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

B195659235

FACILITY: AJAX MATERIALS CORPORATION		**SRN / ID:** B1956
LOCATION: 4875 BALD MOUNTAIN RD, AUBURN HILLS		**DISTRICT:** Warren
CITY: AUBURN HILLS		**COUNTY:** OAKLAND
CONTACT: Kathleen Anderson , Environmental Consultant		**ACTIVITY DATE:** 07/30/2021
STAFF: Robert Joseph	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: Scheduled inspection of HMA plant		
RESOLVED COMPLAINTS:		

On July 30, 2021, I, Michigan Department Environment, Great Lakes, and Energy-Air Quality Division staff Robert Joseph, conducted a scheduled inspection of Ajax Materials Corporation (B1956) located at 4875 Bald Mountain Road, Orion Township, Michigan 48326. 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 (PTI) 75-17.

General Facility Inforrmation

The facility is located in an urbanized area in northern Oakland County adjacent to the east side of M-24 (Lapeer Road) across from the former site of the Palace of Auburn Hills. The facility mailing address is referenced with an Auburn Hills mailing address, however, the plant location is in Orion Township and just to the east of the plant is a highly populated subdivision in the city of Lake Orion.

The facility is equipped with a vapor condensation recovery system on the liquid asphalt cement storage tanks, and an emission capture system on the top of each storage silo. The facility recently raised the stack height for the asphalt process and in 2017 modified the production drum from parallel flow to counterflow. These modifications were brought on due to a number of complaints that were alleged against the facility. Following these changes, the number of complaints decreased briefly after PTI 75-17 was issued in November 2017.

The AQD received two complaints in July 2018 which were determined to be attributed a nearby paving operation at the time, however, there were ten complaints alleged against the facility in October 2019. An AQD investigation verified these odors as objectionable and issued a violation notice to the facility in December 2019. The facility proposed to use an Asphalt Solutions Additive at the onset paving season in April 2020.

Per the Safety Data Sheet, the components of the additive consists of Benzaldehyde (flavoring agent used in perfumes and flavorings), Amyl Acetate (a flavoring agent known for its banana-like scent), Ethyl Butyrate (a flavoring agent known to have a fruity odor and is used as a flavor enhancer), and Vanillin (a flavoring agent used in foods such as ice cream). None of the compounds are listed as carcinogenic nor as an irritant to the skin or eyes. It is known to have 0.28 lb of VOC (volatile organic compounds) per gallon.

Since the facility implemented the use of the additive in April 2020, there have been three complaints alleged against the facility. The AQD received once complaint in September in 2020 which was investigated and determined not be originating from the facility, and two complaints in July 2021 were determined likely to be a Consumers Energy gas main given

the odor characteristics were described as natural gas-like, both by the complainant and facility personnel. The belief is that perhaps the additive has eliminated or at least reduced the odors from causing a nuisance to the surrounding community.

Facility Tour

I arrived at the facility shortly after 1 p.m and met with Kevin Kline, operator, for the facility. I introduced myself and presented my identification and credentials and stated the purpose of my visit. I asked Kevin to provide me some general information regarding the facility. He indicated the facility was one of the first locations owned by the corporation and dates back to the 1960s. The facility produces Hot Mix Asphalt (HMA) for local, county and state road projects as well as commercial buildings. He indicated the facility operates generally at least six days a week during the construction season and sometimes seven days depending on project scheduling. There are approximately ten employees at the facility.

The HMA is produced in a counter-flow rotary drum that is fueled by natural gas. There are three RAP bins (recycled asphalt pavement) and thirteen virgin aggregate bins. The HMA product can be altered by changing the virgin aggregate and RAP mixture at the beginning of the process.

The process begins by loading the desired aggregate mix into feed hoppers. Once the appropriate aggregate is chosen for a specific mix design, the aggregate falls from its bin onto the main conveyor belt. There is a single main belt for each virgin and RAP material. The aggregate is conveyed to a weigh bridge before it is sent to the counter flow, direct-fired rotary drum, where the exhaust gases pass through the dryer flame, combusting the fumes which then exit the drum at the opposite end from the entrance of the paving materials. This drum is designed for the aggregate to flow counter to the heat source allowing for high aggregate temperatures and low stack temperatures since the burner flame is not in contact with the asphalt.

The facility's mix process uses emulsified liquid from asphalt cement storage tanks which is housed in five tanks (30,000 gallons) consisting of one horizontal and four vertical tanks. The facility also contains a Tack tank, which is an adhesive-like compound that is applied onto the unpaved surface before the placement of hot-mix asphalt (HMA) to aid in adhesion.

Also, there are six asphalt storage tanks. Once the HMA is produced, it is stored in six silo tanks which each holds 300 tons. The HMA mix is maintained around 300-355 degrees F for ease of placement and compaction in-place.

Exhaust gas from the dryer/mixer is directed to a primary collector consisting of a series of pulse jet bags (fabric filters). There approximately 924 fabric filter bags which are inspected regularly by the facility where dust and particulates from the aggregate are mixed back into the final product. A stack with an exhaust diameter of approximately 68 inches emits the emissions into the atmosphere.

PTI 75-17

EUHMAPLANT

I. EMISSION LIMITS

The following pollutants were tested on July 18, 2018, per Section V.1

Pollutant	Test Result	Permit Limit
1. PM	0.005 gr/dscf	0.04 gr/dscf
2. PM	0.004 lb/ton	0.05 lb/ton

The AQD did not mandate the remaining pollutants be tested per Section V.3 which states, “Verification and quantification of emissions from EUHMAPLANT, by testing at owner’s expense, in accordance with Department requirements, may be required for continued operation. Within 60 days upon notification from AQD District Supervisor, the permittee shall verify PM10, PM2.5, CO, SO_2, NO_x, lead, and the TACs listed below emission rates from EUHMAPLANT by testing at owner's expense, in accordance with Department requirements. TACs: acrolein, arsenic, benzene, ethylbenzene, formaldehyde, lead, manganese, naphthalene, nickel, sulfuric acid mist, toluene, xylene, and hydrogen chloride.”

II. MATERAL LIMITS

The facility only burns natural gas, and does not burn any hazardous waste blended fuel oil or specification recycled used oil, nor uses any asbestos tailings or waste materials containing asbestos. The facility’s RAP the last two years has averaged between 35% and 45% (the maximum RAP allowed is 50% combined of recycled asphalt and shingles).

The permit limit is 895,000 tons of HMA paving materials in EUHMAPLANT per 12-month rolling time period as determined at the end of each calendar month. The plant has been producing between approximately 300,000 tons per 12-month rolling time period.

The permit limit is 500 tons of HMA paving materials in EUHMAPLANT per hour based on a daily average, which shall be determined by dividing the daily HMA production by the daily production hours. The facility has been producing approximately 330 tons per hour the last two years.

III. PROCESS/OPERATIONAL LIMITS

The fugitive dust control plan for EUYARD specified in Appendix A is being implemented and is maintained. Records show routine applications occurring at least twice a day at minimum (watering/chloride applications and sweeping of the facility's roadways).

The Preventative Maintenance Program specified in Appendix B is being implemented and is maintained regarding the facility's inventory of bags on-site and the daily and season start -up visual inspections.

The fabric filter pressure drop was viewed as 3.0 inches H_2O the day of inspection and is recorded daily. The fabric filter dust collector is equipped with a high temperature sensor and alarm system. The alarm system sounds off when the high temperature set-point has been exceeded at 390 F which the facility sets to prevent the filter bags from igniting. A black light inspection occurred on April 10, 2021, at the onset of the paving season and the facility maintains a fabric filter dust collector inspection log.

The Emission Abatement Plan for Startup, Shutdown in Appendix C is being implemented and is maintained. The facility maintains an acceptable plan regarding startups, shutdowns and malfunctions with normal startup and shutdown procedures by observing processes such as temperature changes of the silos and the aggregate timer for the drum mix.

Scales are calibrated and alarms sound when the plant gets close to the total tons of HMA produced near the permit limit. The facility maintains maintenance logs, and procedures are documented for malfunctions and items of inspection are documented. The facility does not burn recycled used oil per the Compliance Monitoring in Appendix D. The facility maintains the efficiency of the drum mix burners by fine tuning the burners for proper burner operation and performance to control CO emissions. Maintenance logs indicate efficiency checks for drum mix burners each year at the start and the end of each season.

IV. DESIGN/EQUIPMENT PARAMETERS

The fabric filter dust collector is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the fabric filter dust collector requires a pressure drop range between 2 and 8 inches of water column. Daily pressure drops vary between 3.0 and 4.5 in H_2O.

V. TESTING/SAMPLING

Stack testing occurred on July 18, 2018, for particulate emission rates and opacity (Method 9) tests were conducted:

PM Mass Emission Rate: 1.74 lb/hr
PM Mass Emission Rate: 0.004 lb/ton HMA (Permit Limit is 0.05)
Exhaust Gas PM Content: 0.005 gr/dscf (Permit Limit is 0.04)
6-minute Avg. opacity: 0.1% (Permit Limit 20%)

VI. MONITORING/RECORDKEEPING

Both the virgin aggregate feed rate and the RAP feed rate are monitored on a continuous basis via controls by the plant operator on a continuous basis providing a running total every 15 minutes as well as a daily total. The facility monitors CO emissions with the most recent readings occurring in November 2020 as follows (ppm): 94, 100, 101, 128, 124, 118, 117, and 126.

The facility maintains the drum and burner components operating in a satisfactory manner by tuning the burners according to the stack temperature. A log of all significant maintenance activities and repairs is also maintained such as black light tests and filter bag replacement. The facility also maintains and operates in a satisfactory manner a device to monitor the pressure drop across the fabric filter dust collector once per day.

Tons of hot mix asphalt containing RAP produced varies between 10,000 and 25,000 tons with the average percent of RAP/RAS per ton of hot mix asphalt produced containing RAP varying between 35% and 45% the last two years. The facility does not use any fuel oil and the daily virgin aggregate feed rate is recorded every 15 minutes by the facility and it is

recorded on the daily printouts. The daily RAP/RAS feed rate has varied depending on production between 50 tons and 1,800 tons per day.

Daily HMA product temperature per records indicates temperatures range between 250 and 360 F on average. The facility indicates the components of the paving material mixture on file for each mix design and the time each design is activated. Mixes include 5E 3 (vehicle lane), 4E3 (road shoulder), and 1100 leveling (sub-base).

Below are the pollutants listed in Section I. Emission Limit Table. The permit requires monthly and 12-month rolling time period totals for the following pollutants:

Pollutant	July 2021 (tons) unless otherwise noted	12-month rolling (tons)
PM	0.14	0.56
PM 10	2.74	11.26
PM 2.5	2.74	11.26
CO	6.84	28.16
CO	6.84	28.16
SO_2	4.10	16.9
NO_x	2.74	11.26
Lead	0.00003	0.001
Benzene	0.03420	0.14
Toluene	0.20522	0.84
Ethylbenzene	0.03420	0.14
Xylene	0.03420	0.14
Naphthalene	0.03420	0.14
Formaldehyde	0.34203	1.41
Acrolein	0.03420	1.41
Arsenic	0.00003	0.0001
Nickel	0.00342	0.01
H_2SO_4	0.51	2.11
Mn	0.00171	0.007
Hydrogen Chloride	0.68407	2.82

Average daily totals in July 2021 vary between 250 tons and 450 tons. Average monthly totals for 2020-2021 vary between 300 tons and 400 tons. Average 12-month rolling time period totals are approximately 248,000 tons.

EUYARD

III. PROCESS/OPERATIONAL LIMITS

Fugitive dust control plan control in appendix A appears to be implemented and maintained. The facility maintains records of monthly dust suppressant activities such as yard sweepings and waterings.

VI. MONITORING/RECORDKEEPING

The facility reports their annual emissions of particulate matter for EUYARD through MAERS. The facility used U.S. EPA Air Pollutant Emission Factors (AP-42) in their latest MAERS 2021 submittal.

EUACTANKS

III. PROCESS/OPERATIONAL LIMITS

The vapor condensation and recovery system is implemented and maintained by the facility and inspected at least once during the operating season. The facility inspects the integrity of the structure and filter media and indicated replacement occurs every few years. There are no moving parts or monitoring devices associated with the tanks.
The liquid asphalt is generally set at approximately 550 F to ensure proper mixture when combined with the aggregate. No cracks or leaks were observed.

EUSILOS

III. PROCESS/OPERATIONAL LIMIT

The emission capture system at the top of each storage silo appears to be implemented and maintained by the facility. All silo load activities while on site occurred in an area which is permanently enclosed except for truck entrance and exit points. Emissions collected from the truck load-out area are vented into the burning zone.

FGFACILITY

I. Emission Limits

The CO limit is 89.9 tons/yr for a 12-month rolling time period as determined at the end of each calendar month. The current total is approximately 28 tons/yr.

Each individual HAP is to be less than 9.0 tons/yr for a 12-month rolling time period as determined at the end of each calendar month. The current HAP with the highest emission limit in 2021 is Hydrogen Chloride which varies each between 0.5 and 0.7 tons per month.

Aggregate HAPs are to be less than 22.5 tons/yr for a 12-month rolling time period as determined at the end of each calendar month. The current aggregate HAP total in in July 2021 is 1.41 tons and has varied between 1.0 and 2.0 tons each month.

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 (PTI) 75-17.

NAME Robert Joseph DATE 09-24-21 SUPERVISOR Joyce