

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

B413759905

FACILITY: AJAX MATERIALS CORPORATION		SRN / ID: B4137
LOCATION: 2240 AVON INDUSTRIAL DR, ROCHESTER HLS		DISTRICT: Warren
CITY: ROCHESTER HLS		COUNTY: OAKLAND
CONTACT: Kathleen Anderson , Environmental Consultant		ACTIVITY DATE: 09/09/2021
STAFF: Robert Joseph	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled inspection of HMA plant		
RESOLVED COMPLAINTS:		

On September 9, 2021, I, Michigan Department Environment, Great Lakes, and Energy-Air Quality Division staff Robert Joseph, conducted a scheduled inspection of Ajax Materials Corporation (B4137) located at 2240 Avon Industrial Drive, Rochester Hills, Michigan 48309. The purpose of the inspection was to determine the facility's compliance with the requirements of the Federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451; the Michigan Department Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) Administrative Rules, and conditions of the facility's Permit to Install, 720-89D.

General Facility Information

I arrived at the facility at approximately 1:30 p.m and met with the facility operator, Mike Mirowski, and facility manager, David Grabowski. I introduced myself and presented my identification and credentials and stated the purpose of my visit. I asked Mike to provide me some general information regarding the facility. He indicated the facility operates roughly six to seven days a week during the paving season (April to November) from 6 a.m to 6 p.m. The facility maintains five employees and produces Hot Mix Asphalt (HMA) for local, county and state road projects as well as for commercial establishments. Independent contractors haul the HMA to the required destination.

Facility Tour

The HMA is produced in a double counter-flow direct fired rotary drum that is fired by natural gas (the facility does not use recycled used oil (RUO) in the HMA production). There are three RAP bins (recycled asphalt pavement) and 13 virgin aggregate bins. The HMA product can be altered by changing the virgin aggregate and RAP mixture at the beginning of the process to produce over 100 mix designs. Common mixes are 5E-3 (mainline roadway) and 4E-3 (road shoulders).

The process begins by loading the desired aggregate mix into the feed hoppers. Once the appropriate aggregate is chosen for a specific mix design, the aggregate falls from its bin onto the main conveyor belt and the HMA production process begins. There is a single main belt for each of the virgin and RAP materials. The aggregate is conveyed to a weigh bridge which then flows into one drum which heats the virgin material removing its moisture, followed by the second drum which is a counter flow direct-fired rotary drum used for the RAP and the mixing of liquid asphalt cement.

The counter flow is a direct-fired rotary drum, where the exhaust gases through the dryer flame, and the fumes are combusted before exiting the drum at the opposite end from the paving material. This drum is designed for aggregate to flow counter to the heat source allowing for high aggregate temperatures and low stack temperatures. The burner flame is not in contact with asphalt.

The facility's mix process includes five emulsified liquid asphalt storage tanks (EUACTANKS) totaling 100,000 gallons; four vertical and one horizontal. The permit lists four asphalt cement storage tanks, however, the facility sold one horizontal tank and added two vertical tanks in 2010, for a total of five tanks. The tanks are exempt from Rule 201 (Permit to Install) per rule 289(2)(b) provided the tanks are controlled by an appropriately designed and operated vapor condensation and recovery system or an equivalent control system. Each of the liquid asphalt tanks is equipped with a canister style condensation and recovery system. Special condition 3.1 of EU-ACTANKS references that emission unit EU-001 shall not operate unless the vapor condensation and recovery system for each liquid asphalt cement storage tank is installed and operating properly.

There are no tanks which store Tack, a sticky glue-like substance which is sprayed onto a surface before the placement of hot-mix asphalt (HMA) to aid in adhesion. Also, there are five storage tanks (EUSILOS) where the HMA is stored after production each with a 200-ton capacity. The HMA mix is maintained at approximately 350 degrees F for ease of placement and compaction in-place.

The drum inlet temperature is 300 F and drum outlet temperature is 310 F. Exhaust gas from the dryer/mixer is directed to a primary collector consisting of a series pulse jet bags (fabric filters). There are approximately 624 bags which are inspected regularly by the facility where dust and particulate matter from the aggregate mix are mixed back into the final product. The bags are disposed of by Waste Management Renewable Energy. A stack with an exhaust dimension of approximately 60 inches emits the emissions into the atmosphere. There were no visible emissions.

PTI 720-89D

EU-001

EMISSION LIMITS

The following pollutants were tested on August 6-9, 2002, and November 14, 2002, under the original PTI, 720-89A, which was issued to Angelo's Asphalt Materials (the previous owner of this facility). Emission factors for this permit were based on the general addendum for asphalt plants. Modeling demonstrated that emissions would be environmentally acceptable for Rule 225 per the AQD at the time.

Given that there were no operational or equipment changes to the facility when Ajax Materials Corporation purchased the equipment from Angelo Asphalt Materials, the pollutants were not tested again when the current PTI, 720-89D, was issued to Ajax Materials per conditions 1.13 and 1.14 as stated below:

1.13 Verification and quantification of emission rates from EU-001 of the hazardous air pollutants listed below by testing, at owner's expense, in accordance with Department requirements, may be required for continued operation. Verification of emission rates includes the submittal of a complete report of the test results. A complete test plan must be submitted to the Air Quality Division. The test plan shall include a provision for monitoring the CO emissions during the test. The plan must be approved by the Air Quality Division prior to testing.

1.14 Verification and quantification of emission rates from EU-001 of carbon monoxide, sulfur dioxide, and sulfuric acid by testing, at owner's expense, in accordance with Department requirements, may be required for continued operation. Verification of emission rates includes the submittal of a complete report of the test results. A complete test plan must be submitted to the Air Quality Division. The plan must be approved by the Air Quality Division prior to testing.

The AQD has not required Ajax Materials Corporation to conduct performance tests for these pollutants since they were tested by the facility's former owner, Angelo's Crushed Concrete. Angelo's Crushed Concrete was permitted by the AQD to use test data from one plant to show compliance at other plants similarly owned by the company. All the performance test results for the pollutants from the previous PTI, 720-89A, also passed the emission factor limits for the pollutants from the current PTI, 720-89D, except for Acrolein (see below). The facility uses natural gas to fire their drums.

The facility used MAERS emission factors when calculating and submitting their 2021 criteria pollutant emissions (tons/yr). Those values are referenced below for those pollutants which have never been tested.

Pollutant	Limit	Emission result	Test data
1.1a) PM	0.04 gr/dscf	0.02 gr/dscf	Stack Test 11/14/02
1.1b) SO ₂	0.263 lb/ton ²	N/A	Not tested per AQD
1.1c) SO ₂	89.4 tpy ¹	42.76 tons	Current 12-month rolling total (Aug. 2021)
1.1d) NO _x	0.12 lb/ton ²	N/A	Not tested per AQD
1.1e) CO	0.201 lb/ton ²	0.093 lb/ton ²	Stack test 08/06/02
1.1f) CO	68.3 tpy ¹	32.68 tons	Current 12-month rolling total (Aug. 2021)
1.1g) VOC	0.058 lb/ton ²	N/A	Not tested per AQD
1.1h) Lead	1.5E-05 lb/ton ²	9.78 x 10 ⁻⁷	Stack test 08/06/02
1.1i) Benzene	0.0012 lb/ton ²	6.99 x 10 ⁻⁴	Stack test 08/06/02
1.1j) Toluene	0.0029 lb/ton ²	9.54 x 10 ⁻⁴	Stack test 08/06/02
1.1k) Ethylbenzene	0.0012 lb/ton ²	7.03 x 10 ⁻⁴	Stack test 08/06/02
1.1l) Xylene	0.0012 lb/ton ²	7.02 x 10 ⁻⁴	Stack test 08/06/02
1.1m) Naphthalene	0.00065 lb/ton ²	2.16 x 10 ⁻⁵	Stack test 08/06/02
1.1n) Formaldehyde	0.0036 lb/ton ²	1.41 x 10 ⁻³	Stack test 08/06/02
1.1o) Acrolein	5.0E-04 lb/ton ²	1.14 x 10 ⁻³	*See note below.
1.1p) Arsenic	1.1E-06 lb/ton ²	6.98 x 10 ⁻⁷	Stack test 08/06/02
1.1q) Nickel	6.3E-05 lb/ton ²	1.17 x 10 ⁻⁶	Stack test 08/06/02
1.1r) Manganese	1.4E-04 lb/ton ²	2.98 x 10 ⁻⁵	Stack test 11/14/02

Pollutant	Limit	Emission result	Test data
1.1s) Sulfuric Acid	6.26E-03 lb/ton ²	N/A	Not tested per AQD
1.1t) Hydrogen Chloride	0.006 lb/ton ²	N/A	Not tested per AQD

Acrolein was not tested again because this facility location did not meet the screening level emission limit of 8.0×10^{-4} lb/ton which was requested by the facility; Therefore, it was set at the modeled limit of 5.0×10^{-4} lb/ton. AQD was only going to require that Acrolein be tested again if the permit limit met the screening level of 8.0×10^{-4} lb/ton at this location.

Material Usage Limits

The facility's average RAP material usage based on records review has ranged between 25% to 30% per month over the last year. The facility does not use activated tire rubber (ATR) or asbestos materials during their production process.

Process/Operational Limits

The facility has produced 325,000 tons of HMA paving materials over the current 12-month rolling time period as determined at the end of each calendar month.

The facility has averaged under 300 tons/hr on a 24-hour rolling time period during the last two years. The permit limit is 400 tons/hr. The facility currently is averaging 289 tons/hr in 2021. The facility also has not burned any hazardous waste (as defined in state or federal law), blended fuel oil, or recycled used oil (RUO) during that time period.

Equipment

The facility maintains a fabric filter collector (baghouse) for their operations. Maintenance records are maintained regarding the replacement and inspection of the baghouses, and this is consistent with the Preventative Maintenance Program for the Baghouse as indicated in Appendix A.

The facility maintains a pressure monitoring device which indicates the pressure drop across the baghouse continuously. The device measured 3.0 inches H₂O at the time of inspection. Pressure readings appear to range between 3.0-5.5 inches H₂O in August. The minimum permit pressure drop is 2 inches H₂O.

The fabric filter collectors (baghouses) are installed, inspected daily and appear to be operating properly per the Preventative Maintenance Program (Appendix A).

Testing

The AQD has not required the facility to verify and quantify odor, hazardous air pollutant (HAPs), or criteria pollutant emissions per conditions 1.12, 1.13 and 1.14.

Monitoring

The facility does not use activated tire rubber (ATR) within its daily operations, and continuously monitors the virgin aggregate and RAP feed rate within each design mix. This

information is monitored within the controls to limit the RAP to 50% and details the amount of virgin aggregate added to each mix.

The facility also monitors the carbon monoxide (CO) concentration with a handheld CO monitor upon start-up of each paving season, malfunction of the drum dryer/mixer or its associated burner, and after every 500 hours of operation. The permit indicates that a monitoring set shall consist of eight separate CO readings for a total time period each of thirty minutes or longer. Readings ranged between 103 ppm to 222 ppm during the most reading in August 2021.

The pressure monitoring device is installed to record the pressure drop across the fabric filter and is calibrated annually in April upon startup of the paving season. It is certified by the manufacturer within ± 2 inches water gauge pressure (H₂O) and is connected to a manometer and provides a pressure reading. The pressure monitoring device is recorded daily and has averaged between 3 to 6 inches H₂O this season.

The facility monitors its daily natural gas fuel usage which ranged between 200,000 - 1,400,000 ft³ in August 2021. The August 2021 usage total was 16,382,565 ft³.

Recordkeeping/Reporting/Notification

The facility maintains all CO monitoring data which includes the dates and times when the readings occur. The facility does not have any information relating to RUO per conditions 1.21-1.23 since the facility does not use it.

The facility monitors its virgin aggregate feed usage in every mix design produced. Some of the mix designs used by the facility include the following: 4E1 used for road shoulder operations, 3C Base used as leveling course for pavement, and 5E3 which is used as a top course for drainage on pavement construction. The mix design, the virgin aggregate feed rate, and RAP is recorded upon start-up and whenever a new design is initiated. RAP usage rate is approximately 28% on average based on records review. The average RAP daily usage for the month of August 2021 was 26%.

The tons of virgin hot mix asphalt produced is also recorded per mix design in tons/hour when initiated and totaled at the end of each day. The design mix denotes the RAP produced and the average percent of RAP per ton of hot mix asphalt produced containing RAP.

The facility records the total hours of operation each day. The hours have ranged between 2 to 15 hours each day over the last two years, and the quantity of RAP used in the hot mix paving materials each calendar month is recorded. The quantity was slightly under 17,000 tons last month. The total amount of asphalt paving materials processed each day is also documented and has ranged between 600 tons to 4,000 tons the last two years.

The facility does not use ATR (activated tire rubber) or RUO (recycled used oil) in its daily operations.

The facility calculates the criteria pollutants (CO, SO₂, NO_x, VOC, PM) based on the most recent calendar year using MAERS emission factors. The following were the 2021 totals submitted by the facility for the rotary drum natural gas fired mixer:

CO: 39,466 lbs
Pb: 0.19 lbs
NO_x: 7,893 lbs
PM₁₀ and PM_{2.5}: 19,733 lbs/4,554 lbs
SO₂: 1,032 lbs
VOC: 9,714 lbs

EU-YARD

Process/Operational Limits

The facility maintains and implements the Management Plan for the Control of Fugitive Dust for all plant roadways, the plant yard, all material storage piles, and all material handling operations specified in Appendix C. All activities performed to control fugitive dust are documented by the facility. The facility reports their annual emissions of particulate matter for EUYARD through MAERS. The facility used the U.S. EPA Air Pollutant Emission Factor (AP-42) of 1.6×10^{-3} lb/ton for PM for their storage piles totaling 486 lbs, and an emission factor of 0.19 lb/mile for PM for their yard and vehicle equipment totaling 2,676 lbs.

EUACTANKS

PROCESS/OPERATIONAL LIMITS

The vapor condensation and recovery system is implemented and maintained by the facility. No cranks or leaks were observed at the time of inspection. The facility inspects the filter media and inspects the tanks at least once or twice a season.

EUSILOS

PROCESS/OPERATIONAL LIMITS

All silo load activities occur in an area which is permanently enclosed except for truck entrance and exit points. The Silo Load-Out control system is maintained and operated in a satisfactory manner for all emissions vented into the burning zone.

FGFACILITY

Emission Limits

The total emission rate of HAPs shall not exceed 8.9 tons per rolling 12-month period for each individual HAP, nor 22.49 tons per rolling 12-month period for all HAPs combined. The facility maintains these calculations monthly for the following pollutants: Sulfuric acid, Benzene, Toluene, Ethylbenzene, Xylenes, Hydrogen Chloride, Arsenic, Nickel, Manganese, Lead, Naphthalene, Formaldehyde, and Acrolein.

The rolling 12-month HAP total through July 2021 is 2.8 tons with sulfuric acid having the highest total at 0.99 tons.

Appendix A-Preventative Maintenance Program for the Baghouse

BAGHOUSE OPERATING PRESSURE DROP

The pressure drop across the baghouse is measured continuously. The minimum pressure drop shall not be less than 2 inches, water gauge, except when a large number of filter bags have been replaced and the maximum pressure drop shall not be greater than 8 inches, water gauge. Daily pressure drops vary between 3 to 6 inches H₂O. The pressure drop is recorded daily and was 3.0 inches H₂O at the time of inspection.

BAGHOUSE/PLANT ALARM SYSTEM

The baghouse is equipped with a high temperature sensor and alarm system. The alarm system is set to alarm when the high temperature set-point has been violated. The temperature for the facility sounds off at 400 F (the filter bags will catch fire at 450 F). A sequential shut-down of the plant will occur if the situation is not resolved within a very short period of time after the alarm sounds.

HANDLING AND STORAGE OF BAGHOUSE DUST

The accumulated baghouse dust is picked-up and disposed of by Waste Management and taken to the landfill.

PIPING AND SEALS MAINTENANCE

There were no visible leaks on site.

VISIBLE EMISSIONS AND ACTIONS TO BE TAKEN IN THE EVENT OF

There were no visible emissions from the stack and the facility performs opacity readings weekly to bi-weekly for their own verification.

BLACK LIGHT INSPECTIONS

A black light inspection occurs every year upon the onset of the paving season. The facility maintains a fabric filter dust collector inspection log.

INVENTORY OF FILTER BAGS

The facility maintains a minimum of 25 filter bags at all times.

BAGHOUSE INSPECTION RECORD

Visual inspections of the interior components of the baghouse are performed by the facility when the blacklight inspection is performed and during any malfunction event. Sealings are inspected as well and baghouse replacement is performed as needed, and there have not been any visible emissions observed according to facility records.

Appendix C – Fugitive Dust Control Plan

SITE MAINTENANCE

Dust on all areas where vehicular traffic occurs is controlled by the application of water, sweeping, or vacuuming. This occurs at a minimum of two times per day or more frequently according to facility records. Watering of the yard, chloride applications, and wet sweeping are the methods employed by the facility.

MANAGEMENT OF ON -SITE ROADWAYS

There were no visible issues with the aggregate piles or pavement surfaces.

ON-SITE MANAGEMENT OF HAUL VEHICLES

All trucks that were observed entering and exiting the facility appeared to have their loads covered.

MANAGEMENT OF FRONT-END LOADER OPERATIONS

There were no observed issues with the any of the front-end loaders transporting materials.

RECORDKEEPING

The facility maintains a daily log of all dust suppressant applications and activities performed regarding dust prevention.

FUGITIVE EMISSIONS FROM PROCESS EQUIPMENT AND BAGHOUSE

There were no fugitive emissions from leak(s) and malfunction(s) from any transfer system, storage bin, mixer, hopper, or baghouse observed during the inspection.

Conclusion

Based on the AQD inspection and records review, Ajax Materials Corporation is in compliance with the requirements of the Federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451; the Michigan Department Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) Administrative Rules, and conditions of the facility's Permit to Install, 720-89D.

NAME Robert Joseph

DATE 09-29-21

SUPERVISOR Joyce