

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

January 25, 2012

PERMIT TO INSTALL
262-99B

ISSUED TO
St. Mary's Cement Inc. (U.S.)

LOCATED AT
9333 Dearborn Street
Detroit, Michigan

IN THE COUNTY OF
Wayne

STATE REGISTRATION NUMBER
B3567

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 9, 2011	
DATE PERMIT TO INSTALL APPROVED: January 25, 2012	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
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H ₂ S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
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
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than or equal to 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than or equal 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO ₂	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

* 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)	Flexible Group ID
EU-001	A Slag Dryer with a 60,000 acfm Dust Collector. This Permit to Install is for a six-month trial burn period, during which recycled plastic fuels will be burned intermittently, in addition to natural gas and no. 2 fuel oil. When a plastic fuel is being trialed, natural gas can also be used, but the fuel oil burner lance will be removed. Plastic fuels are fed to the dryer burner by a temporary feeder system.	FG-001
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-001

DESCRIPTION: Slag Dryer with 60,000 ACFM dust collector.

Flexible Group ID: FG-001

POLLUTION CONTROL EQUIPMENT: Baghouse dust collector

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NOx	26.4 pph	Test Protocol*	EU-001 when using plastic fuel	SC V.1	R336.1205(3)
2. NOx	37.5 tpy	12-month rolling time period as determined at the end of each calendar month	EU-001	See "Method #1" below	R336.1205(1)(a)
3. CO	15.0 pph	Test Protocol*	EU EU-001 when using plastic fuel	SC V.1	R336.1205(3)
4. CO	27.6 tpy	12-month rolling time period as determined at the end of each calendar month	EU-001	See "Method #2" below	R336.1205(1)(a)
5. PM	1 pph	Test Protocol*	EU-001 when using plastic fuel	SC V.1	R336.1205(3)
6. PM	0.0218 pounds per 1000 pounds of dry exhaust gas	Test Protocol*	EU-001	SC V.1	R336.1331(1)(c)
7. SO2	31.5 pph	Test Protocol*	EU-001 when using plastic fuel	SC V.1	R336.1205(3)
8. SO2	36.5 tpy	12-month rolling time period as determined at the end of each calendar month	EU-001	SC VI.3	R336.1205(1)(a)

*Test Protocol shall specify averaging time

Method #1 (for NO_x):

Limit based on an emission factor of 100 pounds per million cubic feet of natural gas and 20 pounds per thousand gallons of fuel oil, or other emission factor as determined from testing pursuant to General Condition 13, whichever is higher. **The combined emission factor for plastic fuels and natural gas shall be determined by testing during the trial burn period and used to calculate the NO_x emission factor for the plastic fuels.** The permittee shall use the emissions factors and the fuel use requirements (SC VI.5, VI.8 and VI.9) to determine the 12-month rolling time period rate.

Method #2 (for CO):

Limit based on an emission factor of 84 pounds per million cubic feet of natural gas and 5 pounds per thousand gallons of fuel oil, or other emission factor as determined from testing pursuant to General Condition 13, whichever is higher. **The combined emission factor for plastic fuels and natural gas shall be determined by testing during the trial burn period and used to calculate the CO emission factor for the plastic fuels.** The permittee shall use the emissions factors and fuel use requirements (SC VI.5, VI.8 and VI.9) to determine the 12-month rolling time period rate.

9. Visible emissions from EU-001 shall not exceed a 6-minute average of 10 percent opacity. **(R336.1205(1)(a), R336.1301(1)(c))**

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Plastic Fuel	3 tons per hour	Hourly	EU-001	SC VI.4	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
2. Plastic Fuel	1000 tons per six - month trial burn period	Trial Test Burn	EU-001	SC VI.5	R 336.1225 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)

3. The Permittee shall not exceed a combined 657 billion British thermal units of heat input of natural gas, no. 2 fuel oil and plastic fuel combusted through EU-001 per 12-month rolling time period as determined at the end of each calendar month. **(R336.1205(1)(a) and (3))**
4. During the 12-month period beginning with the month that the trial burn period commences, the permittee shall not combust more than 750,000 gallons of no.2 fuel oil in EU-001. **(R 336.1205(1)(a) and (3))**
5. The sulfur content of the recycled plastic fuel combusted in EU-001 during the trial burn period shall not exceed 0.30 percent by weight. **(R 336.1205(1)(a) and (3))**
6. The sulfur content of the no. 2 fuel oil combusted in EU-001 shall not exceed 0.30 percent by weight. **(R336.1205(1)(a) and (3), R336.1402)**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate EU-001 unless the dust collector associated with the emission unit is installed and operating properly. **(R336.1224, R336.1225, R336.1910)**

IV. DESIGN/EQUIPMENT PARAMETERS

N/A

V. TESTING/SAMPLING

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

1. During the trial test burn, verification of NO_x, CO, CO₂, PM, PM₁₀, PM_{2.5}, SO₂, VOCs, Metals (As, Cd, Cr, Cu, Pb, Mn, Hg, Ni, Zn), hydrochloric acid, formaldehyde and sulfuric acid emissions rates, and visible emissions, by testing at owner's expense, in accordance with Department requirements, will be required. No less than ten days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by AQD prior to testing. Verification of emissions rates includes the submittal of a complete report of the test results to the AQD within 90 days following the last date of the test. **(R 336.1225, R 336.2001, R336.2003, R 336.2004, R 336.1803, R 336.1804, 40 CFR 52.21 (c) & (d))**
2. The permittee shall provide the following laboratory analyses for EACH recycled plastic fuel used during the test trial burn period, at owner's expense:
- a) Ultimate analysis

- b) Proximate analysis
- c) Metals, including As, Cd, Cr, Cu, Pb, Mn, Hg, Ni and Zn
- d) Chlorine
- e) Sulfur
- f) Heat content

Laboratory results shall be submitted to the AQD within 90 days following the last day of stack testing.
(R 336.1225, R 336.1803, R 336.1804, 40 CFR 52.21 (c) & (d))

3. The heat content and sulfur content determinations for each shipment of no. 2 fuel oil as received for EU-001 shall be performed with test methods and in a manner acceptable to the District Supervisor, Air Quality Division. **(R336.1205(1)(a) and (3), R336.1402)**

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 the following data for all trial burn stack test runs:
 - a) Slag feed rate (continuously)
 - b) Moisture content of the slag when introduced to the dryer (once per test run)
 - c) Natural gas usage rate (continuously)
 - d) Plastic fuel usage rate (continuously)
 - e) Which plastic fuel is being burned, to correlate with the lab analyses (once per test run)
 - f) Outlet temperature of the dryer (continuously)
 - g) CO₂ concentration in the exhaust gas (continuously)
 - h) Exhaust flow rate (ACFM) (once per test run)
 - i) Determine the exhaust flow rate (SCFM) (Calculated, once per test run)
 - j) Determine the exhaust flow rate (DSCFM) (Calculated, once per test run)**(R 336.1205(1)(a) and (3))**
2. If testing determines that PM emissions are greater than 0.60 pph, then the permittee shall calculate the emissions of PM, in tons on a monthly and 12-month rolling basis, during the 12-month period starting with the month the trial burn commences. **(R 336.1205(1)(a) and (3))**
3. The permittee shall calculate SO₂, NO_x, and CO emissions on a monthly and 12-month rolling basis, during the 12-month period starting with the month the trial burn commences. **(R 336.1205(1)(a) and (3))**
4. The permittee shall monitor and record the use of recycled plastic fuel in tons, on an hourly basis, during the six-month test trial burn period. **(R 336.1205(1)(a) and (3), R 336.1225)**
5. The permittee shall monitor and record the use of recycled plastic fuel, in tons, on a monthly basis, and cumulatively, during the six-month trial period. **(R 336.1205(1)(a) and (3), R 336.1225)**
6. The permittee shall monitor, in a satisfactory manner, the natural gas usage for EU-001 on a monthly basis. **(R336.1205(1)(a) and (3))**
7. The permittee shall monitor, in a satisfactory manner, the no. 2 fuel oil usage for EU-001 on a monthly basis. **(R336.1205(1)(a) and (3))**
8. The permittee shall maintain a written record of the combined heat input of natural gas and no. 2 fuel oil combusted in EU-001 for each calendar month and each 12-month rolling time period as determined at the end of each calendar month. Each written record shall be maintained for a period of at least five years and made available to the Air Quality Division upon request. **(R336.1205(1)(a) and (3))**
9. The permittee shall maintain a written record of the amount of natural gas combusted in EU-001 for each calendar month and each 12-month rolling time period as determined at the end of each calendar month. Each written record shall be maintained for a period of at least five years and made available to the Air Quality Division upon request. **(R336.1205(1)(a) and (3))**

10. The permittee shall maintain a written record of the amount of no. 2 fuel oil combusted in EU-001 for each calendar month and each 12-month rolling time period as determined at the end of each calendar month. Each written record shall be maintained for a period of at least five years and made available to the Air Quality Division upon request. **(R336.1205(1)(a) and (3))**
11. The permittee shall maintain a written record of the heat content, percent sulfur by weight and the amount of fuel oil received for each shipment of no. 2 fuel oil received for EU-001. Each written record shall be maintained for a period of at least five years and made available to the Air Quality Division upon request. **(R336.1205(1)(a) and (3), R336.1402)**

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. SV001	60	130	40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENTS

1. The trial burn permit shall be come effective upon written notification from the permittee to the AQD district supervisor, and the test burn period shall be terminated within six months from the date of said notification or by February 28, 2013. **(R 336.1205(1)(a))**
2. The permittee shall notify the AQD district supervisor of the date when the trial burn is complete. **(R 336.1205(1)(a))**
3. The trial burn permit shall be void on the last day of the twelfth month after the month in which the trial burn is completed. **(R 336.1205(1)(a))**

Footnotes:

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