

MAVILA

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

M478059255

FACILITY: ROUSH INDUSTRIES		SRN / ID: M4780
LOCATION: 36630 COMMERCE, LIVONIA		DISTRICT: Detroit
CITY: LIVONIA		COUNTY: WAYNE
CONTACT: Vince Anderson , EHSS Manager. Facilities		ACTIVITY DATE: 01/27/2021
STAFF: Samuel Liveson	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: On-site inspection.		
RESOLVED COMPLAINTS:		

On Wednesday January 27, 2021, AQD staff Sam Liveson and Steve Weis conducted an announced and scheduled inspection of Roush Industries, Inc. (Roush), located at 36630 Commerce Street in Livonia, Michigan.

The purpose of this inspection was to determine the facility's compliance with the federal Clean Air Act; Part 55, Air Pollution Control, of the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; the Michigan Air Pollution Control Rules; and Renewable Operating Permit (ROP) No. MI-ROP-M4780-2016.

Announced Inspection

Due to health and safety concerns related to the COVID-19 pandemic, all scheduled inspections from the AQD are announced. Steve Weis acted as the COVID-19 field safety coordinator per MIOSHA COVID-19 Emergency Rules.

Opening Meeting

AQD staff arrived onsite around 9:00 AM. We met with Mr. Jeffrey Carter; Dynamometer Supervisor, Testing Services; Mr. John Fleming, Manager, Powertrain Testing & Development; Mr. Vince Anderson, EHSS Manager, Facilities; and Mr. Thomas Albert, Executive Director, Powertrain Testing & Development.

Buildings 1, 15, and 16 of Roush Industries are mainly comprised of dynamometers for engine testing. The Testing Services group of Roush conducts a whole range of engine tests depending upon customer requests from the big three automakers and suppliers. Electric motor testing also occurs. Hours of operation are generally Monday through Friday and can range from 8 hours to 24 hours a day.

Since the last inspection on June 27, 2019, some emission benches and measuring devices have changed, and some test cell equipment has been replaced, but there haven't been changes to dynamometers.

Facility Walk-Through

Building 6 (12447 Levan Road)

AQD staff met with Roush Industries at a conference room in building 6. Building 6 contains offices as well as a machine shop for building engines. Building 6 is separated from building 1 by a parking lot. Walking through building 6, the building contains CNC machining equipment for aluminum cutting that does not appear to vent outdoors. A Donaldson Torit filter was collecting dust within the in-plant environment. This machining equipment appears to be exempt from obtaining a Permit to Install per R 285(2)(l)(vi)(B).

Building 1 (12319 Levan Road)

Building 1 is comprised of dynamometers that were exempt from obtaining a Permit to Install during installation. Mr. Carter provided an inventory of dynamometers in building 1. Engines tests performed in building 1 include durability, performance, and engine calibration testing. Some engines have catalytic converters depending upon the customer test requested.

Test stands in building 1 do not have a Permit to Install because at the time of installation, they were exempt under R 285(2)(g). These engines were installed at various times in the 1980s before R 278 was

promulgated in November of 1993. R 278 excludes equipment from exemptions for reasons such as a potential to emit greater than major New Source Review thresholds.

The test stand inventory provided for building 1 includes 22 test stands numbered from 3 to 32. We visited test stands 21 and 23. Test stand 21 has a manufactured nameplate that indicates an absorption capacity of 500 horsepower, and a remanufactured nameplate with an absorption capacity of 600 horsepower. Test stand 23 has a manufactured nameplate and remanufactured nameplate, both of which indicate an absorption capacity of 800 horsepower. Dates of manufacture and remanufacture are not indicated.

Roush subsequently provided a more detailed in a response dated May 18, 2021 regarding its inventory of test cells in Building 1. Regarding test cell 21, the facility indicated that the original capacity of test cell 21 was 850 in 1993, and it is currently 600 hp, a net decrease.

Building 15 (36630 Commerce Street) - FG-BLD15TCells

Twelve permitted dynamometers in building 15 may be controlled or uncontrolled, depending on the test being requested by the customer. Controlled tests would use an individual production vehicle catalytic converter that is part of the engine. The combination of controlled and uncontrolled dynamometers is recorded each day.

AQD visited EU-TCe11B15D. Test stand B15D is permitted as a single-engine test stand with an absorption capacity of 400 HP. The current dynamometer nameplate validates that the absorption capacity is 400 HP.

Double-Ended Test Stands

AQD visited EU-TCe11B15P/Q. This is a permitted double-ended test stand. Roush explained that double-ended test stands have two shafts to hold two engines. Only one engine can be tested at a time, but this setup provides the convenience that one dynamometer can switch between testing two engines without having to move and connect and disconnect the two engines from the dynamometer. Test stand B15P/Q was permitted with an absorption capacity of 400 HP, and it has since been remanufactured to have an absorption capacity of 800 HP. The facility received a violation notice in 2008 for this modification, which was resolved on November 24, 2008.

Catalytic Converter Use in Building 15

If building 15 test cells are doing a test that involves a catalytic converter, the emissions are considered controlled, per FG-BLD15TCe11s in the facility ROP. The facility gets credit for running the catalyst. From discussions during the inspection, it seems that catalyst testing may involve a brand-new catalyst. Catalyst aging jobs are also performed, in which the catalytic converter is aged to its full useful life, as well as at 25,000 miles and 50,000 miles, as examples. The goal in these tests is for the catalyst not to degrade, but to still do its job on the vehicle. During tests involving catalysts, the temperature and backpressure are monitored. If the catalyst gets too hot or gets plugged as indicated by the backpressure, the catalyst would be switched out.

Building 16 (36580 Commerce Street) - FG-BLD16TCe11s

Five controlled and two double-ended uncontrolled dynamometers are permitted in building 16. Test cells A1, B2, C3, D4, and E5 are controlled by a catalytic converter built into exhaust piping. Other dynamometers are uncontrolled.

Emission unit EU-TCe11B16H8/I9 has not been installed. References to this equipment will be removed from the ROP per MI-ROP-M4780-2016 General Condition 46.

AQD visited EU-TCe11B16C3. This dynamometer was manufactured at 300 HP, and a nameplate indicates it was remanufactured to 300 HP. It was not operating during the visit. It appears to be a one-sided test stand. Mr. Carter showed AQD the catalytic converter built into the test cell exhaust pipe, and we walked outside to observe the test cell exhaust stack.

We visited an aqueous-based parts washer in Building 16. Mr. Anderson provided the safety datasheet (SDS) for the washing solution on January 27, 2021. According to the SDS, the solution is 90-100%

water. The parts washer appears to be exempt from obtaining a PTI per Rule 281(2)(k) for aqueous based parts washers.

Building 2 (12249 Levan Road)

Building 2 has not historically been considered part of the stationary source; however since it is contiguous with building 16, and seemed related to vehicle testing during the opening meeting discussion, AQD requested to visit building 2.

Building 16 contains one chassis dynamometer, which AQD observed. A separate chassis dynamometer is under construction to replace the current one. Fully assembled mobile vehicles with production catalytic converters are tested on the chassis.

A June 2013 decision from Vince Hellwig, AQD Division Chief claimed that chassis dynamometers have been determined to represent mobile sources of air pollution regulated under Title II of the Clean Air Act, and are not to be considered to be stationary sources regulated under Title V of the Clean Air Act.

Gasoline Storage Tanks

Tanks appear to be located at buildings 15 and 1. Building 16 appears to use gasoline via lines from Building 1. Tanks appear to be underground storage tanks. Some tanks at building 1 have been replaced due to age. An accurate updated listing of tanks was provided in the facility's ROP renewal application (Appl. No. 202000107). Per correspondence in the facility file dated January 16, 2019, the tank removal and installation appear to be exempt from obtaining a PTI per Rule 284(2)(g)(iii) for storage and handling equipment for gasoline, gasoline blends, diesel fuel, and natural gas exclusively serving dynamometer facilities.

Renewable Operating Permit MI-ROP-M4780-2016 Conditions

MI-ROP-B4780-2016 flexible groups, conditions, and compliance statuses are provided below. Headings represent the sections of the ROP in order. Permit conditions and rules have been paraphrased for brevity.

Source-Wide Conditions

There are no source-wide conditions applicable to the facility in MI-ROP-M4780-2016.

FG-BLD15TCells

I. Emission Limits (SC I.1-I.5) – COMPLIANCE

12-month rolling and daily emissions records were provided for January through December of 2020. Emission limits were not exceeded. See table below for the facility's emission limits and the maximum emissions that occurred based on facility records.

Special Condition	Pollutant	Emission Limit	Maximum Facility Emissions	Month (/Day) of Maximum
I.1	NOx	3.71 tpy	1.28 tpy	December 2020
I.2	CO	952 pp8h*	691 pp8h	November 13 2020
I.3	CO	83.3 tpy	29.1 tpy	December 2020
I.4	1,3 Butadiene	0.054 tpy	0.002 tpy	February 2020
I.5	Lead	0.132 tpy	0 tpy	All Months

*pp8h = pounds per consecutive 8-hours

II. Material Limits (SC II.1-II.5) - COMPLIANCE

12-month rolling and daily material usage records were provided for January through December of 2020. Material limits were not exceeded. See table below for the facility's material limits and the maximum usage that occurred based on facility records.

Material	Limit			

Special Condition			Maximum Facility Material Usage	Controlled/ Uncontrolled	Month (/Day) of Max
II.1	Fuel	1,200 gpd	424	Uncontrolled	November 13, 2020
II.2	Fuel	3,815 gpd	298	Controlled	February 1, 2020
II.3	Fuel	70,000 gpy	23,304	Uncontrolled	December 2020
II.4	Fuel	166,000 gpy	15,432	Controlled	February 2020
II.5	Leaded Fuel	30000 gpy	0	NA	NA*
*No leaded fuel was used in 2020.					

SC III.1 Use no leaded fuel in any of FG-Bld15TCells that are controlled by catalytic converters – **COMPLIANCE**. No leaded fuel was used in any cells in 2020.

SC V.1 Stack testing once per ROP term – **COMPLIANCE**. The facility conducted stack testing in building 15 on April 6 and 7, 2016 on test cells EU-TCelB15A and EU-TCelB15K. These cells were not controlled by catalytic converters. Cells in building 16 were controlled during stack testing on April 20 and 21, 2016, so overall, testing appears to be representative.

SC VI.1, VI.7, VI.8 Monitor daily and monthly fuel usage for controlled and uncontrolled engines – **COMPLIANCE**. Daily and monthly fuel usage was provided for the months of January through December of 2020. Fuels include gasoline, liquified petroleum gas, and compressed natural gas.

SC VI.2 Keep monthly and 12-month NOx emission calculation records – **COMPLIANCE**. 12-month rolling records were provided for January through December of 2020.

SC VI.3 Keep monthly and 12-month CO emission calculation records – **COMPLIANCE**. 12-month rolling records were provided for January through December of 2020.

SC VI.4 Keep 8-hour CO emission daily records – **COMPLIANCE**. Daily records were provided for January through December of 2020.

SC VI.5 Keep monthly and 12-month lead emission calculation records – **COMPLIANCE**. 12-month rolling records were provided for January through December of 2020. No lead was emitted during this time period.

SC VI.6 Keep monthly and 12-month 1,3-butadiene emission calculation records – **COMPLIANCE**. 12-month rolling records were provided for January through December of 2020.

SC VI.9, VI.10 Keep monthly leaded fuel use records, and records of maximum leaded content in deliveries of leaded fuel – **COMPLIANCE**. Monthly and daily leaded fuel use was provided. No leaded fuel was delivered in 2020.

SC VIII **NOT EVALUATED**. The stacks were not observed during the inspection.

FG-BLD16TCells

I. Emission Limits (SC I.1-I.4) – **COMPLIANCE**

12-month rolling and daily emissions records were provided for January through December of 2020. Emission limits were not exceeded. See table below for the facility's emission limits and the maximum emissions that occurred based on facility records.

Special Condition	Pollutant	Limit	Maximum Facility Emissions	Month (/Day) of Max
I.1	NOx	6.0 tpy	1.7	July 2020
I.2	CO	1,510 pp8h	151	January 17, 2020

I.3	CO	65.3 tpy	14.9	July 2020
I.4	1,3 Butadiene	0.423 tpy	0.003	July 2020
*pp8h = pounds per consecutive 8-hours				

II. Material Limits (SC II.1-II.3) - **COMPLIANCE**

12-month rolling and daily material usage records were provided for January through December of 2020. Material limits were not exceeded. See table below for the facility's material limits and the maximum usage that occurred based on facility records.

Special Condition	Material	Limit	Maximum Facility Material Usage	Controlled/ Uncontrolled	Month (/Day) of Max
II.1	Fuel	20,000 gpy	1,301	Uncontrolled	August & September 2020
II.2	Fuel	3,748 gpd	735	All	January 9, 2020
II.3	Fuel	160,000 gpy	46,464	All	July 2020

SC IV.1 Maintain catalytic converters on all dynamometers except EU-TCe11B16F6/G7 and EU-TCe11B16H8/I9 – **COMPLIANCE**. A catalytic converter was observed on EU-TCe11B16C3.

SC V.1 Stack testing once per ROP term – **COMPLIANCE**. The facility conducted stack testing in building 16 on April 20 and 21, 2016 on test cells EU-TCe11B16A1 and EU-TCe11B16B2. These cells were controlled by catalytic converters. Cells in building 15 were uncontrolled during stack testing on April 6 and 7, 2016, so overall, testing appears to be representative.

SC VI.1, VI.6, VI.7 Monitor and keep daily and monthly fuel use records – **COMPLIANCE**. Daily and monthly fuel usage was provided for the months of January through December of 2020 for controlled and uncontrolled engines. Gasoline is the main fuel used in this building. Note: for daily records in December of 2020, separate records of controlled gallons of gasoline used and uncontrolled gallons of gasoline used are blank in provided recordkeeping (except for 12/1-12/7 controlled usage, which indicate 0 gallons used for each of those days). Daily total gasoline usage (controlled and uncontrolled combined) in December of 2020 indicates 0 gallons used daily in recordkeeping. AQD plans to follow up with the facility regarding daily gasoline usage totals for December of 2020 during the next inspection cycle.

SC VI.2 Keep monthly and 12-month NO_x emission calculation records – **COMPLIANCE**. 12-month rolling records were provided for January through December of 2020.

SC VI.3 Keep monthly and 12-month CO emission calculation records – **COMPLIANCE**. 12-month rolling records were provided for January through December of 2020.

SC VI.4 Keep 8-hour CO emission daily records – **COMPLIANCE**. Daily records were provided for January through December of 2020.

SC VI.5 Keep monthly and 12-month 1,3-butadiene emission calculation records – **COMPLIANCE**. 12-month rolling records were provided for January through December of 2020.

SC VIII.1-5 Stack/Vent Restrictions – **NOT EVALUATED**. AQD observed the stack of EU-TCe11B16C3. The stack appeared to be of the dimensions listed, and to exhaust unobstructed vertically to ambient air. Some ductwork appeared to combine stacks from separate dynamometers, which may be appropriate for double-ended test cells. However a future investigation should determine that stack IDs align with the dynamometers indicated in the permit.

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Underground storage tanks at the facility are subject to the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Source Category: Gasoline Dispensing Facilities promulgated in 40 CFR

Part 63, Subparts A and CCCCCC. The AQD is not delegated the regulatory authority for this area source NESHAP.

Roush provided monthly gasoline throughput per SC VI.1(a), and daily gasoline loaded into, or dispensed from, storage tanks, per SC VI.1(c).

Facility Follow-Up

Because building 1 test stands 21 and 23 indicated that dynamometers have been remanufactured, and the change in absorption capacity from 500 to 600 hp for test stand 21 may result in a meaningful increase of emissions, on February 9, AQD sent a Rule 278 letter to Roush requesting a demonstration of the applicability of exemptions for building 1 dynamometer. Since this request, in a response received via email on May 25, 2021 (dated May 18, 2021), Roush determined that all building 1 dynamometer changes were exempt under Rule 285(2)(g) because each test cell does not exceed the exemption threshold of 10 million Btu per hour and the test cells are not excluded from exemptions pursuant to Rule 278.

In-House PTI Application for Building 1 Test Cells 14 and 15

On July 6, 2021, Roush submitted a PTI application for test cells 14 and 15 in building 1. This permit is currently under review with the AQD permit section. In an email on July 27, 2021, Vince Anderson clarified the reasoning for this permit request, as shown below:

The maximum capacity of the units in Cells 14 and 15 was determined to be 10.9 MMBtu/hr as part of our recent review. However, compliance with the exemption in Rule 285(2)(g) is determined by the maximum heat input capacity of the engines run in the test cells, not the cell units. Therefore, it is possible for Cells 14 and 15 to operate within Rule 285(2)(g). However, to eliminate any ambiguity, and to avoid the difficult task of trying to identify every engine that was ever run in Cells 14 and 15 to verify compliance with Rule 285(2)(g), Roush determined that it was appropriate to apply for a PTI for Cells 14 and 15. The PTI application, therefore, reflects the maximum capacity of Cells 14 and 15.

In House PTI Application for HAP Opt-Out Limits

On July 6, 2021, in addition to submitting the PTI application for test cells 14 and 15, Roush also submitted a PTI application for a site-wide HAP opt-out limit. This permit is currently under review with the AQD permit section.

Stationary Source Determination

As part of the HAP opt-out PTI application, Roush submitted a stationary source determination on October 22, 2021. The submittal is currently being reviewed.

Conclusion

Based on the AQD inspection and records review, Roush appears to be in compliance with the federal Clean Air Act, Michigan NREPA, the Michigan Air Pollution Control Rules, and facility ROP No. MI-ROP-M4780-2016. PTI applications for test cells 14 and 15 in building 1 and for a facility HAP opt-out permit are currently being reviewed.

NAME 

DATE 11/19/21

SUPERVISOR 