

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

N653755023

FACILITY: PROCAT TESTING LLC		SRN / ID: N6537
LOCATION: 30844 CENTURY DR, WIXOM		DISTRICT: Warren
CITY: WIXOM		COUNTY: OAKLAND
CONTACT: Mariana Runho , EHS Specialist		ACTIVITY DATE: 08/18/2020
STAFF: Adam Bogнар	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled Inspection		
RESOLVED COMPLAINTS:		

“Facility” or “ProCat”) located at 30844 Century Drive, Wixom, Michigan 48393. The purpose of this inspection was to determine the facility’s compliance status with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environment, Great Lakes, and Energy, Air Quality Division (EGLE-AQD) rules; and Permit to Install No. 327-98G.

Due to the ongoing COVID-19 pandemic, an in-office record review was conducted rather than on-site. I requested records electronically from Ms. Mariana Pipoli Runho, EHS Specialist on March 31, 2020. Ms. Runho provided me the requested records on April 15, 2020. I reviewed records from January 2019 through March 2020. These records can be accessed on the AQD shared drive at the following address: S:\Air Quality Division\STAFF\Bognar, Adam\Inspection Documents\Procat Testing FY2020

I arrived at the facility at around 10 am. I identified myself and stated the purpose of the inspection. I met with Mr. Bryan Hughes, EHS Team Leader, Mr. Phillip Moss, Engineering & Facilities Manager, Ms. Mariana Runho, EHS Specialist, Ms. Nina McIntyre, and Mr. Mark Koehler. We held a pre-inspection meeting where we all introduced ourselves and spoke about PTI No. 327-98G. After that meeting Mr. Moss and Ms. Runho showed me around the facility.

ProCat Testing, LLC, is involved in the designing, developing, validating, and certifying automotive emission catalysts for major automotive manufacturers. The business was established in 1997 as a joint venture between two automotive industry leaders: Prodrive, the advanced technology and motorsports company, and Engelhard Corporation, the global supplier of automotive catalyst technologies. There are 22 dynamometer test cells where engines/catalysts are tested. The facility is operated by 18 employees 24 hours a day 5 days a week. An additional 3 employees are now working from home.

The automotive emission catalyst testing procedure is designed to rapidly age the catalyst material to simulate the entire life cycle of a vehicle. Inside the test cell, engines are hooked up to a catalytic converter. During testing, excess fuel is dumped into the engines periodically to create high temperature spikes in the catalyst material. After a period of unnaturally high fuel consumption the catalyst material becomes very hot. I observed that the exhaust pipes were glowing red in one of the operating test cells. The catalyst is then allowed to cool and the cycle is repeated.

The thermal stress resulting from cycling hot to cold temperatures of the catalyst rapidly ages and deteriorates the catalyst material. While the engine/catalyst goes through this cycle, analyzers test the catalyst inlet and outlet concentrations of VOC, CO, CO2, and NOx. All of this data is logged into a computer system where destruction efficiencies can be calculated. In this way, several hundred catalysts are tested each year at this facility. Automakers are required by the EPA to test their catalysts in this way. The catalysts are generally made up of Platinum, Rhodium, and Palladium.

FG-TESTCELLS

This flexible group consists of twenty-two (22) dynamometer engine test cells with catalytic converters burning unleaded gasoline, ethanol blends (up to 10%), and diesel fuel.

Section I – SC 1,2,3,4,5,6,7: Establish annual emission limits for FG-TESTCELLS. Annual emissions are limited according to the table below.

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Pollutant	Annual Emission Limit (tons)	2019 Reported Emissions (tons)
CO	84.8	1.91
NOx	35.9	7.95
PM2.5	9.6	3.45
1,3-Butadiene	0.18	0.029
Acetaldehyde	1.54	0.021
Benzene	0.37	0.064
Formaldehyde	0.38	0.079

Annual emissions are limited based on a 12-month rolling time period. ProCat Testing was in compliance during every 12-month rolling period based on the records I reviewed from January 2019 to present.

Section II – SC 1: States that the permittee shall only burn diesel, unleaded gasoline, and ethanol blends (up to 10%) for FG-TESTCELLS. These are the only types of fuels burned based on the records I reviewed.

Section II – SC 2: States that the total combined fuel usage for unleaded gasoline and ethanol blends for FG-TESTCELLS shall not exceed 425,000 gallons per 12-month rolling time period as determined at the end of each calendar month. ProCat Testing is in compliance with this emission limit based on the records I reviewed. Gasoline usage was reported at 160,234 gallons for all of 2019.

Section II – SC 3: States that the diesel fuel usage for FG_TESTCELLS shall not exceed 150,000 gallons per 12-month rolling time period as determined at the end of each calendar month. ProCat Testing is in compliance with this emission limit based on the records I reviewed. Diesel fuel usage was reported at 15,102 gallons for all of 2019.

Section II – SC 4: States that the total combined fuel usage for unleaded gasoline and ethanol blends shall not exceed 1,800 gallons per day. ProCat Testing is in compliance with this material usage limit based on the records I reviewed. The highest reported single day usage was 1611 gallons on January 24, 2020.

Section II – SC 5: States that the diesel fuel usage for FG-TESTCELLS shall not exceed 720 gallons per day. ProCat Testing is in compliance with this material usage limit based on the records I reviewed. The highest reported single day usage was 236 gallons on February 7, 2020.

Section III – SC 1: State that the permittee shall not operate any engine in FG-TESTCELLS in wide-open throttle condition. Ms. Runho stated that the test cells are not run in wide-open throttle.

Section IV – SC 1,2,3: States that the permittee shall equip and maintain each test cell with a catalytic converter. The catalytic converter must achieve a CO reduction of 90%, VOC reduction of 70%, and NOx reduction of 20%. Each test cell contains a catalytic converter. ProCat Testing calculates these reduction efficiency values daily using an exhaust gas analyzer. ProCat Testing is in compliance with these reduction efficiencies based on the records I reviewed.

Section V – SC 1: States that the permittee shall verify the NOx emission rates from one emission unit in FG-TESTCELLS while burning diesel fuel. This test was conducted in August 2015. ProCat Testing has submitted a stack test plan to the AQD TPU section. ProCat Testing plans to perform a stack test for diesel NOx before the end of 2020.

Section VI – SC 1,2: States that ProCat Testing must keep the following records

- Gallons of unleaded gasoline, ethanol blends, and diesel fuel used on a monthly and 12-month rolling basis. These records are maintained. I reviewed records from January 2019 to March 2020. Unleaded gasoline usage was reported at 160,234 gallons for all of 2019 (limit = 425,000 gallons). Diesel fuel usage was reported at 15,102 gallons for all of 2019 (limit = 150,000 gallons).

- The permittee must keep records of NO_x, CO, PM_{2.5}, 1,3-Butadiene, acetaldehyde, benzene, and formaldehyde emissions on a monthly and 12-month rolling basis. These records are kept. Monthly emissions are recorded and added together to get the 12-month rolling totals. The table below is a summary of ProCat Testing's actual emissions compared to their annual emission limit.

Pollutant	Annual Emission Limit (tons)	2019 Reported Emissions (tons)
CO	84.8	1.91
NO _x	35.9	7.95
PM _{2.5}	9.6	3.45
1,3-Butadiene	0.18	0.029
Acetaldehyde	1.54	0.021
Benzene	0.37	0.064
Formaldehyde	0.38	0.079

Section VI – SC 3: States that ProCat Testing shall keep daily records of unleaded and diesel fuel usage. Daily fuel usage records are kept. I reviewed daily fuel usage records from January 2020 to March 2020. ProCat Testing appears to be in compliance with the daily unleaded fuel usage limit of 1800 gallons per day. There are a few instances where their daily fuel usage comes close to the limit. For example, on January 24, 2020 unleaded fuel usage was 1611 gallons. Because of this, I plan to review 2019 daily records when I physically inspect this source later this year. For the period I reviewed, diesel fuel usage was well below permitted limits.

Section VI – SC 4: States that ProCat Testing shall keep daily and monthly records of CO, VOC, and NO_x reduction efficiency records for each catalytic converter installed on FG-TESTCELLS. These records are kept. I reviewed daily reduction efficiency records from January 2019 through March 2020. I reviewed monthly reduction efficiency records from January 2020 through March 2020. In January 2020, average NO_x, CO, and VOC destruction efficiencies were 34.4%, 99.0%, and 85.8%, respectively.

Section VI – SC 5: States that the permittee shall keep a daily record indicating if any engines in FG-TESTCELLS were operated in a wide-open throttle condition. Ms. Runho stated that none of the engines were run in wide open throttle since January 2019.

Section VII – States that the permittee shall notify the department if a change in land use occurs. No change in land use has occurred.

Section VII – Specifies stack dimension requirements. I did not verify stack dimensions during this inspection. Stacks appeared to be exhausted vertically unobstructed to the ambient air.

Fuel Storage Tanks

There is a three-compartment gasoline storage tank that appears to be exempt from Rule 201 pursuant to Rule 284(2)(g), since it handles less than 20,000 gallons of gasoline per day. There are two 6,000-gallon tanks and one 8,000 gallon tank.

Compliance Determination

ProCat Testing appears to be in compliance with the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) Administrative Rules; and Permit to Install No. 327-98G.

NAME Adam Bogнар

DATE 9/25/2020

SUPERVISOR Sebastianykallemkal