of each calendar month	EU-6ML-EF-04	SC VI.1 & 2	R 336.1201, R 336.1205(3)
15. VE	10 % opacity	six minute average	EU-6ML-EF-03 EU-6ML-EF-04	GC 13	R 336.1301(c)

*Test Protocol shall specify averaging time.

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate FG-6ML-MOLDCNVYR for more than 6000 hours per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205, R 336.1702, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
2. The throughput of FG-6ML-MOLDCNVYR shall not exceed a maximum of 220 molds per hour based on a monthly average. **(R 336.1205, R 336.1299, R 336.1702, R 336.2802, 40 CFR 52.21)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EU-6ML-DC-67 unless its respective air pollution control equipment [wet scrubber] is installed and operating properly in accordance with the Malfunction Abatement Plan (MAP). The MAP shall include procedures for maintaining air pollution control equipment. **(R336.1910)**

2. The permittee shall not operate EU-6ML-DC-68 unless its respective air pollution control equipment [wet scrubber] is installed and operating properly in accordance with the Malfunction Abatement Plan (MAP). The MAP shall include procedures for maintaining air pollution control equipment. **(R336.1910)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Verification of PM10, CO and VOC emission rates from FG-MOLDCNVYR, at owner's expense, may be required in accordance with approved methods. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1205, R 336.1702, R 336.2001, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall monitor and record, in a satisfactory manner, the hours of operation for FG-6ML-MOLDCNVYR on a monthly basis. **(R 336.1201(3))**

2. Permittee shall calculate and maintain records of the hourly averaged molds processed through FG-6ML-MOLDCNVYR per hour, as determined at the end of each calendar month. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205, R 336.1702, R 336.2802, 40 CFR 52.21)**

3. Within 30 days following the end of each calendar month the permittee shall calculate and record in a satisfactory manner, monthly and 12-month rolling time period emission rates of all criteria pollutants to demonstrate compliance with the 12-month rolling time period emission limits specified in the Emission Limit Table for FG-6ML-MOLDCNVYR. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205(1)(a), R 336.1205(3), R 336.1702, R 336.2802, 40 CFR 52.21)**

4. Permittee shall continuously monitor the pressure drop and liquid flow across each wet scrubber with appropriate devices. Results of the monitoring shall be recorded once per shift on a chart recorder or log and shall be kept on file. Any repairs required to maintain the pressure drop or liquid flow at reasonable operating levels shall be recorded and kept on file. **(R336.1201(3))**

5. Permittee shall initiate the malfunction abatement plan for the wet scrubber EU-6ML-DC-67 if the monitored pressure drop is less than 3.5 inches of water or greater than 11 inches of water or liquid flow is less than 80 gpm or greater than 191 gpm. **(R336.1201(3))**

6. Permittee shall initiate the malfunction abatement plan for the wet scrubber EU-6ML-DC-68 if the monitored pressure drop is less than 12 inches of water or greater than 22 inches of water or liquid flow is less than 80 gpm or greater than 191 gpm. **(R336.1201(3))**

7. Upon detecting an excursion or and exceedance, the permittee shall restore operation of EU-6ML-DC-67 and/or EU-6ML-DC-68 to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions **(R336.1201(3))**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of EU-6ML-DC-68. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-6ML-EF-03	52	68	R 336.2803, R 336.2804, 40 CFR 52.21 (c) and (d)
2. SV-6ML-EF-04	52	68	R 336.2803, R 336.2804, 40 CFR 52.21 (c) and (d)
3. SV-6ML-DC-67	50	80	R 336.2803, R 336.2804, 40 CFR 52.21 (c) and (d)
4. SV-6ML-DC-68	50	80	R 336.2803, R 336.2804, 40 CFR 52.21 (c) and (d)

IX. OTHER REQUIREMENTS

N/A

Footnotes:
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).