

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

April 24, 2017

**PERMIT TO INSTALL
13-17**

ISSUED TO
United States Steel Corporation

LOCATED AT
1 Quality Drive
Ecorse, Michigan

IN THE COUNTY OF
Wayne

STATE REGISTRATION NUMBER
A7809

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:

January 23, 2017

DATE PERMIT TO INSTALL APPROVED:

April 24, 2017

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	acfm	Actual cubic feet per minute
BACT	Best Available Control Technology	BTU	British Thermal Unit
CAA	Clean Air Act	°C	Degrees Celsius
CAM	Compliance Assurance Monitoring	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	CO _{2e}	Carbon Dioxide Equivalent
CFR	Code of Federal Regulations	dscf	Dry standard cubic foot
COM	Continuous Opacity Monitoring	dscm	Dry standard cubic meter
Department/ department	Michigan Department of Environmental Quality	°F	Degrees Fahrenheit
EU	Emission Unit	gr	Grains
FG	Flexible Group	HAP	Hazardous Air Pollutant
GACS	Gallons of Applied Coating Solids	Hg	Mercury
GC	General Condition	hr	Hour
GHGs	Greenhouse Gases	HP	Horsepower
HVLP	High Volume Low Pressure*	H ₂ S	Hydrogen Sulfide
ID	Identification	kW	Kilowatt
IRSL	Initial Risk Screening Level	lb	Pound
ITSL	Initial Threshold Screening Level	m	Meter
LAER	Lowest Achievable Emission Rate	mg	Milligram
MACT	Maximum Achievable Control Technology	mm	Millimeter
MAERS	Michigan Air Emissions Reporting System	MM	Million
MAP	Malfunction Abatement Plan	MW	Megawatts
MDEQ	Michigan Department of Environmental Quality	NMOC	Non-methane Organic Compounds
MSDS	Material Safety Data Sheet	NO _x	Oxides of Nitrogen
NA	Not Applicable	ng	Nanogram
NAAQS	National Ambient Air Quality Standards	PM	Particulate Matter
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM ₁₀	Particulate Matter equal to or less than 10 microns in diameter
NSPS	New Source Performance Standards	PM _{2.5}	Particulate Matter equal to or less than 2.5 microns in diameter
NSR	New Source Review	pph	Pounds per hour
PS	Performance Specification	ppm	Parts per million
PSD	Prevention of Significant Deterioration	ppmv	Parts per million by volume
PTE	Permanent Total Enclosure	ppmw	Parts per million by weight
PTI	Permit to Install	psia	Pounds per square inch absolute
RACT	Reasonable Available Control Technology	psig	Pounds per square inch gauge
ROP	Renewable Operating Permit	scf	Standard cubic feet
SC	Special Condition	sec	Seconds
SCR	Selective Catalytic Reduction	SO ₂	Sulfur Dioxide
SNCR	Selective Non-Catalytic Reduction	TAC	Toxic Air Contaminant
SRN	State Registration Number	Temp	Temperature
TEQ	Toxicity Equivalence Quotient	THC	Total Hydrocarbons
USEPA/EPA	United States Environmental Protection Agency	tpy	Tons per year
VE	Visible Emissions	µg	Microgram
		µm	Micrometer or Micron
		VOC	Volatile Organic Compounds
		yr	Year

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 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-ARGON-STIRS1	No. 1 Argon Stir Station and baghouse	*	
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-ARGON-STIRS1

DESCRIPTION: No. 1 Argon Stir Station and baghouse

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Baghouse

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Particulate Matter	0.01 grains per dry standard cubic foot of exhaust gas	As determined by the testing procedures in 40 CFR Part 63 Subpart FFFFF	EUARGON-STIR-S1	V.1&2, VI.3&4	40 CFR 63.7790(a), 40 CFR 63 Subpart FFFFF, Table 1.11
2. Particulate Matter	0.543 pounds per heat on a calendar day basis	As determined through reference method 5 at R 336.2004 or 5D at R336.2013	EUARGON-STIR-S1	V.1&2, VI.3	SIP No. 27-1993, Exhibit B, Paragraph 4, R336.1201(3)
3. Particulate Matter	1.63 pounds per hour	As determined through reference method 5 at R 336.2004 or 5D at R336.2013	EUARGON-STIR-S1	V.1&2, VI.3&4	R336.1201(3)
4. Particulate Matter	3.67 tons per year	Calendar year	EUARGON-STIR-S1	V.2, VI.3	R336.1201(3)
5. Visible Emissions	10% opacity	6-minute average	EUARGON-STIR-S1	V.1, VI.3	R336.1201(3), R336.1301(1)(c)

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The maximum number of heats shall not exceed 13,505 heats per calendar year. A heat at the No. 1 Argon Stir Station is defined as follows:

Processing of the heat at No. 1 argon stir station begins when the hood is down over the ladle and argon is injected. Argon is injected for several minutes to stir the heat. After the initial stir, a hot metal sample is taken to determine if additional processing is required. If alloys are required there is an argon stir to bring the heat into alloy specification. Argon is injected for a final stir for homogenization. The processing of the heat ends after the final stir.

(R336.1201(3))

2. The permittee shall not operate EUARGON-STIR-S1 unless the baghouse dust collector is installed and operating properly. **(R336.1201(3))**
3. The permittee shall implement and maintain the Malfunction Abatement Plan (MAP) for the No. 1 Argon Stir Station Baghouse developed pursuant to Consent Order WCAQMD 96-10. The MAP can be revised as appropriate, and alternate formats or revisions to the approved MAPs can be made upon approval by the AQD District Supervisor. **(CO No. 96-10, Section 5e, Paragraph 1, R336.1213(3), R336.1911)**

4. Permittee shall implement an Operation and Maintenance Plan (OMP) for the No. 1 Argon Stir Station Baghouse which shall include the following elements:
 - i) Monthly inspections for the proper operation of all pressure sensors dampers and dampers switches.
 - ii) Monthly inspections of the integrity of ductwork hoods and fan housings
 - iii) A requirement to repair any defect that could reasonably be expected to result in non-compliance identified during any inspection within 30 days. Any repair anticipated to extend beyond 30 days shall require a compliance plan be submitted to the AQD Detroit Office Supervisor for approval. The compliance plan shall include details of activities necessary to bring the facility into compliance with corresponding milestone dates included.
 - iv) Preventative maintenance for each control device. **(AQD CO 1-2005, Paragraph B.2)**

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

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

1. The permittee shall perform a certified Method 9 visible emission observation of the No.1 Argon Stir Station Baghouse stack at least once every six months (between January – June and July – December). The required certified Method 9 visible emission observations shall be performed during heating activity and the duration of each certified Method 9 visible emission observation shall be a minimum of one hour. **(R336.1213(3))**
2. Permittee shall conduct a performance test of the No. 1 Argon Stir Station Baghouse for particulate matter (PM) emissions no less frequently than once per five years from the date of the last performance test. Testing shall be performed in accordance with Reference Methods 1 (Port Location); 2, 2F or 2G (Volumetric Flow); 3, 3A, or 3G (Dry Molecular Weight); 4 (Moisture Content); 5, 5D or 17, as applicable, (concentration of particulate matter - front half filterable catch only), or another AQD approved method, and shall occur only when the processes being controlled are in operation. Each test run shall collect a minimum sample volume of 60 DSCF, or other approved sample volume, of gas and three valid test runs are needed to comprise a performance test. Performance testing shall not include non-production time or any time beyond the completion of a heat. Permittee shall submit notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin for any testing required under 40 CFR Part 63, Subpart FFFFF. No less than 30 days prior to testing, a complete stack test protocol must be submitted to AQD for approval. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. **(R 336.1213(3), 40 CFR 63.7840(d), 40 CFR 63.7(b)(1), 40 CFR 63.7821(c), 40 CFR 63.7822, 40 CFR 63.7833(a))**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep records of the total number of heats per calendar year and tons of particulate matter emitted per calendar year and make the records available to AQD upon request. **(R 336.1213(3))**
2. The permittee shall keep a written record of each certified Method 9 visible emission observation required by V.1. The permittee shall initiate corrective action if visible emissions exceeding the limit are observed during certified Method 9 visible emission observations and keep a written record of each corrective action taken. **(R 336.1213(3))**

3. The permittee shall conduct inspections of the No. 1 Argon Stir Station Baghouse at the specified frequencies according to the requirements in paragraphs (i) through (viii) below. The permittee shall maintain records needed to document conformance with these requirements.
 - i) Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the manual.
 - ii) Confirm that dust is being removed from hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms.
 - iii) Check the compressed air supply for pulse-jet baghouses each day.
 - iv) Monitor cleaning cycles to ensure proper operation using an appropriate methodology.
 - v) Check bag cleaning mechanisms for proper functioning through monthly visual inspection or equivalent means.
 - vi) Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (knead or bent) or laying on their sides. You do not have to make this check for shaker-type baghouses using self-tensioning (spring-loaded) devices.
 - vii) Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks.
 - viii) Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means. **(40 CFR 63.7830(b)(4), R336.1213(3), 40 CFR 64.6(c)(1)(i and ii))**
4. The permittee shall install, operate and maintain a bag leak detection system to monitor the relative change in particulate matter loadings for the No. 1 Argon Stir Station Baghouse according to the requirements of 40 CFR 63.7831(f). **(40 CFR 63.7830(b)(1), 40 CFR 63.7831(f), 40 CFR 64.6(c)(1)(i and ii))**
5. The permittee shall record all information needed to document conformance of each bag leak detection system with applicable requirements of 40 CFR Part 63, Subpart FFFFF. **(40 CFR 63.7833(c)(1))**
6. In the event of a bag leak detection alarm, the permittee shall maintain records of the time corrective action was initiated, the corrective actions taken, and date corrective action was completed. **(40 CFR 63.7833(c)(4))**
7. An excursion is a bag leak detection alarm or a pressure drop outside of the normal operating range identified in the manual as described in S.C. VI.3 and VI.6. Upon detecting an excursion or exceedance, the owner or operator shall restore operation of EUARGON-STIR-S1 (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). **((40 CFR 64.6(c)(2)), 40 CFR 64.7(d))**
8. The permittee shall maintain records of all inspections and required remedial actions associated with the OMP. **(AQD CO 1-2005).**
9. The permittee shall properly maintain the monitoring system including keeping necessary parts for routine repair of the monitoring equipment. **(40 CFR 64.7(b))**
10. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of this part, including data averages and calculations or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. **(40 CFR 64.6(c)(3), 64.7(c))**

11. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan and any activities undertaken to implement a quality improvement plan, and other information such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions. **(40 CFR 64.9(b)(1))**

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-ARGN-BAGHSE	42	173	R336.1201(3)

IX. OTHER REQUIREMENTS

NA

Footnotes:

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