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

B413854720

FACILITY: AJAX MATERIALS CORPORATION		**SRN / ID:** B4138
LOCATION: 26400 SHERWOOD AVENUE		**DISTRICT:** Warren
CITY: WARREN		**COUNTY:** MACOMB
CONTACT: Kathleen Anderson , Environmental Consultant		**ACTIVITY DATE:** 08/13/2020
STAFF: Kerry Kelly	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: FY 2020 targeted inspection		
RESOLVED COMPLAINTS:		

On August 13, 2020, I (Kerry Kelly, EGLE-AQD) conducted a targeted, announced inspection of Ajax Materials Corporation Plant #7 located at 26400 Sherwood Ave. in Warren, Michigan. The purpose of the inspection was to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environment, Great Lakes, and Energy - Air Quality Division (EGLE-AQD) Rules; and Permit To Install (PTI) Number 50-96E.

Upon arriving at the site, I met with Ms. Kathleen Anderson, Axis Environmental. Ms. Anderson is the company's consultant and she assisted me during the inspection. Mr. David Grabowski, Ajax, Operation/Maintenance Manager, and Mr. Scott Maxwell, Ajax, Plant 7 Manager, also assisted me during the inspection.

SOURCE INFORMATION

Ajax Materials Corporation makes Hot Mix Asphalt (HMA) for commercial building and road contractors, MDOT, various county road commissions, and local municipalities. Ajax Plant 7 is located in southwestern Macomb County. Macomb County is currently designated by the United States Environmental Protection Agency (USEPA) as a non-attainment area with respect to the 8-hour ozone standard. Ajax Plant 7 is immediately surrounded by industrial and commercial properties. The nearest residence is approximately 0.25 miles southwest of Plant 7.

The facility is classified as a synthetic minor for hazardous air pollutants (HAP), carbon monoxide (CO), and sulfur dioxide (SO_2).

PROCESS DESCRIPTION

Equipment at the plant includes: a counterflow mixing and drying drum and associated burners capable of firing recycled used oil (RUO) and natural gas; 6 asphalt storage silos; 12 virgin aggregate bins; 3 recycled asphalt product (RAP) aggregate bins; 6 liquid asphalt storage tanks; a 1,000 gallon diesel storage tank; a 30,000 gallon recycled used oil (RUO) storage tank; a 500 gallon waste oil storage tank; and an asphalt cement heater.

The HMA production process starts with loading virgin aggregate into feed hoppers. From the feed hoppers, the aggregate is conveyed to a weigh bridge and then to a counterflow drying and mixing drum where the material is heated and dried at approximately 300 degrees Fahrenheit for about 5 minutes. A baghouse is used to control particulate and lead emissions from the asphalt mixing drum. After the virgin aggregate is heated and dried, Recycled Asphalt Product (RAP), liquid asphalt, and dust recirculated from the baghouse are introduced into the drum. RAP used at the plant comes from Great Lakes Aggregates (GLA) who leases a portion of the property at Plant 7. The asphalt rubble is crushed and processed on site by GLA and is utilized by Ajax Plant 7 plant as needed. Following the addition of RAP, liquid asphalt cement, and baghouse dust, the components are mixed in the drum for approximately 5 minutes. After the components are thoroughly mixed, the asphalt is conveyed to an asphalt elevator which carries the final product to the top of the asphalt storage silos where it is deposited. The final product is loaded into trucks in a load out area. Asphalt production occurs continuously while the plant is operating. The final asphalt product can be altered by changing the virgin aggregate and RAP mixture at the beginning of the process.

COMPLIANCE EVALUATION

PTI 50-96E

PTI 50-96E contains requirements for the aggregate conveyors and the 650 tons per hour counterflow drum mixer, capable of combusting natural gas, #2 and #6 fuel oil, and recycled used oil and controlled by a baghouse (EU-001), fugitive dust from all plant roadways, the plant yard, all material storage piles, and all material handling

operations except cold feed aggregate bins (EU-YARD), five liquid asphalt storage tanks (EU-ACTANKS), and for all process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment (FG-FACILTY). EU-SILOS is listed as an emission unit in PTI 50-96E, however, the PTI does not have any applicable requirements for EU-SILOS.

EU-001

Emissions from the baghouse stack are limited to the following in PTI 50-96E;

Pollutant	**Limit**	
PM	0.04	**gr/dscf**
SO_2	0.263	lb/ton
NO_x	0.12	lb/ton
CO	0.201	lb/ton
VOC	0.058	lb/ton
Lead	0.000015	lb/ton
Benzene	0.0012	lb/ton
Toluene	0.0029	lb/ton
Ethylbenzene	0.0012	lb/ton
Xylene	0.0012	lb/ton
Naphthalene	0.00065	lb/ton
Formaldehyde	0.0036	lb/ton
Acrolein	0.0008	lb/ton
Arsenic	0.0000011	lb/ton
Nickel	0.000063	lb/ton
Manganese	0.000011	lb/ton
Sulfuric Acid	0.00626	lb/ton
Hydrogen Chloride	0.006	lb/ton

Stack testing was conducted August 11, 2004 through August 18, 2004, by Dorenzo and Associates, Inc, to measure emission rates of PM, sulfuric acid, hydrogen chloride, SO2, NOx, acrolein, naphthalene, formaldehyde, benzene, toluene, ethylbenzene, xylene, arsenic, nickel, lead, and manganese. The stack test report submitted, and on file at the EGLE Warren District Office, for this test indicates the measured emissions for each pollutant were less than the limits in PTI 50-96E.

EPA requested, on May 27, 2004, that Ajax conduct stack testing to measure VOC emissions, reported as Total Gaseous Nonmethane Organic Emissions (TGNMO) and Total Gaseous Organic Compounds emissions (TGOC), at their Warren plant. Air Compliance Testing, Inc. performed the VOC testing for Ajax on October 12, 2004. The test report submitted, and on file at the EGLE Warren District Office, for this test indicates the TGNMO and TGOC measured were 0.042 lb/ton and 0.020 lb/ton respectively, each of which is in compliance with the VOC limit in PTI 50-96E.

PTI 50-96E contains the following annual emission limits:

Pollutant	**Limit**	
SO_2	89.4 tpy	12-month rolling time period as determined at the end of each calendar month
CO	68.3 tpy	12-month rolling time period as determined at the end of each calendar month

Records of the monthly and 12-month rolling SO_2 and CO emissions from EU-001, between January 2018 and July 2020, were provided by Ms. Anderson (Attachment 1). These records indicate the highest 12-month rolling SO_2 and CO emissions for the time period were 89.2 tons and 68.2 tons respectively. Ajax is using the permit limits of 0.263 lb SO_2/ton of HMA produced and 0.201 lb CO/ton of HMA produced to calculate the 12-month rolling SO_2 and CO emissions. Testing conducted at Plant 7 on August 18, 2003 and August 11, 2004 respectively indicate the SO_2 emission rate was 0.0066 lb/ton HMA produced and the CO emission rate was 0.0876 lb/ton HMA produced when firing RUO. Ajax has been using only natural gas as fuel in the drum heater since 2008. Using the SO_2 and CO emission factors from the stack tests, the highest 12-month rolling SO_2 and CO emissions between January 2018 and July 2020 would be 2.26 tons and 29.71 tons respectively.

The following material limits and restrictions are contained in EU-001 special conditions (SC) 1.2 through 1.4:

- Maximum of 50 percent reclaimed asphalt pavement (RAP) material in the asphalt mixture based on a monthly average
- Maximum of 15 percent by weight Activated Tire Rubber (ATR) material content used in the liquid asphalt cement
- The use of any asbestos tailings or asbestos containing waste materials is prohibited

Records of the monthly RAP percent of the asphalt mixture, including the tons of virgin HMA produced and tons of RAP used, required in SC 1.23 b, c and e, for January 2018 through July 2020 were provided by Ms. Anderson (Attachment 2). These records indicate the highest monthly average RAP percent in the asphalt mixture was 42%. During the inspection, the RAP content of the batch being processed was 49% according to the monitoring system for the plant.

According to Ms. Anderson, Ajax does not use ATR in the liquid asphalt cement nor any materials containing asbestos or asbestos tailing at Plant 7.

SCs 1.5 and 1.6 contain the following limits on the amount of HMA paving materials processed:

- Not more than 680,000 tons per 12-month rolling time period
- Not more than 6450 tons per hour

Records of the hourly, daily, monthly, and 12-month rolling HMA processed, as required in SC 1.23, between January 2018 and July 2020 were provided by Ms. Anderson (Attachment 3). These records indicate the highest 12-month rolling amount of HMA material processed was 678,317 tons in October 2019 and the highest average hourly HMA production rate was 489.3 tons reported on August 23, 2018.

SCs 1.7, 1.8, 1.19 through 1.21, and Appendix B of PTI 50-96E apply to the use of RUO as fuel in the drum burner. According to Ms. Anderson, Ajax has not used RUO to fuel its burners at Plant 7 since 2008. In addition, a review the Michigan Air Emissions Reporting System (MAERS) reports for Ajax Plant 7 from 2008 through 2019 and the fuel usage records provided by Ms. Anderson for 2020 for Plant 7 (Attachment 4), shows the last year Ajax reported using RUO to fuel the drum burner at Plant 7 was 2008.

Ajax is required to properly install, operate, and maintain a baghouse dust collector to control PM and lead emissions from the asphalt mixing drum (SCs 1.9 and 1.11) and to install a monitor on the baghouse to measure the pressure drop across the baghouse (SC 1.10). Per SC 1.16, the pressure drop monitor must be certified by the manufacturer to be accurate within +/- 2 inches water gauge pressure and must be calibrated on an annual basis in accordance with manufacturer's instructions.

Proper operating procedures and maintenance activities to be performed on the baghouse are contained in Appendix A of PTI 50-96E. Appendix A number 1.a. requires; continuous measurement of the pressure drop across the baghouse, the minimum pressure drop not be less than 2 inches water gauge, except when a large number of bags have been replaced, and the maximum pressure drop not be greater than 8 inches water gauge. During the inspection I observed a pressure drop sensor on the baghouse and a readout of the pressure drop measurement in the control room. The baghouse pressure drop reading was 5.5 inches water column at approximately 9:00 AM on the day of the inspection. Appendix A number 1.b. requires Ajax record the pressure drop at least once per day and make the readings available to the AQD upon request. Ms. Anderson gave me

records of the daily pressure drop recordings between January 2018 and July 2020 (Attachment 5). The lowest pressure drop recorded was 1.9 inches water gauge on June 24, 2020 and the highest pressure drop recorded was 4.6 inches water gauge on June 14, 2020. Ms. Anderson also provided calibration records for the pressure drop monitoring device (Attachment 6). These records indicate that the pressure drop monitoring device is calibrated annually and is accurate with +/- 1 inch water gauge.

Appendix A number 2 requires that the baghouse be equipped with a high temperature alarm. During the inspection I observed the baghouse high temperature alarm on the control panel. The alarm was set to sound at 370 degrees Fahrenheit and shut-down the plant at 380 degrees Fahrenheit.

Ajax is required, per Appendix A number 3, to store and dispose of accumulated baghouse dust in manner that minimizes the introduction of the air contaminates into the outer air. At Plant 7, Ajax continuously feeds the baghouse dust to the asphalt mixing drum at the RAP collar. I did not see any dust being introduced to the outer air from the recycling of the baghouse dust.

Numbers 4, 5, 6, and 7 of Appendix A require the following:

- Baghouse piping and seals be replaced as needed
- In the event that visible emissions (VE) from the baghouse stack appear to exceed the limits in General Condition (GC) 11, Method 9 visible emissions (VE) readings by a certified reader shall be taken within 60 minutes of when the emissions were first observed or the plant must be shut down and the cause of the visible emissions determined and corrected prior to operating the plant again.
- Black light test be conducted at least once per year-before operations begin for a paving season.
- A minimum of 15 filter bags kept on site

Ms. Anderson provided records of the inspections and maintenance and visible emissions readings conducted on the baghouse & stack between January 2018 and July 2020 (Attachment 7). These records include the information required in number 8 of Appendix 8 and indicate Ajax conducted blacklight inspections of the baghouse at the start of each paving season and inspected the baghouse when either fallout or VE was observed. The records also indicate Ajax personnel at Plant 7 replaced all bags and cages in the baghouse on April 6, 2019. Method 9 records provided by Ms. Anderson indicate a certified reader graded the VE at Plant 7 six times between January 2018 and July 2020. The highest 6-minute average reading recorded was 3 percent.

Ajax is required, per SC 1.14, to monitor CO emissions from the plant combustion unit, using a handheld CO monitor, and the production data associated with the time the emissions data were collected. One data set shall be recorded for each of the following occurrences:

- Upon start-up of each paving season
- Upon a malfunction of the drum dryer/mixer or its associated burner
- After every 500 hours of operation

Ms. Anderson provided records of the CO monitoring data as required in SC 1.18 for January 2018 through July 2020 (Attachment 8). These records indicate the CO emissions were measured at the start of each paving season and every 500 hours of operation.

SC 1.15 requires Ajax to monitor emissions and operating information for the plant in accordance with the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and I. 40 CFR Part 60 Subparts A and I contains a PM limit of 0.04 gr/dscf and an opacity limit of 20%. Compliance with the PM limit is demonstrated through stack testing using the appropriate method in Appendix A of 40 CFR 60. These PM limit and opacity limits are included in PTI 50-96E SC 1.1.a and GC 11 respectively. Stack testing conducted in August 13, 2004 at Plant 7 indicates compliance with the PM limit in 40 CFR Part 60 Subpart I.

Ajax is required, per SC 1.17, to monitor the fuel usage rate for the plant on a daily basis in gallons or cubic feet per day. Ms. Anderson provided records of the daily fuel use records, required in SC 1.23, for the plant for January 2018 through July 2020 (Attachment 4). These records indicate Ajax is only using natural gas to fuel the oil heater and the asphalt drum burner.

Monitoring of the virgin aggregate feed rate (hourly basis), RAP feed rate (hourly basis) information sufficient to identify all components of the liquid asphalt cement and additives (hourly basis), and the asphalt paving material product temperature (intermittent basis) is required in SC 1.22. Ajax is monitoring these items on a continuous basis in the control room at Plant 7. At approximately 9:00 AM during the inspection I observed the virgin aggregate feed rate was 4.3 tons/minute, the RAP feed rate was 3.9 tons/minute, virgin asphalt cement was 12.1 tons/hour, and the material discharge temperature was 308 degrees Fahrenheit. In addition, SC 1.23 requires records sufficient to identify routine process changes be kept on file until the end of the paving season in which they were recorded and made available to the AQD upon request. Ms. Anderson provided electronic copies of these records for the 2020 paving season as requested. This document was not printed and attached because it is over 3,300 pages long.

Records of the total hours of operation, sulfur content of the fuel oil delivered, and the ATR content of the liquid asphalt cement are required in SC 1.23. Fuel oil and ATR are no longer used at Plant 7 according to Ms. Anderson. Records of the total hours of operation per calendar year (Attachment) and the safety data sheet (SDS) for the liquid asphalt cement (Attachment) were provided by Ms. Anderson.

Calendar year CO and SO2 emissions calculations for EU-001, required by SC 1.24, were provided by Ms. Anderson for January 2018 through July 2020 (Attachment 1). Ajax reports calendar year NOx, VOC, and PM emissions to MAERS. MAERS emissions factors are used to calculate emissions from the asphalt cement heater and the asphalt mixing drum with 99.65% control for lead and PM 10 and 99% control for PM 2.5 for the drum. The throughput reported in MAERS for the mixing drum and asphalt heater coincide with the records provided by Ms. Anderson for this inspection for MAERS reporting year 2018 and 2019.

A minimum stack height of 100 feet for the baghouse stack is set forth in SC 1.25. During the inspection I observed the stack which appeared to be at least 100 feet, however, measurements were not taken. Using Google Earth elevation data, I estimated the stack height was approximately 98.4 feet (30 meters). When I first observed the stack during the inspection, at approximately 8:15 AM, there appeared to be detached steam plume with a slight tan tint near the middle to the end of the plume. The sun was oriented in the 140° sector to my back as required by Method 9. According to Method 9, when water vapor in the plume condenses and becomes visible at a distinct distance from the emission outlet, the opacity of emissions should be evaluated at the emission outlet prior to the condensation of water vapor and the formation of the steam plume. I did not observe opacity prior to the condensation of water vapor and the formation of the steam plume. Ms. Anderson said she has seen the tan color in the plume before in the morning and it typically goes away as the sun rises. According to Ms. Anderson, in her experience, there aren't any changes in production rate, mix design, etc between the times when she has seen the tan color and the time it is no longer visible, the only change is the position of the sun. At 8:45 AM, while the plant was still operating, I returned to the same spot where I previously observed the detached plume with the tan tint and there was no plume.

EU-YARD

Ajax is prohibited from operating EU-001, per SC 2.1, unless 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 of PTI 50-96E is being implemented and maintained.

Appendix C requires Ajax do the following to control fugitive dust from EU-YARD:

- Water, sweep, vacuum, or use another acceptable dust control method on all areas where vehicles travel a minimum of two times per month or more frequently
- Post signs to advise drivers of the 10 miles per hour (MPH) or less speed limit
- Perform stockpiling in a manner that minimizes freefall drop distance
- Maintain piles to minimize fugitive dust which may include the use of watering, covering and encrusting agents
- Water, vacuum, or sweep paved roads during the operating season a minimum of two times per month or more frequently
- Treat unpaved roads with water, or other acceptable dust control agents on a frequency sufficient to meet the visible emission opacity standard of 5% opacity specified in Michigan Act 451, Section 5524.
- Remove aggregate spills immediately
- Ensure all trucks entering the site to deliver aggregates have the loads covered
- Ensure all trucks leaving the site with HMA paving materials are covering their loads prior to leaving the site. A sign shall be posted to advise drivers of this requirement.

- Avoid overfilling the bucket of the front-end loader and the feed hoppers to prevent spillage, and to minimize the drop height of the material when loading the feed hoppers or transferring material to stockpiles

During the inspection I observed that the roads were wet, storage piles were moist, there were 5 MPH speed limit signs posted, trucks entering and leaving the sites were tarped, a sign indicating the truck tarping area, and that the front-end load operator was not overfilling the bucket or feed hoppers.

Records of dust control activities on travel surfaces and other surfaces where fugitive dust emissions occur until the end of the paving season are required to be kept per Appendix C number 5. Ms. Anderson provided records of the sweeping and watering records for the 2020 paving season (Attachment 9). These records indicate that Ajax is sweeping or watering the roads and applying water to the roads and areas of vehicular traffic at least twice a month as required.

Fugitive dust emissions from EU-YARD must be calculated using the current U. S. EPA Compilation of Air Pollutant Emission Factors (AP-42) or other emission factors approved by the Department such as those used in the MAERS per SC 2.2 and the actual fugitive dust emission levels for EU-YARD shall be reported to the AQD through the annual emission reporting required under Section 5503(k) of Article II, Chapter 1, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Ajax reported PM emissions from the aggregate storage piles, cold aggregate handling, and haul roads to MAERS for reporting year 2018 and 2019 using EPA AP-42 emission calculations.

EU-ACTANKS

SC 3.1 requires Ajax to equip the liquid asphalt storage tanks with a vapor condensation and recovery system. During the inspection I observed that each liquid asphalt storage tank was equipped with a vapor condensation and recovery system. I did not see any vapors emanating from the liquid asphalt storage tanks during the inspection. Mr. Grabowski stated that Ajax added a new liquid asphalt cement tank, replaced the liquid asphalt pump, heater, and piping in 2019. The new liquid asphalt tank and heater appear to be exempt from the requirement to have a PTI per Rules 289(2)(b) and 282(2)(b) respectively.

FG-FACILITY

The total emission rate from FG-FACILITY, including fugitive emissions, of HAPs shall not exceed 8.9 tons per rolling twelve-month period for each individual HAP nor 22.49 tons per rolling twelve-month period for all HAPs combined per SC 4.1. Ms. Anderson provided monthly and 12-month rolling individual and aggregate HAP emissions from Plant 7 for January 2018 through July 2020 (Attachment 10). The highest reported 12-month rolling individual HAP was 2.12 tons sulfuric acid reported in October 2019. The highest 12-month rolling aggregate HAP emissions was 6.14 tons also reported in October 2019.

PTI EXEMPT EQUIPMENT

The diesel fuel storage tank, RUO storage tank, and waste oil storage tank appear to be exempt from the requirement to have a PTI per Rule 284(2). Mr. Grabowski indicated that the RUO tank is empty and he plans on having it removed from the site.

CONCLUSION

Based on the information gathered during this inspection, Ajax appears to be in compliance with Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environment, Great Lakes, and Energy - Air Quality Division (EGLE-AQD) Rules; and PTI Number 50-96E.

NAME K. Kelly DATE 09/18/2020 SUPERVISOR Joyce Zhu