

B3567
MANILA

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

B356741625

FACILITY: ST MARY'S CEMENT		SRN / ID: B3567
LOCATION: 9333 DEARBORN ST, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT: Linda Harris , Quality and Environmental Supervisor		ACTIVITY DATE: 07/26/2017
STAFF: Jill Zimmerman	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Target Inspection		
RESOLVED COMPLAINTS:		

DATE OF INSPECTION : 7/26/2017
 TIME OF INSPECTION : 10:00 am
 NAICS CODE : 327310
 EPA POLLUTANT CLASS : PM
 INSPECTED BY : Jill Zimmerman
 PERSONNEL PRESENT : Linda Harris, Quality Control Coordinator
 FACILITY PHONE NUMBER : 313-849-4581
 FACILITY FAX NUMBER : 313-849-4533

FACILITY BACKGROUND

St. Mary's Cement, Inc. is owned by Votoratum Cimentos, Inc., a Brazilian company with plants in Brazil, the U.S and Canada. This facility is located in an industrial area, bordered by the Rouge River to the south and southwest, the Fisher Freeway to the north and northeast. The facility operates a cement manufacturing plant, grinding cement clinker, limestone, gypsum and slag, with the finish product sold in bulk. The main product produced at this facility is Portland type 1 cement. Customers are bulk suppliers; the general public cannot buy the product from St. Mary's Cement.

The facility operates three shifts per day, seven days per week, and employs 42 union workers and approximately 10 management staff as well as a sales staff, who primarily work outside of the office. The facility operates on "valley hours", where more work is preformed in the evening in order to conserve energy.

REQUIRED PPE

During the onsite inspection, I wore steel toed shoes, eye protection and a safety vest.

COMPLAINT/COMPLIANCE HISTORY

A fallout complaint was received on March 7, 2017. This complaint was resolved with the onsite inspection. No additional complaints have been received.

In September 2002, the EPA and the facility entered into a voluntary corrective action agreement, which required St. Mary's Cement to investigate, stabilize and clean up releases of hazardous wastes at the facility. The EPA believes that St. Mary's Cement has fulfilled this agreement, based a published report in September 2004.

OUTSTANDING VNs

NA

PROCESS EQUIPMENT AND CONTROLS

Trucks deliver limestone and gypsum, which are the raw materials. Raw slag is brought to the facility via barge from Canada unless the river is frozen. The facility makes nine different

types of final products, including slag, Portland 1, Portland 2, Portland 3, masonry S, masonry N, high bond M, high bond S, and mortar high bond.

Cement clinker is delivered by barge and stored in Building A. A piping system is used to unload the clinker. The pipes connect the barge to the building, and the product is deposited inside Building A. This process takes about 24 hours to complete. Employees then push the product on to a conveyor system through floor grates. The underground conveyor system connects Building A to the Mill Building. The raw materials are stored in small silos or day bins in the mill building until the product is ready to be grinded. Limestone, gypsum and slag are stored outside along the southeast portion of Building A. Raw slag usually has a moisture content of 12% to 16%. Slag passes through a dryer, which is powered by natural gas, before entering the Mill Building. This dryer, which reduces the moisture content in the slag from about 12% to less than 2%, is controlled by a baghouse. The dryer usually operates at a temperature of 170 F, with a maximum temperature of 250 F; a hotter temperature would destroy the conveyor belts. During the winter months, the gypsum is stored inside Building A to prevent freezing, which would cause problems with this raw material. The limestone and gypsum are also moved to the Mill Building, through the conveyor system. These raw materials are grinded in one of three mills in the Mill Building. The final product is stored in one of thirty storage silos. Recently, a sealant product has been applied to Building A to prevent the product from escaping from holes in the building.

Clinker that is brought to this facility via truck was stored inside Building K. The clinker is then moved to Building A so that it can be moved through the conveyor system.

There are seven day bin silos inside the mill building. These silos can feed more than one mill. Fringe, which is material created during the transition of different types of cement, is stored in the mill room until it can be used. Quality control tests of the cement are performed approximately every two hours, and include testing for the limestone content, and chemical analysis. Raw material is metered into the mills based on the proportions required for the cement mix. As the mills grind the material, the friction creates heat, though no heat is added to the process. A water system is present to control the temperature inside the mills; when too much heat is generated, this system releases water to cool the mill. The hold time for each mill is approximately 30 minutes.

Mill 1 only grinds slag, producing approximately 40,000 tons per hour. Mill 2 is capable of producing 80,000 tons of Portland type 1 per hour; all other products are able to be produced in this mill at a rate of 40,000 tons per hour. Mill 3 is capable of producing approximately 140,000 tons of Portland type 1 per hour; all other products are able to be produced in this mill at a rate between 40,000 tons and 60,000 tons per hour.

Next, the product, which flows like a liquid because of how fine it is ground, is pumped to a storage silo. The pumps are operated with air pressure. The facility has 9 silos which were part of the former packaging process and 11 bulk silos. The silos hold between 1,000 tons to 4,000 tons. Trucks are filled under the silos on a truck scale; railcars can also be filled from these silos. Some of these silos are quad type, where the silo is divided into 4 distinct compartments. Between the traditional shaped silos are interstitial silos, which are distinct compartments with walls and roofs. When the employees are working in the silos, they are to keep the doors closed.

The facility also owns 16 silos and part of a building on the other side of the railroad tracks. However, someone has stolen all of the wiring and other metal utilities so the building cannot be used.

INSPECTION NARRATIVE

Initially, I met with Ms. Linda Harris to discuss the process and to answer any initial questions. During this time, we discussed the required recordkeeping. Ms. Harris sent me an electronic copy of the records collected at this facility. Then Ms. Harris and I walked through the plant to better understand the process.

Facility no longer makes clinker. They have not made clinker since approximately 1991. The kiln has been removed from this facility; therefore, clinker cannot be made at this facility. The facility receives the clinker from a barge; it is produced at the Bowmanville, Ontario facility. The facility receives about 2 loads of clinker per month, except during the winter months when the locks are closed.

Business has been improving, which has increased production. Typically, sales are higher between June and October. If the mills operated at the maximum capacity, this facility could produce 2 million tons of product per year. In 2007, the facility ended the bag packaging operations at this location; finished product to be bagged is shipped to a sister plant in Canada, where the product is bagged.

Although the current operating permits allow the facility to use No. 2 Fuel Oil, only natural gas is used at this location. The facility was issued a permit to test burn a plastic fuel. However, the corporate decision makers have decided against this trial and will not be using plastic fuels.

In the past, the facility operated a bagging process, where the final product was placed in bulk bags and shipped to the customer. However, the facility has determined that it is more economical to ship the material to a sister plant in Canada where it can be bagged. Therefore, the bagging equipment has been removed, and this building is now used as warehouse storage space.

Steel balls are used inside the mills to grind the raw material. The steel balls that can no longer be used are stored in 55 gallon drums in an area of the facility called the graveyard. These drums were labeled. Dried slurry is also stored in this area. The slurry was used to fill in a large hole after multiple stray dogs were found drowned in the water. Waste raw materials are stored in a pile on the facility grounds.

During the onsite inspection, all three mills were operating. The dryer for the slag was operating.

APPLICABLE RULES/PERMIT CONDITIONS

St. Mary's Cement is operating under four State of Michigan permits. Permit 115-11 is a general permit for a portable concrete crusher. This permit was not evaluated.

Permit 14-04 for a slag silo, slag conveyor system, and slag spout.

Special Conditions

Emission Limits

1.1 Compliance – Based on a review of the records collected during the onsite inspection, the annual emissions reviewed for the past year for each emission unit (EU-SLAGPOUT, EU-SLAGSILO, and EU-SLAGCONVEYOR) is less than 0.02 tons per 12-month rolling average, which is less than all permit limits.

Visible Emissions

1.2 Compliance – The facility has a certified opacity reader who reads the opacity daily. The facility

also has opacity meters when electronically monitor the opacity. When the opacity reached 8%, the equipment will shut off. The opacities are monitored by Ms. Harris through an excel spreadsheet, where any spikes can be monitored and addressed.

Material Usage Limits

1.3 Compliance – Based on a review of the records, the maximum annual amount of slag processed was 24,970 tons in July 2016, which is less than the permit limit of 1,000,000 tons. This value is based on the records provided on the spreadsheet labeled #12 PTI 14-04 FGSLAGLOAD Hours.

Process/Operational Limits

1.4 Compliance – Based on a review of the records provided on the spreadsheet titled #12 PTI 14-04 FGSLAGLOAD Hours, the maximum annual hours of operating based on a 12-month rolling average was 166.47 hours in July 2016. This is less than the permitted limit of 3,000 hours.

1.5 Compliance – A acceptable Malfunction Abatement Plan (MAP) was received by the department for the slag silo, slag conveyor system, and slag spout.

Testing

1.6 Compliance – VE's are monitored by a opacitimeter. When VE's exceed 8%, the facility shuts down. A record of the VE's is monitored by Ms. Harris.

Recordkeeping/Reporting/Notification

1.7 Compliance – The facility maintains records of the hours of operation in a spreadsheet which was shared with me electronically during the onsite inspection.

1.8 Compliance – The facility maintains a spreadsheet record of the VE. This record is maintained by Ms. Harris.

1.9 Compliance – The PM records are maintained onsite and were shared electronically during the onsite inspection.

1.10 Compliance – The amount of slag processed is maintained in a spreadsheet which was share electronically during the onsite inspection.

1.11 Compliance – Records for the fugitive dust plan are maintained and were shared electronically during the onsite inspection.

Permit 262-99A for the cement process and associated equipment.

Special Conditions:

EU-001

Material Usage Limits

1.1 Compliance – Based on a review of the collected records, the maximum MMBTU input during the past two years was 138 billion BTU based on a 12-month rolling average in November 2016.

1.2 NA – The facility has only burned natural gas for at least the past two years.

1.3 NA – The facility has only burned natural gas for at least the past two years.

Testing

1.4 NA – The facility has not used fuel oil during at least the past two years.

Monitoring

1.5 Compliance – Monthly natural gas records were collected electronically during the onsite inspection.

1.6 NA – During at least the past two years, no fuel oil has been burned at this plant.

Recordkeeping/Reporting/Notification

1.7 Compliance – The facility maintains records of all fuel sources burned, and these records were shared electronically during the onsite inspection.

1.8 Compliance – The facility maintains records for the natural gas usage, and these records were shared electronically during the onsite inspection.

1.9 NA – Fuel oil has not been used at this facility for at least the past two years.

1.10 NA – Fuel oil has not been used at this facility for at least the past two years.

EU-031

Emission Limits

2.1 Compliance – Based on a review of records, the maximum PM emissions were 0.6 tons per 12 month rolling average for every month between January 2016 and August 2017.

Visible Emission Limits

2.2 Compliance – During the onsite inspection, no VEs were observed from the piles. A certified VE reader is available onsite to monitor VE's

2.3 Compliance – During the onsite inspection, no VEs were observed from the piles. A certified VE reader is available onsite to monitor VE's

Recordkeeping/Reporting/Notification

2.4 Compliance – The facility is maintaining PM emission records. Proper reporting was reviewed in MAERS

2.5 Compliance – VE records were reviewed during the onsite inspection.

FG-001

Emission Limits

3.1 Compliance – I reviewed the reported emissions in MAERS for 2016. The tons per year for each of the listed pollutants were below the permitted limit. I did not review the emissions based on test protocol. A stack test occurred between January 26, 2006 and January 28, 2006. It appears based on a review of this report that the tested emissions were acceptable for both EU-001 and EU-004. The emissions for EU-005 appear to be higher than the emission limit. Additional investigation into the emission rates will occur during the next inspection.

Visible Emission Limits

3.2 Compliance – During the onsite inspection, it appeared that the VEs were less than 10% opacity. Opacity is monitored onsite by a certified reader as well as opacimeters.

Process/Operational Limits

3.3 Compliance – Based on a review of the collected records, it appears that all equipment is operating under the permit limit hours of operation. The records were reviewed for the past two years.

3.4 Compliance – During the onsite inspection. The duct collector was operating properly.

Testing

3.5 Compliance – The opacity is monitored by an opacimeter, which sends an alert anytime that the opacity exceeds 8%. There is also a certified reader onsite to monitor opacity.

The facility has installed opacimeters on each stack is calibrated by a third party. The opacimeters were last calibrated on July 12, 2017 and the calibration sheets are attached to this report. The last stack test appears to have occurred on January 26-28, 2006.

Recordkeeping/Reporting/Notification

3.7 Compliance – Hours of operation for each emission unit is recorded monthly and calculated annually

3.8 Compliance – VE observation are recorded and maintained onsite.

3.9 Compliance – Monthly and 12-month rolling time period records are maintained for NOx and are attached to this report.

3.10 Compliance – Monthly and 12-month rolling time period records are maintained for CO and are attached to this report.

3.11 Compliance – Monthly and 12-month rolling time period records are maintained for PM and are attached to this report.

Stack/Vent Restrictions

3.12 Compliance – No changes have been made to the stacks since the last onsite inspection.

FG-002

Process/Operational Limits

4.1 Compliance – The facility only operates using natural gas.

FG-003

Process/Operational Limits

5.1 Compliance – Based on a review of the records, the clinker was unloaded at an acceptable rate.

Recordkeeping/Reporting/Notification

5.2 Compliance – The facility is maintaining proper records and were shared electronically during the onsite inspection.

FGFACILITY

Emission Limits

6.1 Compliance – Based on a review of the records and MAERS, the facility is operating under the PM permitted limit of 86.7 tpy. The highest emissions of 42.5 ton per 12-month rolling average was reported for April 2016 on the spreadsheet form labeled #11 PTI 262-99A FGFACILITY PM.

Recordkeeping/Reporting/Notification

6.2 Compliance – Monthly and 12-month rolling time period PM emission records are maintained and attached to this report.

6.3 Compliance – The current MAP was approved by the department and appears to be the appropriate maintenance plan for the facility.

6.4 Compliance – The facility is following their current Fugitive Dust Plan.

Permit 262-99B for the trial burn of plastic fuels

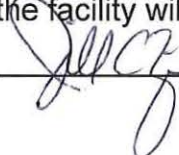
The trial burn of the plastic fuels never occurred. The corporate decision makers decided against the trial burn. This permit will be voided because the trial burn did not begin by February 28, 2013, which is the latest commencing date listed in the permit.

MAERS REPORT REVIEW

The facility submitted this report on time. The report was submitted with emission data. The reported PM emissions for EU-006 was changed to 616 pounds to match the submitted data. The reported PM emissions for EU-030 was changed from 2823 pounds to 1045 pounds to match the submitted data. Otherwise, all reported information appears to have been reported accurately. This report was reviewed on 5/23/2017.

FINAL COMPLIANCE DETERMINATION

General surveillance in the area should be performed periodically as a result of the fallout complaint that was received in March 2017. The facility is required to stack test EU-001, EU-004, and EU-005 once every five years. It is unknown at this time if the stack test has been completed. Additional follow-up with the facility will be needed.

NAME 

DATE 4/11/17

SUPERVISOR 