

State Registration Number
N6989

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-N6989-2020

AVL Powertrain Engineering, Inc.

State Registration Number (SRN): N6989

Located at

1801 East Ellsworth Road, Ann Arbor, Washtenaw County, Michigan 48108

Permit Number: MI-ROP-N6989-2020

Staff Report Date: April 13, 2020

This Staff Report is published in accordance with Sections 5506 and 5511 of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Specifically, Rule 214(1) of the administrative rules promulgated under Act 451, requires that the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), prepare a report that sets forth the factual basis for the terms and conditions of the Renewable Operating Permit (ROP).

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APRIL 13, 2020 - STAFF REPORT

ROP Number

MI-ROP-N6989-2020

Purpose

Major stationary sources of air pollutants, and some non-major sources, are required to obtain and operate in compliance with an ROP pursuant to Title V of the federal Clean Air Act; and Michigan's Administrative Rules for Air Pollution Control promulgated under Section 5506(1) of Act 451. Sources subject to the ROP program are defined by criteria in Rule 211(1). The ROP is intended to simplify and clarify a stationary source's applicable requirements and compliance with them by consolidating all state and federal air quality requirements into one document.

This Staff Report, as required by Rule 214(1), sets forth the applicable requirements and factual basis for the draft ROP terms and conditions including citations of the underlying applicable requirements, an explanation of any equivalent requirements included in the draft ROP pursuant to Rule 212(5), and any determination made pursuant to Rule 213(6)(a)(ii) regarding requirements that are not applicable to the stationary source.

General Information

Stationary Source Mailing Address:	AVL Powertrain Engineering, Inc. 1801 East Ellsworth Road Ann Arbor, Michigan 48108
Source Registration Number (SRN):	N6989
North American Industry Classification System (NAICS) Code:	333618
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	201800151
Responsible Official:	Lee Knoll, Operations Director 734-320-0440
AQD Contact:	Sebastian Kallumkal, Environmental Quality Specialist 586-753-3738
Date Application Received:	November 20, 2018
Date Application Was Administratively Complete:	November 20, 2018
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	April 13, 2020
Deadline for Public Comment:	May 13, 2020

Source Description

AVL Powertrain Engineering's (AVL) Ann Arbor facility is located in a limited industrial zoned area in the City of Ann Arbor, Washtenaw County. AVL operates 20 dynamometer test cells used to conduct research and development, performance, durability, and emissions certification tests on engines and engine components that are supplied by outside manufacturers. The dynamometers test engines fired by diesel, gasoline, or natural gas. Other equipment at the facility includes underground fuel storage tanks, battery testing, maintenance cold cleaners, and an aerosol paint spray booth.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year **2019**.

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	47.71
Lead (Pb)	NA
Nitrogen Oxides (NO _x)	13.08
Particulate Matter (PM)	0.21
Sulfur Dioxide (SO ₂)	1.62
Volatile Organic Compounds (VOCs)	3.60

The facility is a true area source for hazardous air pollutant (HAP) emissions. Therefore, no HAP emissions are included.

See Parts C and D in the ROP for summary tables of all processes at the stationary source that are subject to process-specific emission limits or standards.

Regulatory Analysis

The following is a general description and history of the source. Any determinations of regulatory non-applicability for this source are explained below in the Non-Applicable Requirement part of the Staff Report and identified in Part E of the ROP.

Washtenaw County is currently designated by the United States Environmental Protection Agency (USEPA) as a non-attainment area with respect to the eight-hour ozone standard.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR), Part 70, because the potential to emit for carbon monoxide and nitrogen oxides exceed 100 tons per year.

The stationary source is a minor source of HAP emissions because the potential to emit of any single HAP regulated by Section 112 of the federal Clean Air Act, is less than 10 tons per year and the potential to emit of all HAPs combined are less than 25 tons per year.

No emission units at the stationary source are currently subject to the Prevention of Significant Deterioration regulations of Part 18, Prevention of Significant Deterioration of Air Quality of Act 451, because at the time of New Source Review permitting the potential to emit of carbon monoxide and Nitrogen oxide was less than 250 tons per year.

The potential to emit of Greenhouse Gases in tons per year of CO₂e is less than 100,000. CO₂e is a calculation of the combined global warming potentials of six Greenhouse Gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride).

EUTANK1, EUTANK2/3, and EUTANK4/5 at the stationary source are subject to the National Emissions Standards for Hazardous Air Pollutants for National Emission Standard for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities promulgated in 40 CFR Part 63, Subparts A and CCCCCC (GDF Area Source MACT). A flexible group table FGGDFMACT has been added to the ROP containing the applicable requirements for a source dispensing less than 10,000 gallons of gasoline throughput per year. The ROP contains special conditions provided by AVL Powertrain Engineering, Inc. in their application for applicable requirements from 40 CFR Part 63, Subparts A and CCCCCC. The AQD is not delegated the regulatory authority for this area source MACT; therefore, the special conditions for the Gasoline Dispensing MACT contained in FGGDMACT were not reviewed by the AQD.

AVL Powertrain Engineering, Inc. has grouped their emission units in the following flexible groupings: FGTESTCELLS, FGGDFMACT and FGCOLDCLEANERS. Flexible grouping FGTESTCELLS is comprised of twenty engine testing dynamometer test cells, which are EUTESTCELL8 through EUTESTCELL27.

Permit History

FGTESTCELLS were initially permitted to operate with gasoline and/or diesel fuel. On September 20, 2001, New Source Review (NSR) Permit No. 199-01 was issued by MDEQ, AQD for the processes. Modeling was performed for CO, NOx, PM-10, Lead and the toxic air contaminants (TACs). All TAC impacts were below applicable screening levels and all criteria pollutants were below the NAAQS and increment. Based on Rule 205(3) all emissions of criteria pollutants were limited to less than 90% of the PSD major source thresholds in the permit. Rule 225 ambient impact analysis resulted in the requirement that the permit contain an emission limit for the worst case TAC 1, 3 butadiene. To reduce the emissions of CO during gasoline fired engine testing operations at that time, the facility planned on utilizing automotive catalysts for 77 percent of the annual gasoline combusted. The use of such catalysts also reduces potential VOC emissions, and as such satisfied the requirements of Rule 702(a), Best Available Control Technology for VOCs. The control is also necessary for Rule 225 compliance. Rule 910 requires that the air cleaning device be installed, maintained and operated in a satisfactory manner.

On March 6, 2008, the AQD issued PTI No. 199-01A (and voided 199-01) following evaluation of AVL's permit modification request based on updated emission factors as a result of their performance test results (April/May 2005). The emission limit for PM-10 was removed due to the demonstrated very minor emissions based on the test results. AVL also requested to reduce fuel consumption such that, there was no increase in the permitted emissions of any pollutant. The catalytic converter control requirement was modified to require their use for a minimum of 77 percent of the fuel combusted on an annual basis when testing with gasoline. The catalyst was estimated to achieve reduction efficiencies (CO and VOC) of about 90%. Monitoring, maintenance and record keeping requirements associated with the use of the catalytic converters during gasoline combustion were added or clarified.

On November 25, 2008, the AQD issued PTI No. 199-01B (and voided 199-01A) following evaluation of AVL's permit modification request to establish a gasoline usage threshold above which the catalytic converters must be used. The percentage of operating time for use of catalytic converter control was replaced by this uncontrolled gasoline fuel usage limitation. This allows operational flexibility during periods of low fuel use and continues to ensure emissions are at or below allowable levels.

On August 11, 2009, the AQD issued PTI No. 199-01C (and voided 199-01C) following evaluation of AVL's permit modification request to add natural gas usage limits in test cells in addition to existing fuels. The natural gas usage limit of 25.65 million cubic feet per year was added as a condition of the permit. The NOx and CO emission limits were increased, and natural gas emission factors were added for calculating emissions. On April 13, 2012 a Minor Modification pursuant to Rule 216(2) was issued incorporating the approved PTI No. 199-01C.

The current RO permit contains the required emission limits, material usage limits, monitoring, and recordkeeping. It also contains requirements for the continued proper operation and maintenance of the automotive catalyst systems. Performance testing of CO and NOx emissions from dynamometers firing natural gas and diesel fuel was conducted in November 2013. The emission factors will be updated and compliance with the emission limits verified. The current RO permit includes a performance testing requirement for compliance verification of CO and NOx emissions from gasoline fuel engine testing. It is required that this testing be conducted anytime during the five-year permit term.

The exhaust stacks are identified in the ROP due to the required air toxic review and modeling conducted in accordance with R 336.1225 and 40 CFR 52.21 (and Part 18) at the time of initial and subsequent PTI issuance. A change from the existing ROP involves the total number of dynamometer exhaust stacks. AVL identified in their RO permit renewal application that in two Test Cells there is only one stack exhausting the two dynamometers (as opposed to each having its own stack). This change thereby reduces the number of stacks from 20 to 18 and corresponds to the change in numbering/naming of the EUTESTCELLS (discussed above). Therefore, the previous stacks SVTESTCELL1 through SVTESTCELL20 are now SVTESTCELL8 through SVTESTCELL26&27 in the current RO permit. Specifically, EUTESTCELL16 and EUTESTCELL17 exhaust through SVTESTCELL16&17 (one stack) and EUTESTCELL26 and EUTESTCELL27 exhaust through SVTESTCELL26&27. AVL submitted information demonstrating this was the way the facility was constructed and was an error in the original permit. This is not a significant change to the original permit evaluation and is now corrected.

AVL also operates three underground fuel (gasoline/diesel) storage tanks (UST), two of which have two Sections, and are associated with the FGTESTCELLS. These tanks are EUFUELTANK1 (capacity 19,000), EUFUELTANK2/3 (7,500 and 11,500 respectively), and EUFUELTANK4/5 (11,500 and 7,500 respectively). These were permitted initially under PTI No. 199-01, (grouped as FGUST) due to applicable requirement under the federal New Source Performance Standards for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) promulgated in Title 40 of the Code of Federal Regulations, Part 60, Subparts A and Kb. The NSPS Kb, includes liquid storage vessels for which construction, reconstruction, or modification commenced after July 23, 1984. Because the Tanks are less than 75 cubic meters (m³) they were exempt from this subpart except for 60.116b (a) and (b) which required records of the dimension of the tanks and an analysis showing the capacity of the tanks. During the March 6, 2008 permit modification evaluation, FGUST was removed from the PTI due to the amended 40 CFR 60.116b (68 FR59332, October 15, 2003), in which all requirements for vessels with capacities less than 75 m³ were removed.

FGCOLDCLEANERS- Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278 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. AVL's RO permit application included one maintenance cold cleaner on site.

The monitoring conditions contained in the ROP are necessary to demonstrate compliance with all applicable requirements and are consistent with the "Procedure for Evaluating Periodic Monitoring Submittals."

No emission units have emission limitations or standards that are subject to the federal Compliance Assurance Monitoring rule pursuant to 40 CFR Part 64, because all emission units at the stationary source either do not have a control device or those with a control device do not have potential pre-control emissions over the major source thresholds.

Please refer to Parts B, C and D in the draft ROP for detailed regulatory citations for the stationary source. Part A contains regulatory citations for general conditions.

Source-Wide Permit to Install (PTI)

Rule 214a requires the issuance of a Source-Wide PTI within the ROP for conditions established pursuant to Rule 201. All terms and conditions that were initially established in a PTI are identified with a footnote designation in the integrated ROP/PTI document.

The following table lists all individual PTIs that were incorporated into previous ROPs. PTIs issued after the effective date of ROP No. MI-ROP-N6989-2014 are identified in Appendix 6 of the ROP.

PTI Number			
199-01	199-01A	199-01B	199-01C

Streamlined/Subsumed Requirements

This ROP does not include any streamlined/subsumed requirements pursuant to Rules 213(2) and 213(6).

Non-applicable Requirements

Part E of the ROP lists requirements that are not applicable to this source as determined by the AQD, if any were proposed in the ROP Application. These determinations are incorporated into the permit shield provision set forth in Part A (General Conditions 26 through 29) of the ROP pursuant to Rule 213(6)(a)(ii).

Processes in Application Not Identified in Draft ROP

The following table lists processes that were included in the ROP Application as exempt devices under Rule 212(4). These processes are not subject to any process-specific emission limits or standards in any applicable requirement.

PTI Exempt Emission Unit ID	Description of PTI Exempt Emission Unit	Rule 212(4) Citation	PTI Exemption Rule Citation
EUHEATERS	Various natural gas space heaters throughout the facility.	R 336.1212(4)(b)	R 336.1282(2)(b)(i)

Draft ROP Terms/Conditions Not Agreed to by Applicant

This draft ROP does not contain any terms and/or conditions that the AQD and the applicant did not agree upon pursuant to Rule 214(2).

Compliance Status

The AQD finds that the stationary source is expected to be in compliance with all applicable requirements as of the effective date of this ROP.

Action taken by EGLE, AQD

The AQD proposes to approve this ROP. A final decision on the ROP will not be made until the public and affected states have had an opportunity to comment on the AQD's proposed action and draft permit. In addition, the USEPA is allowed up to 45 days to review the draft ROP and related material. The AQD is not required to accept recommendations that are not based on applicable requirements. The delegated decision maker for the AQD is Scott Miller, Jackson District Supervisor. The final determination for ROP approval/disapproval will be based on the contents of the ROP Application, a judgment that the stationary source will be able to comply with applicable emission limits and other terms and conditions, and resolution of any objections by the USEPA.

State Registration Number

N6989

RENEWABLE OPERATING PERMIT

MAY 21, 2020 - STAFF REPORT ADDENDUM

ROP Number

MI-ROP-N6989-
2020

Purpose

A Staff Report dated April 13, 2020, was developed to set forth the applicable requirements and factual basis for the draft Renewable Operating Permit (ROP) terms and conditions as required by Rule 214(1) of the administrative rules promulgated under Act 451. The purpose of this Staff Report Addendum is to summarize any significant comments received on the draft ROP during the 30-day public comment period as described in Rule 214(3). In addition, this addendum describes any changes to the draft ROP resulting from these pertinent comments.

General Information

Responsible Official:	Lee Knoll, Operations Director 734 320 0440
AQD Contact:	Sebastian Kallumkal, Environmental Quality Specialist 586 753 3738

Summary of Pertinent Comments

No pertinent comments were received during the 30-day public comment period.

Changes to the April 13, 2020 Draft ROP

No changes were made to the draft ROP.