N7755
MANUAL

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

N775545384

FACILITY: JOHNSON MATTHEY, INC.		**SRN / ID:** N7755
LOCATION: 25201 BREST RD, TAYLOR		**DISTRICT:** Detroit
CITY: TAYLOR		**COUNTY:** WAYNE
CONTACT: Evan Logan , Environmental Health and Safety Specialist		**ACTIVITY DATE:** 07/31/2018
STAFF: Stephen Weis	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: Compliance inspection of the Johnson Matthey, Inc. facility on Brest Road in Taylor. The Johnson Matthey facility is scheduled for inspection in FY 2018.		
RESOLVED COMPLAINTS:		

Location:
Johnson Matthey Vehicle Testing and Development, LLC
(SRN N7755)
25201 Brest Road
Taylor 48180

Date of Activity:
Tuesday, July 31, 2018

Personnel Present:

Steve Weis, DEQ-AQD Detroit Office
Evan Logan, Johnson Matthey - EH&S and Quality Specialist
Mark Tomczyk, Johnson Matthey

Purpose of Activity

A self-initiated inspection of the Johnson Matthey Vehicle Testing and Development, LLC facility (hereinafter "Johnson Matthey") on Brest Road in Taylor was conducted on Tuesday, July 31, 2018. The Johnson Matthey facility was on my list of sources targeted for an inspection during FY 2018. The purpose of this inspection was to determine compliance of operations at the Johnson Matthey facility with applicable rules, regulations and standards as promulgated by Public Act 451 of 1994 (NREPA, Part 55 Air Pollution Control), and with applicable Federal standards. The facility is also subject to the terms and conditions of Permit to Install No. 31-07D (addressing the operation of 7 engine test cells).

Facility Site Description

The Johnson Matthey facility is located on the south side of Brest Road between Telegraph and Beech-Daly Roads in Taylor. The stretch of Brest Road between Telegraph and Beech-Daly is lined with commercial and light industrial properties on both sides of the road. The Metro-Telegraph Industrial Park, a grouping of industrial and commercial properties located just west of Telegraph Road between Northline and Brest Roads in Taylor, lies to the east and southeast of the Johnson Matthey facility. Johnson Matthey operates another facility that is located in the Metro-Telegraph Industrial Park (12600 Universal Drive). The closest residences to the facility are located about 1/3 mile from the facility along Beech-Daly Road.

The Johnson Matthey facility is located on a roughly 2 acre parcel, with facility operations located inside of a building roughly 25,000 square feet in size. Johnson Matthey leases the building, and has operated at this location since 2007.

Facility Operations

Johnson Matthey is a multi-national corporation that is headquartered in the United Kingdom, and has facilities in several countries around the world. According to the company website, Johnson Matthey provides products and technologies that are used in the environmental, automotive, chemical, pharmaceutical/medical, recycling,

and oil and gas industries. Among the products listed as being developed and manufactured by the company are precious metal chemicals and catalysts, battery technologies, and emission control catalysts. The company is divided into five global divisions – Emission Control Technologies, Process Technologies, Precious Metal Products, Fine Chemicals and New Businesses. There are two Johnson Matthey facilities operating in Taylor that are part of the Emission Control Technologies Division - the facility that is the subject of this report, and the previously mentioned facility located at 12600 Universal Drive 25201 (SRN B8747), which is located just under ½ mile from this facility. By virtue of having their own SRNs, the two Taylor facilities are considered by DEQ-AQD as being separate stationary sources at this time. These two facilities also operate under the banner of Johnson Matthey Testing.

Johnson Matthey Testing performs testing and analysis on automotive engines and engine emission control systems (i.e. catalysts) at this facility. During the site visit, I was told that the work done at this location is contract based, and not continuous. If there is a specific contract to test an engine and control equipment, then the necessary amount of test cells that are needed for the testing are utilized. If there are no contract jobs, then the facility is idle.

The facility has seven engine test cells that are identified in the facility's permit as test cells 1 through 7, but have been designated by the facility as test cells 13 through 19. Unlike other engine testing facilities, including Johnson Matthey's facility on Universal Drive, the test cells at this facility are not located in a separate room (test cells are typically their own structural room inside of a building). Instead, the test cells at this facility consist of seven separate metal storage containers in which engines are placed for testing. Each of the storage containers are lined with sound-deadening blankets. All of the test cells vent engine exhaust to their own exhaust pipe, which in turn vents to a common header pipe. From the header pipe, the exhaust is vented through a large silencer prior to being discharged to the ambient air via a single stack. Test cells 13 and 14 have an exhaust vent on their doors that serve to vent heat, not engine exhaust, from these test cells. I was told during the site visit that test cell 16 has been idle for over two years.

The facility also has two electric ovens that are located in the northwest portion of the building that are used to perform catalyst aging testing. This testing involves placing catalysts in an oven, which is heated to 1600-1700°F for a designated amount of time to simulate the heating that a catalyst would experience in use. The ovens do not vent to the ambient air. The catalyst aging/oven operation is also contract based. I was told that the ovens may operate for 3 months, then site idle for 6 months between contracts.

The fuel that is used for engine testing is stored in a 5,000 gallon capacity above ground storage tank that is located in the rear (south side) of the building.

The test cells are located in the south half of the building, along the east wall. The northeast corner of the building is office space, and adjacent to the office area is the emissions bench through which the emissions information from the engine testing is captured and recorded. A rendering of the facility is attached to this report that shows the locations of the operations in the building.

The building is heated via a HVAC system and some natural gas-fired space heaters. There are no boilers at the facility, and I was told that there are no emergency engines/generators at this location.

Inspection Narrative

I arrived at the facility at 9:30am. I was met by Evan Logan of Johnson Matthey. We entered the Brest Road building, and Evan provided me with some background about the facility. She told me that Johnson Matthey leases the building, and that they have operated at this location since 2007. She told me that the testing that is done at this location is contract work, typically for outside companies. If there are no contracts, then the facility is idle. The facility was not in operation at the time of my site visit, and we were the only people in the building.

We started our walkthrough of the building by walking through the office area, which was mostly empty. As we walked back to the warehouse/plant area, we stopped and looked at the emissions bench room. We then looked at the two ovens that are located in the northwest corner of the building. Evan explained that the ovens are used to bake catalysts as part of an aging test, which simulates the temperatures that the catalysts are exposed to during use. Evan said that the ovens are also used for contract work, and that typically, the ovens will operate for 3 months, then sit idle for 6 months between contracts.

We then walked around the rest of the building and looked at the seven engine test cells. We looked at the exhaust for each of the test cells, and observed the common exhaust header, the silencer and the ambient exhaust stack. After completing our walkthrough of the Brest Road site, we left the building and went to Johnson Matthey's Universal Drive location to meet up with Mark Tomczyk, arriving at 10:05am.

Evan, Mark and I discussed the permit for the Brest Road facility, and we discussed and reviewed facility records to check compliance with permitting requirements. We went through the conditions in Permit to Install No. 31-07D, and we discussed how the facility demonstrates compliance with the permit conditions. This is discussed in more detail in the next section of this report. Evan and Mark showed me records relating to the test cells at the Brest Road facility. I was shown monthly records of gasoline usage and emission calculations, as well as 12 month rolling totals. Evan and Mark showed me the records for the most recent month, June 2018, which showed that the test cells were operated for 6 days in June, and that 50 gallons of gasoline was used in the test cells that month. I requested copies of the records, and Evan said that she would send me the files electronically. Some of the records for the facility are kept on the server and there is not a practical way to print the information. An example is the catalytic converter temperature logs, which, due to the frequency of readings, are stored in very large files. Evan and Mark showed me some examples of the temperature logs, so I was able to see how the information is being recorded and maintained. They described to me how the company monitors the emissions per unit of fuel usage.

After we completed our discussion about the permit, we had a brief conversation to summarize my site visit. I gave a brief overview of the gasoline storage and dispensing regulations. I told Evan that I would send her an e-mail message that summarizes the potential applicability of these regulations. I left the facility at 11:45am.

Permits/Regulations/Orders/Other

Permits

The Johnson Matthey facility is currently subject to the terms and conditions of DEQ-AQD Permit to Install (PTI) No. 31-07D. This permit was issued on August 2, 2017 and addresses the operation of seven engine test cells that are permitted to use gasoline and diesel fuel. Each test cell is equipped with a catalytic converter control system.

The following provides a description of Johnson Matthey's compliance with the Special Conditions put forth by PTI No. 31-07D; all of the permit conditions are grouped under the Flexible Group FG-TESTCELLS:

I. Emission Limits

Special Conditions (SCs) I.1 through I.9 limit emissions of CO, NOx and benzene from the test cells. As the facility is not using diesel fuel in the test cells, three of the SCs – I.3, I.5 and I.8 – are not applicable as they put forth emission limits on a pound per gallon of diesel fuel basis. Evan and Mark described the internal data tracking system that is linked to the testing operations. They described how the pound per gallon emission rates are continuously logged, and how the mass emission rates (pounds per hour, tons per year) are tabulated and used for the MAERS report. We discussed the records for June 2018, and the rolling 12 month totals as of June 2018. Based on the information that was discussed and reviewed, Johnson Matthey is **in compliance** with the requirements of these permit conditions. I was provided with records for June 2018, which show the June fuel usage and emissions, 12 month rolling totals, and the facility's measured pound per gallon information for NOx, CO and benzene. Copies of these records are attached to this report for reference.

II. Material Limits

SC II.1 limits the sulfur content of diesel fuel used at the facility. As previously mentioned in this report, diesel fuel is not currently being used in the engine test cells at this Johnson Matthey facility.

III. Process/Operational Restrictions

SC III.1 puts forth that only gasoline or diesel fuel shall be combusted in the test cells. The facility is **in compliance** with this condition.

IV. Design/Equipment Parameters

SC IV.1 requires that the test cells shall not operate unless a catalytic converter is installed, maintained and operated on the test cells in a satisfactory manner. The condition goes on to define "satisfactory operation" as

maintaining a minimum temperature of 600°F when burning gasoline. All of the engine testing at this facility occurs with an operational catalyst. Facility staff told me that as soon as the engines are past the idle step, the catalyst operates at a temperature between 800-1000°F. Compliance.

SC IV.2 requires that the facility monitor the exhaust gas temperature immediately before and after each catalytic bed, and that temperature readings be recorded at least once every 15 minutes. Evan and Mark described the catalyst monitoring that is performed at this facility. They told me that the temperature monitor is calibrated once a year, and checked every 6 months. I was told that the device monitors the temperature continuously; Mark said that a reading is taken at least once per second, and that the data points are kept in an electronic file. Compliance.

V. Testing/Sampling

There are no testing/sampling requirements in this PTI.

VI. Monitoring/Recordkeeping

The facility is **in compliance** with the special conditions (VI.1 through VI.8) in this section. Per SC VI.1, Johnson Matthey maintains the required records in the required timeframes.

SC VI.2 requires that the facility monitor and record the inlet and outlet temperatures in each catalytic converter, and indicate the fuel being used at the time that the temperature is monitored. As described in the discussion for SC IV.2, the facility monitors the temperature. At this time, there is no need to indicate the type of fuel being used as only unleaded gasoline is used in the test cells.

SC VI.3 requires that monthly records be kept for the days of operation, gallons of fuel used per month and 12 month rolling time period, and calculated emissions of NOx, CO and benzene emissions on monthly and 12 month rolling time period basis. During the site visit, I was shown the records for June 2018; these records were sent to me via e-mail, and they are attached to this report for reference. The records for June show that the test cells operated for 6 days that month, 50 gallons of gasoline was used that month, and the 12 month rolling total gasoline usage as of June is 1,027 gallons.

SC VI.4 requires that the facility keep records of the inlet and outlet temperatures for each catalytic converter. I was told that the data is kept in files on the company's server, and that a new file is created for each test run.

SC VI.5 requires that the facility keep records of the maximum lead content in the fuel for each delivery. Evan and Mark told me that pump grade Amoco/Marathon 91 fuel, supplied by Corrigan Oil, is used in the test cells. Leaded fuel is typically used in high-performance racing engines, which are not tested at this facility. I was told that all of the loads of fuel supplied by Corrigan are sampled for various parameters, including the lead content.

SC VI.6 requires that the facility keep a record of the amount of fuel used in the test cells on a 12 month rolling time period basis. These records are maintained.

SC VI.7 addresses diesel fuel, which is not being used at the facility.

SC VI.8 requires that the facility monitor and record CO and NOx emissions, as pounds per gallon of fuel, on an hourly basis. The company continuously measures emissions during the test runs, and the amount of fuel used is also continuously tracked.

VII. Reporting

There are no reporting requirements put forth in this PTI.

VIII. Stack/Vent Restrictions

The stack parameters specified in this section were evaluated as part of the PTI review process. The stack parameters were not verified during this site visit.

IX. Other Requirements

There are no conditions in this section of the PTI.

Regulations

The engine test cells at the facility are subject to the terms and conditions of PTI No. 31-07D, which is a synthetic minor permit for the emissions from the test cells. The PTI limits CO emissions to below the Title V major source threshold. The Johnson Matthey facility is considered a true minor, or area source of HAP emissions. The facility does not have any boilers, nor any emergency generators or engines. The HVAC and space heaters should contribute very small amounts of combustion by-product related emissions (CO, NOx).

The Brest Road facility is considered a separate stationary source from Johnson Matthey's Universal Drive facility. This matter of the two facilities as separate stationary sources has been brought up as a point of discussion by DEQ-AQD Detroit District staff during permit reviews for the two facilities, including the review for PTI No. 31-07D. The operations at the two facilities are both carried out by Johnson Matthey, and the work that is done at both locations is classified under the same NAICS/SIC code. The facilities are not contiguous (they are about ½ mile from each other), and the Brest Road building is not owned by Johnson Matthey. The work at the Brest Road facility is currently based on contracts with outside customers, while much of the testing at the Universal Drive facility is internal, involving the testing of catalysts that are manufactured by Johnson Matthey. Both facilities are subject to synthetic minor permits, with the permitted emission limits for the Brest Road facility being relatively low (20 tons per year for CO, 5 tons per year for NOx). At this time, the two facilities will be kept as separate stationary sources.

40 CFR Part 63, Subpart ZZZZ (the area source portion of the National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines) does not apply per the provisions of 63.6585, which specifies that a source is not subject if a stationary reciprocating internal combustion engine (RICE) is being tested at a stationary RICE test stand. This facility operates such testing processes and is therefore not subject.

40 CFR Part 63, Subpart PPPPP (National Emission Standards for Hazardous Air Pollutants for Engine Test Cells/Stands)does not apply per the provisions of 63.9285, which specifies that this MACT standard applies only to engine test stands located at a major source of HAPs. The Johnson Matthey facility is a minor (area) source of HAP emissions.

Storage Tank Regulations

As referenced earlier in this report, the facility has an above ground fuel storage tank that stores the gasoline that is fired in the engine test cells. 40 CFR Part 63, Subpart CCCCCC (National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities) applies to the operation of gasoline storage tanks, including those used at the facility. Johnson Matthey utilizes their gasoline storage tank to dispense gasoline into motor vehicle engines, in their case test engines. Per the applicability provisions of this regulation, this type of use classifies the facility as a gasoline dispensing facility, or GDF. This Johnson Matthey facility has a small annual fuel throughput, and Subpart CCCCCC puts forth limited requirements on GDF's with a monthly gasoline throughput of less than 10,000 gallons. Facilities with less than 10,000 gallons of monthly throughput do not need to submit an Initial Notification, nor a Notification of Compliance Status, to EPA relating to Subpart CCCCCC. Facilities with less than 10,000 gallons of monthly gasoline throughput are required to implement and maintain management practices, as put forth in 40 CFR 63.11116, that prevent handling gasoline in a manner that results in vapor releases to the atmosphere for extended periods of time. These facilities are also required to maintain records of gasoline throughput to demonstrate that their monthly throughput is less than 10,000 gallons. It should be noted that DEQ-AQD does not have delegated authority for Subpart CCCCCC; EPA is the delegated authority to determine the facility's compliance with this Subpart.

In terms of **State regulations**, some of DEQ-AQD's Part 7 rules apply to certain gasoline storage tanks. Specifically, Rule 703 requires that storage tanks at gasoline distribution facilities that were installed after July 1, 1979 and have a storage capacity of greater than 2,000 gallons be equipped with a permanent submerged fill pipe, and such tanks that are located in the metropolitan Detroit area be equipped with a vapor balance system (or an equivalent control system that has been approved by DEQ). As with the Federal regulations, there is not an applicable State air quality regulation that is applicable to storage tanks for fuels other than gasoline.

An e-mail message was sent to Evan at Johnson-Matthey after the site visit to make her aware of the regulatory requirements for their gasoline storage tanks. A copy of the information that was e-mailed to the facility is attached to this report.

Compliance Determination

Based upon the results of the July 31, 2018 site visit and subsequent review of facility records, the Johnson Matthey Vehicle Testing and Development facility in Taylor appears to be **in compliance** with applicable rules and regulations, including with the terms and conditions of Permit to Install No. 31-07D.

Attachments to this report: Facility records from June 2018; a copy of information that was e-mailed to the company relating to the gasoline storage regulations; a rendering of the facility.

NAME Steve Webb DATE 9/19/18 SUPERVISOR JK