

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

N143666744

FACILITY: FCA US LLC - Chrysler Technology Center		SRN / ID: N1436
LOCATION: 800 Chrysler Drive, AUBURN HILLS		DISTRICT: Warren
CITY: AUBURN HILLS		COUNTY: OAKLAND
CONTACT: Nick George , Environmental Specialist		ACTIVITY DATE: 02/21/2023
STAFF: Adam Bognar	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled Inspection		
RESOLVED COMPLAINTS:		

On Tuesday, February 21, 2023, Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) employee Adam Bognar conducted a scheduled inspection of FCA US LLC – Chrysler Technology Center (the “Facility” or “FCA Tech Center”) located at 800 Chrysler Drive, Auburn Hills, 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, as amended (Act 451); Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) Administrative Rules; and Renewable Operating Permit No. MI-ROP-N1436-2018a.

I reviewed all records electronically. The on-site inspection conducted on February 21, 2023 was a facility-walk through only. Nick George provided all records that I requested via email. The last AQD inspection was conducted on June 28, 2022. For this reason, I only reviewed records from June 2022 through January 2023.

The FCA US LLC – Chrysler Technology Center campus is comprised of approximately 5.5 million square feet of space. This large footprint makes this one of the largest buildings in the United States. FCA Tech Center performs research and development for automobile, light duty truck, and vehicle component manufacturing. Operations include dynamometer test cells, pilot assembly processes, test painting, and various laboratory activities. Prior to the COVID-19 pandemic, there were approximately 16,000 workers at this facility. This number was reduced to approximately 1500-2000 after re-opening after the Governor’s “stay at home” order. The number of employees on-site has been gradually increasing.

This facility is located in Oakland county which is currently designated as non-attainment for ozone based on the National Ambient Air Quality Standards (NAAQS). Oakland county is designated as attainment for all other criteria pollutants.

I arrived at the facility at around 10 am. I met with Nick George - Environmental Specialist, Stuart Weiss – Consultant (Arcadis), and David Jump, Environmental Specialist. I identified myself and stated the purpose of the inspection.

Nick, David, and Stuart accompanied me for the entire inspection. Although Stuart Weiss no longer works for FCA as of 2022, he is still currently the most knowledgeable about air compliance at the FCA Tech center. Nick George is learning to take on Stuart’s previous responsibilities.

MI-ROP-N1436-2018

EU-12HWG-1.07

This emission unit is one natural gas-fired boiler with a heat input of 40 million BTU/hour. This boiler utilizes natural gas exclusively and is equipped with low NOx burners. The boiler is subject to 40 CFR Part 60, Subpart Dc – New Source Performance Standards for Small Industrial-Commercial-Institutional Steam Generating Units.

Section III – SC 1: States that the permittee shall only fire pipeline quality natural gas in the boiler. Stuart stated that natural gas is the only fuel fired in all boilers at FCA Tech Center. There is some amount of No. 2 fuel oil on site that, according to my conversations with Stuart Weiss, could be used in an emergency. Using No. 2 fuel oil in this boiler would be a violation of this permit condition. The records I reviewed indicate only natural gas usage in boilers.

Section VI – SC 1: States that the permittee shall monitor and record the fuel usage for EU-12HWG-1.07 on a monthly basis in a manner and with instrumentation acceptable to the AQD district supervisor. These records are maintained in accordance with this condition and 40 CFR Part 60, Subpart Dc. Total natural gas usage for all of 2022 was reported at 39.5MM cubic feet. The month with the highest usage was December 2022 at 9.4MM cubic feet.

Section VI – SC 2: States that the permittee shall develop a boiler preventative maintenance program and log preventative maintenance. A preventative maintenance program is maintained. Stuart Weiss stated in my previous inspection in May 2021 that no recent changes have been made to the boiler PM program. I did not review the boiler preventative maintenance program during this inspection. There have not been any recent issues with the boilers or any physical changes to the boiler setup.

Section IX – SC 1: States that the permittee shall comply with 40 CFR Part 60, Subpart A, 40 CFR Part 63, Subpart DDDDD, and 40 CFR Part 60, Subpart Dc. EU-12HWG-1.07 appears to be in compliance with these federal requirements. The requirements of Subpart DDDDD are discussed below under FG-BOILERMACT. The facility complies with 40 CFR Part 60, Subpart Dc by maintaining records of fuel usage and submitting bi-annual compliance certification reports.

FG-BOILERS

This flexible group consists of four (4) boilers using natural gas as primary fuel with fuel oil No. 2 as backup, and five (5) boilers using natural gas exclusively.

I did not inspect the boilers during this on-site inspection. I inspected all boilers in my last inspection in June 2022 and verified the equipment installed. See that report for more information about the boilers.

Section I – SC 1,2,3: Places limits on Sulfur Dioxide (SO₂) emissions. Sulfur Dioxide emissions from FG-BOILERS are limited to 104.7 lb/hr and 232.9 tons/year. Facility is in compliance with the annual emission limit based on the records I reviewed. In 2022, the facility reported a total of 0.098 tons of Sulfur Dioxide was emitted. The highest reported monthly sulfur emissions were in January 2023 at 0.014 tons, which corresponds to an average hourly emission rate of 0.039 lb/hour. I verified that the facility is using the proper emission factors from Appendix 7 of this ROP. Facility meets the sulfur content limit in Section I – SC 3 through using a fuel with a sulfur content of 384.6

ppm/10,000 = 0.038% which is below the equivalent to the 0.5lb/mmBtu limit of 0.5% assuming 137,000 btu/gallon.

Section I – SC 4: Places a limit on the emission of Nitrogen Oxides (NOx) of 85.8 tons/year. The facility is in compliance with this emission limit based on the records I reviewed. In 2022, the facility reported a total of 16.4 tons of NOx. The highest reported emissions were during the 12-month rolling period ending in January 2023 at 16.45 tons. I verified that the facility is using the proper emission factors from Appendix 7 of this ROP.

Section II – SC 1,2: Limits natural gas usage in FG-BOILERS to 521.5 million cubic feet/year. Facility is in compliance with this limit based on the records I reviewed. The highest reported 12-month rolling total was in January 2023 at 329MM cubic feet. Fuel Oil No. 2 usage is restricted to 6,415,000 gallons/year. Based on the records I reviewed, Fuel Oil No. 2 has not been used in the past 4 years. 100 gallons of Fuel Oil No. 2 were used in EG-12-1.03 in January 2019. According to Stuart, no Fuel Oil has been used in boilers since then.

Section III – SC 1,2: States that the permittee shall only fire pipeline quality natural gas in the following boilers: 12-HWG-1.05, 12-HWG-1.06, 16-B4.01, 16-B-4.02 and 16-B-4.03. Additionally, these conditions state that the permittee shall only fire natural gas or Fuel Oil No. 2 in the following boilers: 12-HWG-1.01, 12- HWG-1.02, 12-HWG-1.03 and 12-HWG-1.04. These boilers are operated with the appropriate fuels based on my conversations with FCA staff and the records I reviewed.

Section V – SC 1: States that the permittee shall determine the sulfur content of No. 2 fuel oil by fuel supplier certification or fuel sample test data for any fuel oil used in FG-BOILERS. The fuel oil on-site was sampled in 2018 and found to contain 386.4 ppm sulfur. I verified this in a previous inspection.

Section VI – SC 1,2: Requires the permittee to monitor and record the quantity and type of each fuel used in each boiler on a monthly and 12-month rolling basis. For any Fuel Oil No. 2 shipment, the permittee must keep a record of sulfur content, heat content, and quantity received. These records are maintained. Only natural gas is used in the boilers. Fuel usage for each boiler is monitored and recorded separately for each 12-month rolling period.

Fuel Oil No. 2 is used very seldomly. The fuel oil currently on-site has been there for many years. The only time this fuel oil has been used in recent times was for a 100-gallon test conducted in 2019. The fuel oil used for the 100-gallon test was sampled in 2018 and found to contain 386.4 ppm sulfur.

Section VI – SC 3: States that the permittee shall monitor and record the boiler monthly hours of operation. I reviewed these records. The run-time hours are recorded for all boilers in FG-BOILERS combined. Run-time is reported around the same each month. The highest value is 744 hours in January 2023.

Section VI – SC 4: States that the permittee shall keep a record of the average hourly and monthly 12-month rolling emissions of SO₂. I verified that these records are kept.

Section VI – SC 5: States that the permittee shall keep a record of the monthly and 12-month rolling emissions of NOx. I verified that NOx emissions from FG-BOILERS are recorded in this manner.

Section VI – SC 6: States that the permittee shall develop a boiler preventative maintenance program and log preventative maintenance. A preventative maintenance program is maintained. Stuart stated that no recent changes have been made to the boiler PM program. I reviewed a document submitted by FCA that indicated that each boiler received a tune-up in 2021.

Section IX – SC 1: Section IX – SC 1: States that the permittee shall comply with 40 CFR Part 60, Subpart A, 40 CFR Part 63, Subpart DDDDD, and 40 CFR Part 60, Subpart Dc. The boilers appear to be in compliance with these federal requirements. The requirements of Subpart DDDDD are discussed below under FG-BOILERMACT. The facility complies with 40 CFR Part 60, Subpart Dc by maintaining records of fuel usage and submitting bi-annual compliance certification reports.

FG-BOILERMACT

This flexible group contains four (4) boilers using natural gas as primary fuel with fuel oil No. 2 as backup, and eight (8) boilers using natural gas exclusively. This flexible group is applicable to the following emission units when operating as a “Unit designed to burn gas 1 subcategory.” This includes gaseous fuel boilers that burn liquid fuel for periodic testing of liquid fuel, maintenance, or operator training, not to exceed a combined total of 48 hours during any calendar year and gaseous fuel boilers that burn liquid fuel during periods of gas curtailment or gas supply interruptions of any duration.

Section II – SC 1: States that the permittee shall only burn fuels as allowed in the unit designed to burn gas 1 subcategory definition in 40 CFR 63.7575. The permittee only burns natural gas in these boilers based on the records I reviewed and conversations with facility staff. Fuel oil #2 was briefly used as a short test run several years ago but has not been used since.

Section III – SC 1,2,3,4,5,6: Specifies process/operational restrictions for FG-BOILERMACT. The boilers in the central energy plant are equipped with oxygen trim systems. The boilers are considered existing units because they commenced construction before June 4, 2010. Since all boilers are equipped with oxygen trim systems, tune ups are conducted at least once every five years in accordance with 40 CFR Part 63 Subpart DDDDD (40 CFR 63.7540(a)(12)). In my previous inspection in June 2022, I requested and received documentation for the most recent tune up of these boilers. This document shows that each boiler received a tune up in 2021/2022. FCA submits an annual certification to AQD and the USEPA which states when each boiler had it’s last tune-up.

Section VI – SC 1,2,3,4,5: Specifies recordkeeping requirements for FG-BOILERMACT. FCA appears to be in compliance with recordkeeping requirements of FG-BOILERMACT. FCA maintains records of any alternative fuels used, performance tests completed, and all semi-annual/annual reports.

Section IX – Specifies other requirements for FG-BOILERMACT. The facility appears to be in compliance with 40 CFR Part 63, Subpart DDDDD based on the inspection and records that I reviewed. FCA Tech center performs tune-ups of boilers according to Subpart DDDDD.

FG-B/UP-TURBINES

This flexible group consists of two natural gas-fired turbine generators used for peaking. During start-up, these turbines use compressed natural gas to get the turbine moving. This start-up natural gas (3000-4000 cubic feet per start-up) is exhausted to the ambient air without combustion. In 2021, FCA installed new natural gas meters on each of the turbines. These new meters allow FCA to differentiate between the natural gas that is used for start-up versus what is combusted in the turbine. I verified that NO_x and CO calculations are performed using the emission factors in Appendix 7.

I did not inspect these turbines during my on-site inspection. I inspected these turbines during my last on-site inspection in June 2022.

Section I – SC 1,2: Establish emission limits for Nitrogen Oxides (NO_x). For each turbine, NO_x emissions are limited to 89.29 pounds per hour (pph). Combined emissions from both turbines are limited to 35.72 tons/year. This facility is in compliance with these emission limits based on the records I reviewed. The pph limit is based on a monthly average. The month I reviewed with the highest hourly emissions was for Unit 1 in November 2022 at 42 pph NO_x. Annual NO_x emissions for both units combined were reported highest during the 12-month period ending in January 2023 at 0.05 tons.

Section I – SC 3,4: Establish emission limits for CO. CO emissions are limited to 16.23 lb/hour and 6.5 tons/year. The facility is in compliance with these emission limits based on the records I reviewed. CO emissions were highest during the 12-month rolling period ending in January 2023 at 0.01 tons.

The hourly CO emission rate was reported highest during the 12-month period ending in November 2022 at 7.6 pph CO.

Section I – SC 5: Limits sulfur content in natural gas to 0.8%. Stuart stated that CMS Energy provides FCA-CTC with natural gas that meets Mich. Admin. Code R.460.2381(1) - 20 grains sulfur per 100 cubic feet. This equates to approximately 0.03%.

Section II – SC 1: Limits natural gas usage to 190.2 MM cubic feet/year for both turbines combined. Natural gas usage was reported highest during the 12-month periods ending in January 2023 at 0.25 MMCF.

The 190.2 MM cubic feet/yr natural gas usage limit is tied to the CO emission limit. Based on the CO emission factor of 68 pounds per million cubic feet, the maximum natural gas usage would result in achieving the maximum CO emissions of 6.5 tons. For this reason, it would not make sense to count un-combusted natural gas used during startup towards the 190.2MM cubic feet/yr emission limit.

According to Stuart, around 3000-4000 cubic feet of natural gas is used without combustion in a typical startup cycle. Occasionally, the turbines will fail to ignite and will require multiple start-up cycles. Stuart stated that failures to ignite are recorded in the facility's handwritten operating logs (I did not review these). Based on my observations and conversations with Stuart, this routine

venting of natural gas during startup is exempt from Rule 201 requirements pursuant to Rule 285 (2)(mm)(i).

Section III – SC 1,2,3: Specifies process/operational restrictions for FG-B/UP-TURBINES. The turbines are only operated as needed during a power outage. The units burn only pipeline quality natural gas. The turbines were not operated for more than 400 hours based on a 12-month rolling time period. In 2022, Unit 1 was operated for a total of 4.9 hours and Unit 2 was operated for a total of 2 hours.

Section VI – SC 1: States that the permittee shall monitor and record the monthly hours of operation of each turbine. These records are maintained.

Section VI – SC 2,3: Requires the permittee to keep 12-month rolling records of fuel consumption, total NOx emissions, and total CO emissions. These records are maintained.

Section VI – SC 4: States that the permittee shall develop a turbine preventative maintenance program and log preventative maintenance. I verified that a PM program is maintained.

FCA provided me with a log of preventative maintenance on these turbines. A “full load run” test was done on Unit 1 on December 23, 2022. No issues were noted. A “full load run” was performed on Unit 2 in June 2021. A full load run was not performed on Unit 2 since June 2021 because they know they need to replace a seal on the lube oil pump. According to FCA, they could run Unit 2, but they do not want to leak oil unnecessarily. FCA stated that Unit 2 will receive these repairs in 2023.

FG-EMERGENCY-RICE

This flexible group includes existing emergency stationary reciprocating internal combustion engines that have a maximum site rating of 500 brake horsepower and less than 30 liters per cylinder located at a major source of hazardous air pollutants (EU-FIREPUMP-1 & EU-FIREPUMP-2). I looked at both of these engines during my on-site inspection.

Section III – SC 1,2,3,4,5,6,7,8,9: Specifies process/operational restrictions for FG-EMERGENCY-RICE. The permittee appears to comply with these process/operational restrictions. Maintenance records show that both pumps were inspected by Peerless Midwest Inc. in June 2022. The Peerless Midwest Inc. shows that the engines are in good working order. They noted that the oil pressure switch is leaking on the CTC Tower Diesel pump and recommended replacing.

The engines have not exceeded 100 hours for maintenance checks and readiness testing. The records I reviewed show that the CEP Fire Sprinkler and HQ Tower Fire Sprinkler operated for 15 and 25.7 hours, respectively, in 2022.

Section IV – SC 1: States that the permittee shall install a non-resettable hour meter on each engine. Both engines are equipped with a non-resettable hour meter. During this inspection the CEP Fire Sprinkler hour meter showed 853 hours and the HQ Tower Fire Sprinkler showed 664 hours.

Section V – SC 1: NA since oil analysis program is not used.

Section VI – SC 1: Requires the permittee to keep records of the hours of operation of each engine using a non-resettable hour meter. Additionally, the permittee must differentiate and document how many of these hours are used for emergency operation, non-emergency operation, and demand response operation. For emergency operation, the permittee must document what classified the operation as emergency.

Since January 2019, these engines have not been operated for emergency or demand response purposes. Both engines are operated for around 2 hours per month for testing & maintenance purposes.

Section VI – SC 2,3: Requires the permittee to keep records of the occurrence, duration, and steps taken to mitigate each malfunction of operation. Based on the records I reviewed there have been no recent malfunctions in FG-EMERGENCY-RICE. FCA-CTC does its fire pump maintenance in accordance with NFPA25 with additional steps provided by FCA to the contractor.

The malfunction records state that the oil pressure sensor is leaking and appears to be faulty on CTC Tower Diesel. This was identified during the annual service on July 9, 2021. David Jump stated on July 27, 2022 that a new oil pressure switch has been ordered. Based on the maintenance records I reviewed as part of this inspection, this oil pressure switch was replaced in September 2022.

Section VI – SC 4: Requires the permittee to keep records of the parameters that are analyzed in the oil analysis program. The oil analysis program is not used. An annual tune up is performed on both engines each year. The oil is changed during these tune ups. FCA provided me with documentation indicating that engine tune-ups were performed in June 2022.

Section VI – SC 5: States that the permittee shall maintain maintenance records for FG-EMERGENCY -RICE. I verified that maintenance records are maintained for both engines in this flexible group.

Section VI – SC 6: Requires the permittee to keep records of the sulfur content of the diesel fuel used in FG-EMERGENCY-RICE. According to the diesel fuel supplier the fuel contains less than 15 ppm sulfur.

Section IX – SC 1,2: States that the permittee shall comply with 40 CFR Part 63, Subparts A – General Provisions, and ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. FCA appears to be in compliance with these standards.

Section 2 – Scientific Labs

EU-KIRKSITEFURN

This emission unit consists of an electrically heated melting furnace. Kirksite is a zinc-based metal casting formulation. Casting operation utilizes Pep Set sand mold. Processing of the mold and core is exempt under R 336.1282(2)(a)(iv). I inspected this emission unit during the on-site inspection.

Section V – SC 1: States that the permittee shall conduct and record visible emission readings on EU -KIRKSITEFURN once during each 5-year period. Nick provided me with the test report for this test. This test was performed on July 29, 2022. No visible emissions were observed during the test. Visible opacity is not likely unless some contaminant ends up inside the furnace.

FG-TESTCELLSA

This flexible group contains fourteen engine dynamometer test cells located in Wing A. At the time of installation, these test cells were exempt from the requirements of R 336.1201 pursuant to R 336.1285(d) (currently R 336.1285(2)(g)).

Section I – SC 1: Limits SO₂ emissions to 1.7 lb/MMBTU heat input of fuel oil. This limit only applies when the test cells are fired by fuel oil. Based on the records I reviewed and my conversations with Stuart, no fuel oil has been used in these dynamometers since January 2019.

Section VI – SC 1: States that when the engines are fired by fuel oil, the permittee shall maintain a record of the fuel specifications. No fuel oil has been used in FG-TESTCELLSA since January 2019.

Section VI – SC 2: States that the permittee shall maintain a record of the date of installation for each engine test cell. All of these dynamometers were installed in October 1990 at the same time. FCA Maintains written correspondence with the AQD from the 1990's showing that these dynamometers were installed in October 1990.

Section VI – SC 3: Requires the permittee to record the types and amounts of fuel used per calendar year. These records are maintained. The total fuel consumption in 2022 was reported at 26,393 gallons of gasoline. In 2021, total fuel consumption was reported at 41,226 gallons of gasoline.

FG-ENGPAINSHOP

This flexible group consists of Surface coating and associated auxiliary coating equipment located at the engineering paint shop.

Section I – SC 1,2,3,4,5,6: These conditions establish several emission limits for VOC. VOC emissions are limited to 1185.6 lbs/day and 30.3 tons per year. The facility is in compliance with these emission limits based on the records I reviewed. The highest 12-month rolling total during the period I reviewed was 3.4 tons. The daily emission limit is based on a monthly average. Based on the reported annual emission rate, the daily VOC emission limit has not been exceeded. Even if 3.4 tons was emitted in a single month, the average daily VOC emissions would be around 230 lbs.

Additionally, these conditions limit VOC content of coatings depending on the process the coatings are used in. VOC content minus water, as applied, is limited to 3.6 lb/gallon for plastic parts, 5.16 lb/gallon for primer/surfacer painting process, 5.44 lb/gallon for prime painting process, and 6.60 lb/gallon for top coat painting process. Painting is not done on plastic parts. Nick provided manufacturers formulation data showing the VOC content for the above coating types. This data includes the VOC content of the raw coating as received, both with and without water. The facility appears to meet these VOC content restrictions. See table below for the facility's current maximum VOC formulations.

Coating Type	VOC Content (lb/gallon)	VOC Content minus water (lb/gallon)	Limit (lb/gallon)
Topcoat (65-950-4037 Bright White + reducer)	6.15	6.23	6.60
Primer/Surfacer (NCP-250 + NCX-255)	4.28	4.64	5.16
Primer Paint (DP-50-LF + DP-401-LF)	4.49	4.49	5.44

Section III – SC 1: States that the permittee shall not operate any spray booth unless the filters are installed and operating in a satisfactory manner. I observed that the filters were in place in all four booths. FCA has recently switched to double layer filters in all booths at this facility. FCA maintains a daily log in each booth where an operator notes the filter status before beginning painting for the day. FCA began maintaining this daily log in response to two instances where AQD noted that filters were missing during inspections.

Section III – SC 2: States that waste coatings and solvents shall be stored in closed containers. I observed that waste coatings are stored in sealed containers outside of the paint booths.

Section V – SC 1: States that the permittee shall perform a Method 24 test on each coating as applied or receive permission from the AQD district supervisor to use formulation data in lieu of Method 24 testing. During my previous inspection in June 2022, I asked the facility if they had ever sent this request, but they were unsure. FCA believes that this request was likely submitted decades ago. FCA submitted a new request to the AQD district supervisor on September 30, 2022 requesting to use formulation data. This request was granted by the AQD district supervisor under the condition that FCA conduct a Method 24 or Method 24a analysis on at least one paint per year to verify formulation data. Compliance with this once yearly Method 24 testing will be evaluated during future inspections.

It is reasonable to consider that this request may have been submitted long ago and that information is not readily available to AQD staff or FCA staff. FCA has been using formulation data to demonstrate compliance with VOC limitations for several years.

Section VI – SC 1: Requires the permittee to keep a record of the identity of each coating and the coating category to which it belongs. These records are maintained. Coatings are classified by their coating category in the same database where coating usage is reported.

Section VI – SC 2: States that the permittee shall keep a daily usage rate for each coating, in gallons. These records are maintained. Daily coating usage is generally less than 5 gallons/day.

Section VI – SC 3,4,5: Requires the permittee to keep a record of the VOC content of each coating as received and as applied, both with and without water. These records are maintained.

Section VI – SC 6: Requires the permittee to record daily and 12-month rolling VOC emissions. These records are maintained.

Section VI – SC 7: Requires the permittee to determine the VOC content of coatings using Method 24. As an alternative, the VOC content may be determined from formulation data. VOC content is currently determined from formulation data.

FG-CNTRLDCELLS

This flexible group contains forty-six (46) engine dynamometer test cells located in Wing C, Wing D and Wing E (durability, transmission and catalyst test cells). The 46 engine dynamometer test cells house a total of 80 engine dynamometer test stands. Emissions from these test cells are controlled with thermal oxidizers. All Wing D test cells are controlled. Wings C and E have both controlled and uncontrolled test cells. Wings B are uncontrolled test cells. The most updated version of this flexible group is in permit to install No. 155-18. The facility has notified AQD that they are operating in “Scenario B” as of March 2022.

Section I – SC 1,2: Establish emission limits for Nitrogen Oxides (NOx). NOx emissions are limited to 218.2 tons/year for all types of testing combined. Emissions from durability and transmission testing are limited to 10.45 pounds per hour (pph) per thermal oxidizer. The facility is in compliance with these emission limits based on the records I reviewed. NOx emissions were reported highest during the 12-month period ending in June 2022 at 75.7 tons. Based on the most recent stack test results (March 22, 2022 test), NOx emissions are 5.42 pph.

During this inspection, most of the thermal oxidizers were running at the same temperature as during my last inspection. This is notable because FCA plans to reduce this temperature after the results of the March 22, 2022 stack test showed that FCA was able to meet their emission limits at 1420°F. At least two RTO’s are now operating at reduced temperatures – 92-THO-4.03 & 92-THO-4.04. The set point on these two units is 1435°F.

Section I – SC 3,4,5: Establish emission limits for Carbon Monoxide (CO). CO emissions are limited to 20.8 tons/year while performing durability or transmission testing & 17.57 tons/year while performing simulation testing. CO emissions are also limited to 1 pph per thermal oxidizer. The facility is in compliance with these emission limits based on the records I reviewed. CO emissions were highest during the 12-month period ending in June 2022 at 7.2 tons. CO emissions from simulation testing was highest during the 12-month period ending in December 2022 at 0.67 tons. Based on the most recent stack test results (March 22, 2022 test), CO emissions are 0.75 pph.

Section I – SC 6,7: Establish emission limits for Volatile Organic Compounds (VOC). VOC emissions are limited to 12.5 tons per year and 0.64 pph per thermal oxidizer. The facility is in compliance with these emission limits based on the records I reviewed. VOC emissions were highest during the 12-month period ending in June 2022 at 4.3 tons. VOC emissions are estimated using the 0.006lb/gallon limit as the emission factor. Based on the most recent stack test results (March 22, 2022 test), VOC emissions are 0.27 pph.

Section I – SC 8: Limits Lead emissions to 0.58 tons/year. The facility is in compliance with this emission limit based on the records I reviewed. Lead emissions were highest during the 12-month period ending in September 2022 at 0.007 tons.

Section I – SC 9,10,11: Establishes limits for particulate matter emissions. PM10 & PM2.5 emissions are limited to 15.91 tons per year while performing any type of testing. PM2.5 emissions are limited to 0.0186 pph per test stand while performing simulation testing. The facility is in compliance with these emission limits based on the records I reviewed. PM10 emissions were highest during the 12-month period ending in June 2022 at 9.6 tons. PM2.5 emissions were highest during the 12-month period ending in June 2022 at 4.7 tons. During the most recent stack test on the simulation cells, the total PM emission rate was 0.0071 lbs/hour.

Section II – SC 1: Limits total fuel used while performing any type of testing to 4,160,700 gallons per year. The facility is in compliance with this limit based on the records I reviewed. Total fuel usage is reported highest during the 12-month period ending in June 2022 at 1,449,504 gallons.

Section II – SC 1a: Limits ultra-low sulfur diesel fuel usage to 1,040,175 gallons per year. The facility is in compliance with this limit based on the records I reviewed. Ultra-low sulfur diesel fuel usage is reported highest during the 12-month period ending in June 2022 at 37,556 gallons.

Section II – SC 1b: Limits total fuel usage when performing simulation testing to 265,000 gallons per year. The facility is in compliance with this limit based on the records I reviewed. Total fuel usage during simulation testing is reported highest during the 12-month period ending in June 2022 at 6,852 gallons.

Section II – SC 1c: Limits leaded gasoline usage while performing any type of testing to 95,000 gallons per year. The facility is in compliance with this limit based on the records I reviewed. The facility reported that no leaded fuel was used during the period I evaluated.

Section II – SC 2: Limits total fuel usage while performing any type of testing to 1,096.3 gallons per hour. This is based on a daily average. FCA provided me with this data for each day. The highest average hourly fuel usage rate was on Friday, June 17, 2022 at 923 gallons/hour.

Section II – SC 3: places limits on the fuel type for each type of testing. FCA is in compliance with the fuel type requirements based on the records I reviewed. Only unleaded gasoline and ultra-low sulfur diesel were used during the period I reviewed.

Section III – SC 1: States that the permittee shall not operate the durability and transmission test cells unless the associated thermal oxidizers are installed, maintained, and operated in a satisfactory manner. Proper operation of the thermal oxidizers includes maintaining a 3-hour average minimum combustion chamber temperature of either 1400°F or the value established during the most recent stack test. The most recent stack test in March 2022 established a minimum combustion chamber temperature of 1420°F. The oxidizers must also have a retention time greater than 0.5 seconds. FCA is in compliance with these limits based on this inspection and record review. I collected temperature data during my inspection on all operating thermal oxidizers. Of the 11 total thermal oxidizers, 7 were operating during this inspection. See table below for temperature data collected during this inspection.

Wing	Oxidizer	Set Point (°F)	Instantaneous temperature
------	----------	----------------	---------------------------

			during inspection (°F)
E	93-THO-4.01	1520	1524
D	92-THO-4.02	1515	1501
D	92-THO-4.04	1435	1437
D	92-THO-4.06	1515	1506
C	91-THO-4.01	1515	1511
C	91-THO-4.02	1515	1520
E	91-THO-4.03	1515	1494
D	92-THO-4.06	1515	1506

Section III – SC 2: Requires the permittee to submit an updated malfunction abatement plan within 180 days of beginning simulation testing. The simulation cells commenced trial operation on July 14, 2020. An updated MAP was submitted to AQD on December 23, 2020. This new MAP addresses the use of simulation test cells.

Section III – SC 3: Requires the permittee to comply with the approved written plan for the collection, analysis, and recording of data used to determine compliance with the fuel use limits. FCA revised this plan in March 2022 after switching to Scenario B. I collected a copy of the revised plan.

Section V – 1,2: Specifies testing/sampling requirements for FG-CNTRLDCELLS. NO_x, VOC, and CO testing has been performed in the past 5 years. NO_x, CO, VOC, and PM testing was performed on March 22, 2022 for durability & transmission testing cells. AQD received the results of this test on May 20, 2022.

NO_x, CO, VOC, PM₁₀, and PM_{2.5} testing was performed on a simulation test cell on January 6, 2021.

Section VI – SC 1,2: Requires the permittee to maintain records indicating the maximum lead content of each fuel. These records are maintained. Maximum lead content in diesel fuel is 0.02ppm. Maximum lead content in gasoline is 0.05 gram/gallon.

Section VI – SC 3: States that the permittee shall maintain records of the maximum sulfur content in the ultra-low sulfur diesel fuel. These records are kept. The maximum sulfur content for diesel fuel at FCA Tech Center is reported at 15 ppm sulfur.

Section VI – SC 4: Requires the permittee to monitor the thermal oxidizer temperature and maintain records of the temperature over each consecutive 3 hour period. There are 11 thermal oxidizer at this facility, so this is a very large amount of data. I reviewed thermal oxidizer data during March 2022 for each of the 11 thermal oxidizers. Based on the records I reviewed, the temperature is either maintained above 1420°F or the oxidizer is off.

There was an artifact in the data that I am requiring FCA to fix. Each time an oxidizer is started, the first temperature datapoint is around 54,000°F. This throws off the rolling 3-hr averages for the

first three hours because they start erroneously high. I informed FCA that AQD needs to have accurate data for the thermal oxidizers during the first 3-hours after startup. FCA stated that going forward, the software will record an accurate startup temperature.

Section VI – SC 5: Requires the permittee to calculate and maintain records of annual NO_x emissions from FG-CNTRLDCELLS. I verified that these records are maintained on a 12-month rolling basis.

Section VI – SC 7 (Scenario B): Specified recordkeeping requirements under the Scenario B operating regime. Gallons of each fuel used per month for each type of testing is maintained. Ultra-low sulfur diesel fuel use calculations are maintained on a monthly and 12-month rolling time period. Total fuel use calculations for simulation testing and other types of testing are maintained separately on a 12-month rolling basis. These fuel use values are used to calculate the 12-month rolling emissions for NO_x, CO, VOC, lead, PM₁₀, and PM_{2.5} separately for simulation testing and durability & transmission testing.

Section VI – SC 8 (Scenario B): Requires the permittee to maintain a record of hours of operation for each test cell operating during the calendar day, gallons of fuel used per day in each test cell, and hourly fuel use calculations based upon the fuel use that day divided by the number of hours each cell operated on that day. I verified that these records are maintained.

Section VI – SC 9: Requires the permittee to maintain a record of the size of the dynamometer used for each test stand in each test cell in an acceptable format. I verified that this list is maintained.

Section VII – SC 1,2,3,4,5,6: Specifies reporting requirements for FG-CNTRLDCELLS. The facility notified AQD upon beginning simulation testing and when they changed from Scenario A to Scenario B. Actual emissions of NO_x did not exceed the baseline actual emissions by a significant amount, so no notification was sent regarding actual NO_x emissions. Actual emissions were lower than baseline actual emissions during every period I evaluated. I verified that annual/semiannual ROP certifications were submitted in a timely manner.

FG-CAMTO

FG-CAMTO consists of 11 natural gas fired thermal oxidizers (TO) serving forty-six (46) dynamometer test cells. The 46 engine dynamometer test cells house a total of 80 engine dynamometer test stands.

Section VI – SC 1: Requires the permittee to utilize three thermocouples in each thermal oxidizer. FCA utilizes three thermocouples in each oxidizer – one on the inlet, and two located inside the combustion chamber. These thermocouples shall ensure that the combustion chamber temperature remains above 1400 degrees Fahrenheit, or the temperature established during the most recent stack test (1420°F), and that the thermal oxidizer will meet applicable emission limits. Based on the records I reviewed the temperature of the oxidizers is kept above 1420°F degrees when the test cells are operating. Not all thermal oxidizers operate simultaneously. Oxidizers are turned on as needed based on how many test cells are being utilized.

Stuart stated that an interlock system is present that will automatically shut down all test cells connected to a thermal oxidizer if that oxidizer temperature falls below the permitted limit. When the engines shut down, the isolation valves connecting the engine test cells to the thermal oxidizer are closed. The system will also prevent any new test cells from being started if the oxidizer temperature is below the permitted limit.

During this inspection, most oxidizers were still being operated above 1500°F. FCA reduced the set point temperatures on the 92-4.03 and 92-4.04 oxidizers to 1435°F. Reducing oxidizer operating temperature should extend the life of the oxidizer/components and reduce natural gas usage. This was the purpose of FCA testing at a lower temperature in the March 2022 stack test.

Section VI – SC 2: Requires the permittee to calibrate or install new thermocouples on an annual basis. The device that translates the thermocouple signal into temperature readout must also be calibrated annually. Nick provided me with work order numbers for these preventative maintenance activities. These maintenance activities are generally performed annually; however, FCA stated in a deviation report that they were not able to replace the thermocouples during the 2022 calendar year due to issues with their vendor. They were able to replace the thermocouples for the 2022 calendar year in late January 2023. They have ordered parts well in advance so that they can change the thermocouples in calendar year 2023 without issue.

I discussed this issue with the AQD District Supervisor Joyce Zhu. No violation notice will be issued. FCA has corrected the issue and put a plan into place such that the issue does not occur again. Based on the records I reviewed as part of this inspection, I did not see any malfunctions with the thermocouples. To my knowledge, thermocouples generally either function correctly or fail completely. FCA did not report that any thermocouple failures took place. This is discussed in greater detail near the end of this report under “Reporting Requirements”.

Section VI – SC 3: States that the permittee shall continuously record the TO temperature data when an engine is operating in FG-CNTRLDCELLS. Based on the TO temperature records I reviewed the data is recorded continuously. Stuart explained that there are three temperature recorders on each oxidizer. Each records the same data from the combustion chamber thermocouple, but only one of them reports to the central database. Another temperature recorder keeps data on a hard drive located on the oxidizer control panel. There are multiple redundant systems so that there is never a period where oxidizer temperature data is not taken.

Section VI – SC 4,5,6,7,8: Specifies CAM plan requirements. Other than the issue with the thermocouples discussed above FCA Tech Center appears to be in compliance with the CAM rule requirements. The CAM plan includes provisions for maintaining necessary parts for routine repair of the monitoring system. Records of monitoring data for the thermal oxidizers are maintained. FCA submitted a CAM semi-annual report and a CAM Excursions/Exceedance report on September 19, 2022. The CAM excursion/exceedance report indicated that the thermocouples were not replaced in calendar year 2022.

Section IX – SC 1,2,3,4: Specifies additional CAM requirements. Other than the issue with the thermocouples discussed above, the Facility appears to be in compliance with the CAM rule

requirements. There were no reported instances of monitor downtime for the period reviewed. Facility is not currently required to submit/maintain a Quality Improvement Plan (QIP).

FG-UNCNTRLDCELLS

FG-UNCNTRLDCELLS consists of thirty-four (34) engine dynamometer test cells (performance test cells) located in Wings B, C and E. The 34 engine dynamometer test cells house a total of 34 engine dynamometer test stands. Performance test cells do not have emission control equipment.

Section I – SC 1,2: Establish emission limits for Nitrogen Oxides (NO_x). NO_x emissions are limited to 32.1 tons/year using an emission factor of 0.2 lb/gallon fuel (ROP requires this emission factor to be used for emission calculations). The facility is in compliance with these emission limits based on the records I reviewed. NO_x emissions were highest during the 12-month period ending in June 2022 at 23.6 tons. During the most recent stack test, NO_x emissions were reported at 0.0012 lb/gallon. The maximum NO_x lb/gallon limit from the permit is used for emission calculations, which is acceptable since the stack test values are even less than the permit limit.

Section I – SC 3,4: Establish emission limits for Carbon Monoxide (CO). CO emissions are limited to 501 tons/year with an emission factor of 3.12 lb CO/gallon fuel (ROP requires this emission factor to be used for emission calculations). The facility is in compliance with these emission limits based on the records I reviewed. CO emissions were reported highest during the 12-month period ending in June 2022 at 368.1 tons. During the most recent stack test, CO emissions were reported at 0.030 lb/gallon.

Section I – SC 5,6: Establish emission limits for Volatile Organic Compounds (VOC). VOC emissions are limited to 25.7 tons per year with an emission factor of 0.16 lb/gallon fuel (ROP requires this emission factor to be used for emission calculations). The facility is in compliance with these emission limits based on the records I reviewed. VOC emissions were reported highest during the 12-month period ending in June 2022 at 18.9 tons. During the most recent stack test, VOC emissions were reported at 0.030 lb/gallon.

Section I – SC 7: Limits Lead emissions to 0.37 tons/year. The facility is in compliance with this emission limit based on the records I reviewed. Lead emissions were reported highest during multiple 12-month rolling periods at 0.01 tons/year.

Section II – SC 1,2,3: Establish material limits for fuels. Unleaded fuel use in FG-UNCNTRLDCELLS is limited to 320,952 gallons/year and 2,362 gallons/day. Leaded gasoline emissions are limited to 95,000 gallons/year for both FG-CNTRLDCELLS and FG-UNCNTRLDCELLS. The facility is in compliance with these material usage limits based on the records I reviewed. Unleaded fuel usage is reported highest during the 12-month period ending in June 2022 at 235,985 gallons. Facility reported that no leaded fuel was used in the period reviewed.

Daily unleaded gasoline usage is reported as an average. The total gallons used per month in each test cell is divided by the number of days that test cell operated to get an average daily usage for each test cell. The averages for each test cell are added together to obtain the total average daily usage. Average daily fuel use from the uncontrolled cells was reported highest in July 2022 at 915 gallons.

Section V – SC 1,2,3: Requires FCA Tech Center to verify NO_x, CO, and VOC emission rates from a representative number of performance cells every 5 years. This test was last completed on August 11, 2021. AQD received the test results from this test on October 7, 2021.

Section VI – SC 1,2: States that the permittee shall monitor and record the fuel usage and the number of days operated for each test cell on a monthly basis. These records are maintained and used to calculate the daily average fuel usage required by Section VI – SC 3. These values are summed into 12-month rolling records required by Section VI – SC 4. Leaded fuel is accounted for per Section VI – SC 5 (no leaded fuel used).

Section VI – SC 6: States that the permittee shall keep records of the maximum lead content for each type of fuel used. These records are kept. Based on the records I reviewed the maximum lead content is 0.02 ppm for ultra-low sulfur diesel fuel and 0.05 grams/gallon for regular gasoline.

Section VI – SC 7,8,9,10: Require the permittee to maintain 12-month rolling emission records for NO_x, CO, VOC, and Lead. These records are maintained.

Section IX – SC 1: States that the permittee shall comply with the approved written plan for the collection, analysis, and recording of data used to determine compliance with the fuel use limits. This plan has been followed based on the records I reviewed.

FG-GASTANKS

This flexible group contains any existing or future emission unit that emits air contaminants that are exempt from the requirements of R 336.1201 pursuant to R 336.1284(2)(g)(i). FG-GASTANKS currently includes six (6) underground gasoline storage tanks for Wet Fuels Building, eighteen (18) underground gasoline storage tanks at the South Tank Farm and three (3) underground gasoline storage tanks at the North Tank Farm.

Section III – SC 1,2: States that the permittee shall not receive deliveries of gasoline in these storage tanks unless a submerged fill pipe and vapor balance system is present. I observed that a submerged fill pipe is present. In a previous inspection (July 2020), Stuart sent me a photo of a recent gasoline delivery which showed that a vapor balance/recovery system was connected during the delivery.

Nick stated that nothing has changed in recent years with the underground storage tanks. No new tanks have been added and the loading process is unchanged. I walked by this area during the inspection and did not notice that anything had changed.

Section IV – SC 1,2: States that the tanks shall have systems in place to ensure that the vapor-tight collection lines are connected before any gasoline is loaded. FCA Tech Center employees utilize a checklist for each gasoline delivery to ensure that the hoses are connected before unloading gasoline. I had Stuart show me this checklist during a previous inspection (July 2020).

Section VI – SC 1: Requires the facility to keep records indicating the dimensions and storage capacity of gasoline storage tanks larger than 10,566 gallons but smaller than 19,810 gallons. These records are maintained.

Section IX – SC 1,2: States that the permittee shall comply with the applicable provisions of R 336.1703. Additionally, the permittee must maintain and utilize a written procedure and checklist to ensure that the vapor tight collection line is connected before any gasoline is loaded into the storage tanks. A written checklist is utilized during each delivery. Facility appears to comply with Rule 703 by having a vapor recovery system and vapor-tight collection lines.

FG-WETFUELSTEST

This flexible group contains equipment in the wet fuels area. Process and process equipment are exempt pursuant to R 336.1283(2)(a)(ii).

The wet fuels test area is used to remove gasoline from gas tanks, test carbon fuel canisters, and test fuel injectors. After the majority of the fuel is transferred out of a fuel tank, the remaining fuel is left out to evaporate. Several vacuum hoses capture evaporative gasoline emissions and vent them out through a stack. The bulk of the gasoline removed from tanks is transferred via pipe to an underground storage tank. Emissions from the carbon fuel canister and fuel injector testing are also vented through a stack.

I did not inspect this area during this on-site inspection. During my previous inspection in June 2022, I inspected this area. During this inspection, I verified that there is both a low flow and high flow vapor generator used to create gasoline vapors for testing refueling emission canisters. One is an older model and one is newer. The emission canister is weighed before and after running gasoline vapor through the canister to test for adsorption capabilities.

There is a 100 station fuel injector endurance test stand and a 4 station fuel pump test stand. FCA is permitted for a 24 station fuel pump test stand; however, staff in the wet fuels area stated that there is not a 24 station fuel pump test stand – only the 4 station stand.

There is a wet fuels mineral spirits testing unit used for fuel injector performance and electrical fuel pump/fuel filter tests. This is located in the large area near where the vehicle lifts are.

Section III – SC 1: States that the testing equipment in the wet fuels area shall not be used for the production of a product for sale, market testing, or for the treatment of hazardous waste. Stuart has previously stated that the wet fuels lab is never used for these purposes.

Section III – SC 2: States that new equipment installed in this flexible group may not be exempt from Rule 201 requirements if it is a major modification or has emissions above significance levels outlined in R 336.1119. During my past inspection in June 2022, there did not appear to be any new equipment installed in this flexible group.

Section VI – SC 1: States that the permittee shall monitor fuel usage on a monthly basis. These records are maintained. The records I reviewed show that in all of 2022, 59 gallons of gasoline was

used resulting in a calculated 375.5 lbs VOC emitted. Most of the gasoline usage is from the fuel injector performance testing.

FG-RULE331

This flexible group contains existing or future emission units that emit air contaminants which are exempt from the requirements of R 336.1201 pursuant to R 336.1285(2)(l)(vi)(A) and R 336.1285(2)(l)(vi)(C). Flexible group includes any equipment for carving, cutting, routing, turning, drilling, machining, sawing, surface grinding, sanding, planing, buffing, sand blast cleaning, shot blasting, shot peening or polishing metals, plastics, wood and wood products, and any exhaust system or collector exclusively serving the above equipment. Equipment is exhausted externally and used on a nonproduction basis.

During this inspection, I looked at each emission unit in this flexible group.

Woodshop Area: There are many machining operations in the woodshop area. Emissions from these machining operations are ducted to a baghouse. I observed the baghouse was operating during my inspection. The stated operating pressure range on the baghouse control panel is 3" to 10" of water across the large baghouse. The machine was operating at 7" of water during this inspection. The manufacturers specification sheet for this baghouse states that the device can be operated up to 19" of water.

There is a smaller baghouse/HEPA filter used as a shop vacuum. This has a stated operating range of 2.5-10" of water for the baghouse and 0.25 to 2" of water for the HEPA filter. During this inspection, the baghouse was operating at 7.5" of water and the HEPA filter was operating at 0.5" of water.

Nick stated that the most recent maintenance check on this unit was closed out on January 4, 2023. The filters were replaced during the October 25, 2022 maintenance. During my previous inspection, the facility stated they would upgrade the pressure monitoring device to provide an alarm when the pressure reaches an appropriate level. FCA staff stated that this device was installed.

There is no requirement in MI-ROP-N1436-2018 that requires a malfunction abatement plan or operation and maintenance plan for the dust control equipment in FG-RULE331. Future ROP renewals may want to include a condition requiring these plans. It is difficult to determine if these devices are operating properly when AQD does not know the proper operating parameters.

Cast Metal Dust Collectors: There are three dust collectors located in the cast metal area. Nick and Stuart stated that they believe these dust collectors will be decommissioned in the near future. This is because the cast metal equipment is no longer operating in this area of the facility. All three dust collectors were off during my inspection and the area appeared to be under deconstruction. All three of these dust collectors had their last PM checks on December 13, 2022.

Design Studio Dust Collectors: There are two dust collectors in the design studio area. The proper operating pressure drop is not stated on the unit during my inspection. Nick provided me with the proper operating range for this dust collector. The filter is cleaned at 0.7" of water and the cleaning

stops at 0.5" of water. During my inspection, the pressure drop was 0.7" of water. An alarm will sound if the pressure drop is above 2" of water. The other dust collector located near the design paint booths only recirculates air back into the plant and is seldom used – it is not exhausted outdoors. These dust collectors had their last PM check in February 2023.

Metal Shop Saw/Grinder Room: This dust collector was not previously identified on the list of Rule 331 subject units. FCA added this dust collector to the Rule 331 subject unit list after this inspection. This unit is used intermittently to control emissions from machining operations in this area. This dust collector had its last PM check in February 2023.

Section I – SC 1: Limits particulate emissions from FG-RULE331 to 0.1lb/1000 lb of exhaust gases. This emission limit is verified by performing and maintaining a log of all routine and scheduled preventative maintenance for the dust control equipment. Based on the records I reviewed, preventative maintenance was performed on all dust collectors in 2022/2023. The facility appears to comply with this emission limit.

Section VI – SC 1: States that the permittee shall keep an updated record of all emission units subject to R 336.1331 (a). Nick provided me with these records. FCA updated this list with the "Metal Shop Saw/Grinder Room" dust collector.

Section VI – SC 2: States that once per year the permittee shall conduct and log all routine and scheduled preventative maintenance. Based on the records I reviewed, preventative maintenance activities have been performed on all five emission units in 2022/2023.

FG-RULE290

Any emission unit that emits air contaminants and is exempt from the requirements of Rule 201 pursuant to Rules 278, 278a and 290. Emission units installed/modified before December 20, 2016, may show compliance with Rule 290 in effect at the time of installation/modification.

There are currently no units operating under this flexible group.

FG-RULE287(2)(c)

This flexible group contains any emission unit that emits air contaminants and is exempt from the requirements of Rule 201 pursuant to Rules 278, 278a and 287(2)(c). Emission units installed/modified before December 20, 2016, may show compliance with Rule 287 in effect at the time of installation/modification. Current emission units operating under this flexible group are EU-MAINTPAINTING, EU-PRODDSGNPAINT, EU-WOODSHOPPAINT. I inspected all three of these emission units during this inspection.

Section II – SC 1: Limits the coatings used per emission unit to 200 gallons/month/emission unit. FCA Tech Center has not exceeded this usage limit based on the records I reviewed. The highest monthly usage is reported at 28 gallons in one of the two design booths in July 2022. Total combined usage in the design booths in 2022 was reported at 343 gallons. The combined usage for the two wood shop booths was reported at 84 gallons in all of 2022. The usage for the maintenance coating booth was reported at 12 gallons in all of 2022.

Section IV – SC 1: States that the booth exhaust systems must have a properly installed and operated particulate control system. I observed that dry filters were installed in the woodshop paint booth, maintenance paint booth, and in the product design booths.

Section VI – SC 1: States that the permittee shall maintain records of the volume of coating used, as applied, minus water, in gallons. I verified that these records are maintained.

FG-COLD CLEANERS

This flexible group contains any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278, 278a and Rule 281(2)(h) or Rule 285(2)(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979. There are currently five cold cleaners installed at this facility. There are a number of other cleaners which are aqueous based.

Section II – SC 1: States that the permittee shall not use cleaning solvents containing more than five percent by weight of the following halogenated compounds: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chloroform, or any combination thereof. No halogenated solvents are utilized in the cold cleaners at this facility based on my conversations with facility staff and the records I have reviewed.

Section III – SC 1: States that cleaned parts shall be drained for no less than 15 seconds or until dripping ceases. This operating instruction is posted on the cold cleaners at FCA-Tech Center. I observed three cold cleaners during this inspection. Two were located in the engineering paint shop and one was located in the design paint booth area. I observed that all three cold cleaners had proper operating procedures posted on the cold cleaner. The lids were closed on all three cold cleaners. The cold cleaners are equipped with a rack to drain parts. The operator stated that he allows parts to drip until dripping ceases.

Section III – SC 2: States that the permittee shall perform routine maintenance on each cold cleaner as recommended by the manufacturer. The cold cleaners at FCA-Tech Center appeared to be in good working order.

Section IV – SC 1,2,3,4,5: Specifies design/equipment parameters for FG-COLD CLEANERS. Each cold cleaner must have an air/vapor interface less than ten square feet and only be used for cleaning metal parts with emission vented to the general in-plant environment. The cold cleaners at this facility appear to meet these criteria. All cold cleaners that I observed during this inspection were equipped with covers during my inspection. The lids were closed.

Section VI – SC 1,2,3,4: Specifies recordkeeping requirements for FG-COLD CLEANERS. FCA maintains records of the model number, installation date, air/vapor interface area, and solvent vapor pressure of each cold cleaner. Cold cleaners are operating under Rule 281(2)(h). Written procedures are posted conspicuously near each cold cleaner. None of the cold cleaners are heated. Mechanically assisted lids are kept closed when not in use.

Reporting Requirements

FCA Tech Center appears to be in compliance with the reporting requirements of MI-ROP-N1436-2018 and PTI No. 155-18 based on the records I reviewed. The MAERS report certification, ROP Annual Certification, ROP Semi-Annual Certification, CAM certifications, and boiler MACT certification were all received on March 15, 2022.

FCA marked compliance with Section 1 of the ROP in all reports. FCA did report one deviation in Section 2 of the ROP. FCA reported that they did not replace the thermocouples in the thermal oxidizers in calendar year 2022. FCA stated the following in the deviation report:

“Orders for new thermocouples were placed with the parts vendor on July 5, 2022, and November 3, 2022, which, as in previous years, would typically be ample time for the thermocouples to arrive and be installed prior to the end of 2022. The vendor, however, advised RCA that the thermocouples’ delivery would be delayed due to parts shortages. The thermocouples arrived at the end of January 2023, and were installed promptly upon receipt. In order to ensure similar delays do not recur in 2023, the facility ordered, in early 2023, sufficient replacement parts to service all 11 oxidizers during the 2023 calendar year.”

I discussed this deviation with the AQD District Supervisor Joyce Zhu. No violation notice will be issued. FCA has corrected the issue and put a plan into place such that the issue does not occur again. Based on the records I reviewed as part of this inspection, I did not see any malfunctions with the thermocouples. To my knowledge, thermocouples generally either function correctly or fail completely. FCA did not report that any thermocouple failures took place.

Stack/Vent Restrictions

I did not verify stack dimensions during this inspection. The stacks that I was able to view appeared to be exhausted vertically unobstructed to the ambient air.

MACT PPPPP

The FCA Tech Center is currently considered an “Existing affected source” under MACT PPPPP – National Emission Standards for Hazardous Air Pollutants for Engine Test Cells/Stands. This is because FCA commenced construction of the dynamometer test cells prior to May 14, 2002. Based on my conversations with facility staff during this inspection, many of the test stands have been replaced over the years (possibly greater than 50%).

Reconstruction is defined in 40 CFR Part 63, Subpart A as the replacement of components of an affected or a previously nonaffected source to such extent that the fixed capital cost of the new components exceeds 50% of the fixed capital cost that would be required to construct a comparable new source; and it is technologically and economically feasible for the reconstructed source to meet the relevant standard(s) established by the Administrator (or a State) pursuant to section 112 of the Act. MACT PPPPP adopted a broad approach when defining "Affected source". The affected source under MACT PPPPP is defined as "the collection of all equipment and activities associated with engine test cells/stands used for testing uninstalled stationary or uninstalled mobile (motive) engines located at a major source of HAP emissions."

MACT PPPPP further defines reconstruction. Under MACT PPPPP, changes made to an existing affected source primarily for the purpose of complying with revisions to engine testing

requirements under 40 CFR parts 80, 86, 89, 90, 91, or 92 are not considered a modification or reconstruction. In addition, passive measurement and control instrumentation and electronics are not included as part of any affected source reconstruction evaluation.

I reached out to FCA Tech Center and asked them why they believe replacing greater than 50% of the dynamometer test stands should not be considered a reconstruction under MACT PPMPP. FCA Staff Sandra Walker responded to my inquiry. Sandra stated that since the number of test cells is greater than 100, replacing a single dynamometer does not approach the reconstruction threshold of 50% of the total cost of all test cells. Sandra further stated that this interpretation is consistent with the EPA's Summary of Public Comments and Responses for the 5P NESHAP final rule, dated February 2003, which states:

"If a single test cell is added or reconstructed at an existing major source facility with several (e.g., more than two) test cells, it is unlikely that new source MACT would be triggered. The amended General Provisions defines reconstruction in terms of a "comparable new source." If the existing facility has multiple test cells/stands as part of its affected source, it is unlikely that a single test cell would cost more than 50 percent of the fixed capital cost that would be required to construct a comparable new source"

In addition, Sandra stated that the EPA clarified that projects conducted over time are not aggregated in regard to the 50% threshold. Instead, projects must be "linked together by a single planning decision" in order to aggregate them together for purposes of determining if a reconstruction occurred. Sandra provided an example of when the EPA made this determination at another facility in 2015.

I reached out to Manojkumar Patel (patel.manojkumar@epa.gov) at the EPA to get a final determination of whether a reconstruction under MACT PPMPP occurred. His name was given to me as a person who is an expert in this MACT. Manojkumar called me on March 21, 2023 and informed me that he is not an expert on MACT PPMPP, but he would forward my question to a permit staff who should be able to give me an answer. On March 22, 2023, I received an email from EPA staff Constantine Blathras (blathras.constantine@epa.gov) stating that they would look into my issue.

Constantine Blathras stated that the EPA needs a "formal determination request" in order to provide an answer to this applicability question. I requested that FCA submit this formal determination request. FCA did not agree to submit this formal determination request. FCA stated that they are not subject to MACT PPMPP and they do not need to submit this request. Instead, FCA provided additional guidance documents and prior applicability determinations from the EPA. These documents show that when performing a reconstruction evaluation under MACT PPMPP, replacements are not aggregated over time if they are not part of the same project.

FCA submitted documentation showing that the cost to construct one new "dyno bay" is estimated at \$9,567,600. The "dyno bay" includes structural components of the building, mechanical infrastructure, electrical infrastructure, and the dynamometer equipment. In this same document, FCA estimated the showing that the cost to replace "dynamometer equipment" for one test cell bay is \$5,395,000. Thus, the cost of replacing all dynamometer equipment is estimated at 56% of the cost to construct the entire dyno bay.

The cost of the affected source was estimated in this document to be the cost of the dyno bay times 94 total dyno bays. This came out to \$899,354,491. When evaluated in this manner, the facility would need to replace the "dynamometer equipment" in 83 of their dynos during one project ("single planning decision") to meet 50% of the cost of a comparable new affected source $(\$899,354,491/2)/(5,395,000)$.

FCA submitted a document showing their two highest cost projects in the last five years. The first project (2018) was to update an existing wing E test cell with four low inertia dynos, drives, controllers, hardware, and software to accomodate a hybrid drive system. The total cost for this project was \$4,550,000.

The second project (2021) was to update an existing Wing E test cell with two high torque dynos, drives, controllers, and software. The total cost for this project was \$2,509,000.

Both of these projects only affected one test cell each. Based on my research, this does not approach 86 test cells that would need to have the "dynamometer equipment" replaced to trigger a reconstruction under MACT PPPPP. Furthermore, the replacements in these two projects did not involve replacing all components of "dynamometer equipment". There are considerable differences in the cost of dynamometer equipment depending on the application.

Based on the data provided by FCA, the prior EPA determinations I reviewed, and the preamble/public comments of MACT PPPPP, the test cells at the FCA Tech Center is not a reconstructed affected source under MACT PPPPP.

Compliance Determination

Based on my observations during this inspection and record review, FCA US LLC – Chrysler Technology Center is operating in compliance with all other requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) Administrative Rules; and Renewable Operating Permit No. MI-ROP-N1436-2018a.

NAME Adam Bognar

DATE 7/26/2023

SUPERVISOR K Kelly