|  |  |  |
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|  | Michigan Department of Environment, Great Lakes, and Energy  Air Quality Division |  |
| **State Registration Number** | **RENEWABLE OPERATING PERMIT** | **ROP Number** |
| B6230 | **STAFF REPORT** | MI-ROP-B6230-2022 |

**Ford Motor Company - Research & Engineering Center**

State Registration Number (SRN): B6230

Located at

1701 Village Road, 2101 Village Road, and 21500 Oakwood Blvd.,

Dearborn, Wayne County, Michigan 48124

Permit Number: MI-ROP-B6230-2022

Staff Report Date: December 20, 2021

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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|  | Michigan Department of Environment, Great Lakes, and Energy  Air Quality Division |  |
| **State Registration Number** | **RENEWABLE OPERATING PERMIT** | **ROP Number** |
| B6230 | December 20, 2021 - STAFF REPORT | MI-ROP-B6230-2022 |

**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: | Ford Motor Company  One American Road  Dearborn, Michigan 48126 |
| Source Registration Number (SRN): | B6230 |
| North American Industry Classification System (NAICS) Code: | 541710 |
| Number of Stationary Source Sections: | 3 |
| Is Application for a Renewal or Initial Issuance? | Renewal |
| Application Number: | 201800075 |
| Responsible Official: | Sections 1 and 2:  Richard Danes, Manager, ELD/PFSL, Engine Lab  313-805-2887  Section 3:  Joseph Vicari, Manager, Ford Land Maintenance and Operations  313-999-0364 |
| AQD Facility Contact: | Jorge Acevedo, Senior Environmental Engineer  313-456-4679 |
| AQD ROP Contact: | Kaitlyn DeVries, Senior Environmental Quality Analyst  616-558-0552 |
| Date Application Received: | June 1, 2018 |
| Date Application Was Administratively Complete: | June 1, 2018 |
| Is Application Shield in Effect? | Yes |
| Date Public Comment Begins: | December 20, 2021 |
| Deadline for Public Comment: | January 19, 2022 |

**Source Description**

The Ford Motor Company Research and Engineering Facility is comprised of forty (40) buildings for research and development engaging in testing various automobile engines and components. The facility is located in the city of Dearborn in Wayne County, Michigan. The buildings are located on both the east and west sides of Oakwood Boulevard, and south of Michigan Avenue. The buildings are primarily in a residential and commercial area, with the nearest residential area located immediately to the north, west, and south sides of the facility. The Rogue River also runs adjacent to the facility on the northeast side.

The Ford Motor Company Research and Engineering Facility (Ford R&E) operates combustion engine test cells with associated dynamometers. The exhaust gas from certain engines are controlled by a thermal oxidizer. There is also chlorofluorocarbon (CFC) containing equipment located throughout the facility, which makes the source subject to 40 CFR Part 82.

The source is divided into three (3) sections. Section 1 is the Dynamometer Building; Section 2 is the Research Innovation Center (RIC); and Section 3 is the Research and Engineering Center Building. Each section will be further described below.

Section 1: Dynamometer Building

In the Dynamometer Building, Ford has six (6) wings (A, C, D, E, F, G) and tests internal combustion engines in dynamometer cells. The dynamometers are electrical diagnostics devices measuring the mechanical performance of the engines. All the dynamometers are interfaced with personal computers that continuously monitor engine feedback parameters. The Dynamometer building engine tests primarily focus on endurance of the engines. Emissions result from the combustion of the various fuels by the engines. Emissions from most of the buildings are controlled by one of several thermal oxidizers. Typical engine tests conducted at the facility include:

1. Engine Durability – the durability test evaluates the effect of running the engine under harsh conditions for extended periods of time. This is accomplished by operating the engine for extended periods at varying engine speeds.
2. Engine Performance – the performance test takes the engine to a particular speed, stops the engine for several minutes; takes the engine to the next speed, stopping for several minutes, and continuing the cycle for performance evaluation.
3. Engine Break-in – during the engine break-in test, speed and load points are varied to “break-in” the engine.
4. Transient Emissions – the transient emissions test operates the engine for a period, stops and allows the engine to return to ambient temperature.
5. Transient Performance Test – This test takes the engine from zero revolutions per minute (RPM) to maximum horsepower in a few seconds. The engine is then stopped, and the test is immediately repeated.
6. Engine Component Testing – Some of the test cells evaluate the performance of specific engine components (oil pump, throttle body, etc.), often without running the engine under its own power.
7. Engine Mapping Test – the engine mapping test consists of running the engine at various speeds, load, spark, and fuel set points where data is taken to determine engine performance, fuel economy, exhaust emission, etc., according to the engine program.

Section 2: Research Innovation Center (RIC)

Ford’s Research Innovation Center (RIC) tests internal combustion engines in ten (10) dynamometer cells. The focus of the RIC is similar to the Dynamometer Building, except the RIC focuses on how the engines and their components react with different fuel types. This building also focuses on projects that are in the development stage and are approximately 3-10 years from production.

Section 3: Research and Engineering Center Building

This section is primarily consisting of ancillary equipment including engines and boilers. There are five (5) emergency diesel fired generators that are owned and operated by Edison Energy Services. These generators provide electricity to the facility whenever Edison interrupts the electricity supply. Ford has agreed to allow Edison to interrupt their electricity supply in exchange for a cheaper electricity rate.

Since the last permit issuance, Permit to Install (PTI) 194-15A was issued to the facility in 2017 and will be incorporated into the permit during this renewal. This permit was related to FGTESTCELLS and FG\_WINGA, in section 1, for the dynamometer test cells. Additionally, AQD Consent Order AQD No. 14-2010, with the facility, was terminated on September 17, 2015 and the conditions and references to the consent order were removed through a minor modification.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year 2020.

**TOTAL STATIONARY SOURCE EMISSIONS**

| **Pollutant** | **Tons per Year** |
| --- | --- |
| Carbon Monoxide (CO) | 583 |
| Lead (Pb) | 0 |
| Nitrogen Oxides (NOx) | 40.5 |
| Particulate Matter (PM) | 3.6 |
| Sulfur Dioxide (SO2) | 3.3 |
| Volatile Organic Compounds (VOCs) | 26.4 |

The following table lists Hazardous Air Pollutant emissions as calculated for the year 2020 by AQD:

|  |  |
| --- | --- |
| **Individual Hazardous Air Pollutants (HAPs) \*\*** | **Tons per Year** |
| Formaldehyde | 0.19 pounds |
| Benzene | 0.15 pounds |
| Acetaldehyde | 0.12 pounds |
| **Total Hazardous Air Pollutants (HAPs)** | < 1 ton |

\*\*As listed pursuant to Section 112(b) of the federal Clean Air Act.

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.

Wayne County is currently designated by the United States Environmental Protection Agency (USEPA) as a non-attainment area with respect to the 8-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 of carbon monoxide, nitrogen oxides, and volatile organic compounds exceeds 100 tons per year and the potential to emit of any single HAP regulated by Section 112 of the federal Clean Air Act, is equal to or more than10 tons per year and/or the potential to emit of all HAPs combined is equal to or more than 25 tons per year.

The facility is subject to 40 CFR Part 82 for ozone-depleting substances. The AQD is not currently delegated for this Regulation. This is due to the CFC containing equipment.

FGTHERDYNO at the stationary source was subject to review under the Prevention of Significant Deterioration regulations of The Michigan Air Pollution Control Rules Part 18, Prevention of Significant Deterioration of Air Quality, because at the time of New Source Review permitting the potential to emit of carbon monoxide, nitrogen oxides, and volatile organic compounds was greater than 250 tons per year.

FGEMERG-JJJJ, in section 3 at the stationary source are subject to the Standards of Performance for Stationary Spark Ignition Internal Combustion Engines promulgated in 40 CFR Part 60, Subparts A and JJJJ. These emission units are also subject to Subpart ZZZZ; compliance with Subpart ZZZZ is demonstrated through compliance with Subpart JJJJ.

FGEMERG-IIII, in section 3 at the stationary source are subject to the Standards of Performance for Stationary Compression Ignition Internal Combustion Engines promulgated in 40 CFR Part 60, Subparts A and IIII. These emission units are also subject to Subpart ZZZZ; compliance with Subpart ZZZZ is demonstrated through compliance with Subpart IIII.

FGEMERGRICE in section 3 at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines promulgated in 40 CFR Part 63, Subparts A and ZZZZ.

FGBOILERS in section 3 at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Industrial Commercial, and Institutional Boilers and Process Heaters promulgated in 40 CFR Part 63, Subparts A and DDDDD. Four (4) additional boilers installed in 2017 and two (2) boilers installed in 2021 at the Crash Barrier Building were identified and incorporated into this flexible group during this ROP Renewal.

Since the last ROP issuance, Consent Order AQD No. 14-2010 has been terminated. The Consent Order was terminated on September 17, 2015 and all conditions referencing the Consent Order were removed from the ROP.

The AQD’s Rules 287 and 290 were revised on December 20, 2016. FGRULE287(2)(c) and FGRULE290 are flexible group tables created for emission units subject to these rules.  Emission units installed before December 20, 2016, can comply with the requirements of Rule 287 and Rule 290 in effect at the time of installation or modification as identified in the tables. However, emission units installed or modified on or after December 20, 2016, must comply with the requirements of the current rules as outlined in the tables.

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."

FGTESTCELLS does not have emission limitations or standards that are subject to the federal Compliance Assurance Monitoring rule pursuant to 40 CFR Part 64, because the unit(s) do not have a control device. Only the FGWINGA portion of this flexible group has a control device, and the emission from this portion of the flexible group that have pre-control emissions over major source threshold and are subject to CAM, are accounted for in FGWINGA.

FGC10759, in section 2, does not have emission limitations or standards that are subject to the federal Compliance Assurance Monitoring rule pursuant to 40 CFR Part 64, because the flexible group does not have potential pre-control emissions over the major source thresholds and there is no control device.

The following Emission Units/Flexible Groups are subject to CAM:

| **Emission Unit/Flexible group ID** | **Pollutant/ Emission Limit** | **UAR(s)** | **Control Equipment** | **Monitoring (Include Monitoring Range)** | **Emission Unit/Flexible Group for CAM** | **PAM? \*** |
| --- | --- | --- | --- | --- | --- | --- |
| FGWINGA | CO/3.0308 lb./MMBTU | R.336.1205(1)(a) & (3), 40 CFR 52.21(d) | Thermal Oxidizer | Combustion Chamber Temperature 1579°F minimum | FGWINGA | No |
| FGWINGA | VOC/0.05969 lb./MMBTU | R.336.1205(1)(a) & (3) | Thermal Oxidizer | Combustion Chamber Temperature 1579°F minimum | FGWINGA | No |
| FGTHERDYNO | CO/1416 pounds/day | R 336.2804  40 CFR 52.21 (d) | Thermal Oxidizer | Combustion Chamber Temperature 1400°F minimum | FGTHERDYO | No |

\*Presumptively Acceptable Monitoring (PAM)

The Carbon Monoxide (CO) emissions from FGTHERDYNO, and the Volatile Organic Compounds (VOC) and the CO emissions for FGWING-A are subject to the provisions of 40 CFR Part 64 for Compliance Assurance Monitoring (CAM). Both flexible groups have thermal oxidizers which are used to control emissions. Maintaining a minimum temperature of each oxidizer at 1400°F for FGTHERDYNO and 1579°F for FGWINGA ensure that the oxidizers meet the minimum required destruction efficiency (DE). The decrease in temperature in the oxidizer would result in incomplete combustions of the pollutants, thus reducing the destruction efficiency. Therefore, maintaining the minimum temperature, as verified during performance testing, has been selected as the performance indicator for CAM.

In addition to the selection of monitoring the temperature of the combustion chambers for the oxidizers, the facility is also conducting routine maintenance on the oxidizers including annual calibration or replacement of each thermocouple, semi-annual testing to verify the interlocks between all the oxidizers and the test cells work properly and can shutdown testing in the event of a malfunction, and annual inspections of the valve seals to ensure that the proper retention time for the destruction of VOC’s and CO within the oxidizer is maintained.

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-B6230-2013 are identified in Appendix 6 of the ROP.

| **PTI Number** | | | |
| --- | --- | --- | --- |
| 185-98 | C-10598 | C-10597 | 174-09 |
| C-11776 | 392-94A | 122-04 |  |

**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** |
| --- | --- | --- | --- |
| EU-AECDYNOS | AEC dynamometer test cells | Rule 212(4)(e) | Rule 285 (2)(g) |
| EU-COOK | Two (2) 10 MMBTU Electric and Natural gas Bakery Ovens and Confection cookers for human consumption | Rule 212(4)(c) | Rule 282(2)(a)(v) |
| EU-NGHEATING | One hundred fourteen (114) Natural Gas Fired heaters less than 50 MMBTU/hr (complete listing below) | Rule 212(4)(c) | Rule 282(2)(b) |
| EU-GASTANKS | Gasoline Storage and handling equipment at loading facilities handling less than 20, 000 gallons per day or at dispensing facilities | Rule 212(4)(d) | Rule 284(2)(g)(i) |
| EU-PRESSURETANKS | Storage of butane, propane, or liquefied petroleum gas in a vessel that has a capacity of less than 40,000 gallons | Rule 212(4)(b) | Rule 284(2)(b) |
| EU-CNGTANK | CNG Storage tank and pump station | Rule 212(4)(d) | Rule 284(2)(g)(ii) |
| EU-VOCTANKS | Storage or transfer tanks for trichloroethylene and diesel fuel | Rule 212(4)(d) | Rule 284(2)(i) |
| EU-XVENTMACHINES | Equipment for carving, cutting, routing, turning, drilling, machining, sawing, surface grinding, sanding, planning, sand blast cleaning, shot blasting, shot peening, polishing that is externally vented | Rule 212(4)(e) | Rule 285(l)(vi)(C) |
| EU-HOTWATERBOILERS | Twenty-Seven (27) hot water boilers located at various locations around the campus all with capacities less than 1.6 MMBTU/hr | Rule 212(4)(c) | Rule 282(2)(b)(i) |
| Storage Tanks (see below) | Various storage tanks with various capacities and contents all listed individually below | Rule 212(4)(d) | Various (see below) |

| **Location of Natural Gas Fired Heaters (Building)** | **Description** | **Capacity (BTUs)** |
| --- | --- | --- |
| Building #6 -  20600 Rotunda Dr | HTEQ-116459 | 300,000 |
| Building #6 -  20600 Rotunda Dr | HTEQ-80020 | 60,000 |
| Conference & Event Center - 1151 Village Rd | RTUS-111231 | 850,000 |
| Conference & Event Center - 1151 Village Rd | RTUS-111233 | 350,000 |
| Conference & Event Center - 1151 Village Rd | RTUS-111234 | 800,000 |
| Conference & Event Center - 1151 Village Rd | RTUS-111236 | 850,000 |
| Conference & Event Center - 1151 Village Rd | RTUS-111237 | 500,000 |
| Conference & Event Center - 1151 Village Rd | WHTR-116071 | 199,000 |
| Conference & Event Center - 1151 Village Rd | WHTR-102780 | 250,000 |
| Conference & Event Center - 1151 Village Rd | WHTR-116070 | 75,100 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-102865 | 90,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-102879 | 90,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-111739 | 90,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-116458 | 50,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-102888 | 45,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-111499 | 90,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-111500 | 90,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-111664 | 100,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-113202 | 60,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-113223 | 90,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-114647 | 125,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-114699 | 75,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-114698 | 75,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39001 | 30,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39030 | 100,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39008 | 100,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39009 | 80,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39010 | 40,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39011 | 40,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39012 | 125,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39013 | 125,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39014 | 125,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39015 | 125,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39016 | 125,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39017 | 125,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39018 | 80,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39019 | 80,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39020 | 125,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-112398 | 110,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39022 | 125,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39023 | 125,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-112396 | 110,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39028 | 60,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39029 | 100,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39030 | 100,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39032 | 60,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39033 | 90,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-39034 | 60,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | RTUS-106525 | 250,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-121018 | 90,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-116458 | 50,000 |
| Crash Barrier Building - 20000 Oakwood Blvd | HTEQ-121018 | 90,000 |
| DPG Control Tower - 20050 Oakwood Blvd | RTUS-113266 | 75,000 |
| DPG Control Tower - 20050 Oakwood Blvd | UNIT-113265 | 40,000 |
| Driving Dynamics Laboratory - 20500 Oakwood Blvd. | AHUO-310004 | 2,400,000 |
| Driving Dynamics Laboratory - 20500 Oakwood Blvd. | AHUO-310002 | 2,000,000 |
| Driving Dynamics Laboratory - 20500 Oakwood Blvd. | AHUO-310003 | 2,400,000 |
| Driving Dynamics Laboratory - 20500 Oakwood Blvd. | AHUO-310001 | 3,000,000 |
| Dynamometer Building - 1701 Village Rd |  | 240,000 |
| Ford Engineering Laboratory- 21500 Oakwood Blvd | RTUS-116230 | 533,000 |
| Gas Turbine Lab - 1751 Village Rd | RTUS-103154 | 60,000 |
| Gas Turbine Lab - 1751 Village Rd | RTUS-103298 | 60,000 |
| Gas Turbine Lab - 1751 Village Rd | RTUS-103384 | 100,000 |
| Gas Turbine Lab - 1751 Village Rd | RTUS-112387 | 120,000 |
| Gas Turbine Lab - 1751 Village Rd | RTUS-112388 | 120,000 |
| Gas Turbine Lab - 1751 Village Rd | RTUS-112389 | 200,000 |
| Gas Turbine Lab - 1751 Village Rd | RTUS-112392 | 200,000 |
| Gas Turbine Lab - 1751 Village Rd | RTUS-112393 | 200,000 |
| Gas Turbine Lab - 1751 Village Rd | RTUS-112394 | 200,000 |
| Gas Turbine Lab - 1751 Village Rd | RTUS-116002 | 120,000 |
| Gas Turbine Lab - 1751 Village Rd | RTUS-116003 | 120,000 |
| Gas Turbine Lab - 1751 Village Rd | RTUS-116004 | 350,000 |
| Gas Turbine Lab - 1751 Village Rd | RTUS-116005 | 120,000 |

**Storage Tanks located at Ford R&E Facility**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| **Facility** | **Tank size** | **Contents** | **Installation Date** | **NSR Permit Exemption** |
| **Wind Tunnel #4/5** |  |  |  |  |
|  | 2,000 gal  2,000 gal  2,000 gal | Salvage fuel  Salvage fuel  Salvage diesel  Octane | 9/12/1994 | R 336.1284(2)(g)(i)  R 336.1284(2)(2)(d) |
|  | 2,000 gal  2,000 gal  2,000 gal | Gasoline  Gasoline  Gasoline | 9/12/1994 | R 336.1284(g)(i) |
|  | 550 gal | Diesel |  | R 336.1284(2)(g)(i) |
| **Dynamometer Laboratory** |  |  |  |  |
|  | 12,000 gal  4,000 gal  4,000 gal | Gasoline  Glycol  Oil | 8/1/1992 | R 336.1284(2)(i)  Vapor pressure of glycol- .001psia |
|  | 12,000 gal  4,000 gal  4,000 gal | E-100  Oil  Oil | 8/1/1992 | R 336.1284(2)(g)(i)  R 336.1284(2)(d) |
|  | 12,000 gal  4,000 gal  4,000 gal | Gasoline  Salvage oil  Salvage gas | 8/1/1992 | R 336.1284(2)(g)(i)  R 336.1284(2)(d) |
|  | 12,000 gal  4,000 gal  4,000 gal | Gasoline  Salvage glycol  Salvage diesel | 8/1/1992 | R 336.1284(2)(g)(i)  R 336.1284(2)(d),  R 336.1284(2)(i) |
|  | 12,000 gal  4,000 gal  4,000 gal | Gasoline  Gasoline  Diesel | 8/1/1992 | R 336.1284(2)(g)(i) |
|  | 10,000 gal  10,000 gal | Gasoline  Diesel | 8/1/1992 | R 336.1284(2)(g)(i)  R 336.1284(2)(d) |
|  | 10,000 gal  10,000 gal | Diesel  Diesel | 8/1/1992 | R 336.1284(2)(g)(i)  R 336.1284(2)(d) |
|  | 10,000 gal  10,000 gal | Gasoline  Gasoline | 8/1/1992 | R 336.1284(2)(g)(i) |
|  | 10,000 gal  10,000 gal | Gasoline  Gasoline | 8/1/1992 | R 336.1284(2)(g)(i) |
|  | 10,000 gal  10,000 gal | Gasoline  Ethanol Blend | 8/1/1992 | R 336.1284(2)(g)(i)  R 336.1284(2)(d) |
|  | 5,000 gal  5,000 gal  5,000 gal  5,000 gal | Gasoline  Gasoline  Gasoline  Gasoline | 8/1/1992 | R 336.1284(2)(g)(i) |
|  | 5,000 gal  5,000 gal  5,000 gal  5,000 gal | Ethanol Blend  Gasoline  Diesel  Gasoline | 8/1/1992 | R 336.1284(2)(g)(i)  R 336.1284(2)(d) |
|  | 10,000 gal  10,000 gal | Diesel  Gasoline | 8/1/1992 | R 336.1284(2)(g)(i)  R 336.1284(2)(d) |
|  | 10,000 gal  10,000 gal | Gasoline  Diesel | 8/1/1992 | R 336.1284(2)(g)(i)  R 336.1284(2)(d) |
|  | 1,000 gal  1,000 gal  1,000 gal  1,000 gal  1,000 gal | Gasoline  Ethanol Blend  Gasoline  Ethanol Blend  Gasoline | 8/1/1992 | R 336.1284(2)(d)  R 336.1284(2)(g)(i) |
|  | 1,000 gal  1,000 gal  1,000 gal  1,000 gal  1,000 gal | Diesel  Diesel  Gasoline  Gasoline  Diesel | 8/1/1992 | R 336.1284(2)(d)  R 336.1284(2)(g)(i) |
|  | 20,000 gal | Various fuels | 8/1/1992 | R 336.1284(2)(d)  R 336.1284(2)(g)(i) |
|  | 100 gal | Diesel |  | R 336.1284(2)(i) |
| **Central Fuel Dispensing Station** |  |  |  |  |
|  | 10,000 gal  10,000 gal | Gasoline  Diesel | 5/1/2004 | R 336.1284(2)(g)(i),  R 336.1284(2)(i) |
|  | 20,000 gal | Gasoline | 5/1/2004 | R 336.1284(g)(i) |
|  | 217 gal | Diesel |  | R 336.1284(2)(i) |
|  | 1000 gal | Diesel |  | R 336.1284(2)(i) |
| **Research Innovation Center** |  |  |  |  |
|  | 15,000 gal | Gasoline | 1/1/1992 | R 336.1284(2)(g)(i) |
|  | 15,000 gal | Diesel | 1/1/1992 | R 336.1284(2)(i) |
|  | 15,000 gal | Gasoline  Diesel | 1/1/1992 | R 336.1284(2)(g)(i)  R 336.1284(2)(i) |
|  | 24,000 gal | Gasoline | 1/1/1992 | R 336.1284(2)(g)(i) |
|  | 550 gal | Diesel |  | R 336.1284(2)(i) |
|  | 4,000 gal | Gasoline  Used oil | 7/1/1993 | R 336.1284(2)(g)(i)  R 336.1284(2)(d) |
| **Powertrain & Fuel Subsystems Laboratory** |  |  |  |  |
|  | 5,000 gal | Salvage gas | 1/1/1987 | R 336.1284(2)(g)(i) |
|  | 5,000 gal | Gasoline | 12/28/1990 | R 336.1284(2)(g)(i) |
|  | 5,000 gal | Gasoline | 1/1/1990 | R 336.1284(2)(g)(i) |
|  | 550 gal | Diesel |  | R 336.284(2)(i) |
| **Advanced Electrification Center** |  |  |  |  |
|  | 2,000 gal | Gasoline | 10/1/1991 | R 336.1284(g)(i) |
|  | 150 gal | Diesel |  | R 336.284(2)(i) |
|  | 1,000 gal | Diesel |  | R 336.284(2)(i) |
|  | 1,000 gal | Diesel |  | R 336.284(2)(i) |
|  | 500 gal | Diesel |  | R 336.284(2)(i) |
|  | 125 gal | Oil |  | R 336.284(2)(i) |
|  | 125 gal | Oil |  | R 336.284(2)(i) |
| **Test Track Fuel Station** |  |  |  |  |
|  | 10,000 gal | Gasoline | 1/1/1990 | R 336.284(2)(g)(i) |
|  | 10,000 gal | Gasoline | 9/1/1990 | R 336.284(2)(g)(i) |
|  | 5,000 gal | Gasoline | 9/1/1993 | R 336.284(2)(g)(i) |
|  | 5,000 gal | Diesel | 9/1/1993 | R 336.284(2)(i) |
|  | 5,000 gal | Gasoline | 9/1/1993 | R 336.284 (2)(g)(i) |
|  | 5,000 gal | Diesel | 9/1/1993 | R 336.284(2)(i) |
|  | 10,000 gal | Gasoline | 9/1/1993 | R 336.284(g)(i) |
|  | 5,000 gal | Gasoline | 9/1/1993 | R 336.284(g)(i) |
|  | 5,000 gal | Diesel | 9/1/1993 | R 336.284(2)(i) |
|  | 5,000 gal | Gasoline | 9/1/1993 | R 336.284(g)(i) |
|  | 550 gal | Diesel |  | R 336.1284(2)(i) |
|  | 150 gal | Oil |  | R 336.1284(2)(d) |
| **Building #3** |  |  |  |  |
|  | 550 gal | Diesel |  | R 336.284(2)(i) | R 336.1284(i) |
| **Building #4** |  |  |  |  |
|  | 125 gal | Oil |  | R 336.1284(2)(d) |
|  | 770 gal | Oil |  | R 336.1284(2)(d) |
|  | 770 gal | Oil |  | R 336.1284(2)(d) |
|  | 770 gal | Oil |  | R 336.1284(2)(d) |
|  | 770 gal | Oil |  | R 336.1284(2)(d) |
|  | 770 gal | Oil |  | R 336.1284(2)(d) |
|  | 770 gal | Oil |  | R 336.1284(2)(d) |
|  | 770 gal | Oil |  | R 336.1284(2)(d) |

**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 Dr. April Wendling, Detroit 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.

|  |  |  |
| --- | --- | --- |
|  | Michigan Department of Environment, Great Lakes, and Energy  Air Quality Division |  |
| **State Registration Number** | **RENEWABLE OPERATING PERMIT** | **ROP Number** |
| B6230 | February 1, 2022 - STAFF REPORT ADDENDUM | MI-ROP-B6230-2022 |

**Purpose**

A Staff Report dated December 20, 2021, 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: | Sections 1 and 2:  Richard Danes, Manager, ELD/PFSL, Engine Lab  313-805-2887  Section 3:  Joseph Vicari, Manager, Ford Land Maintenance and Operations  313-999-0364 |
| AQD Contact: | Kaitlyn DeVries, Senior Environmental Quality Analyst  616-558-0552 |

**Summary of Pertinent Comments**

The following comments were received from the United States Environmental Protection Agency (USEPA).

**USEPA Comment 1:**

Part E of Sections 1 and 2 of the draft ROP include non-applicability determinations stating that 40 CFR Part 63 Subpart PPPPP does not apply because the affected source is an existing affected source that is exempt from the requirements pursuant to 40 CFR § 63.9290(b). The draft ROP incorporates PTI 194-15A which authorized the construction of new test cells and potentially affects whether the affected source was reconstructed as defined at 40 CFR § 63.2. We understand that a previous analysis shows that the affected source was not reconstructed but this analysis does not appear to be included within the draft ROP's staff report or permit application. To ensure that the permit record supports the non-applicability determination included in the draft ROP, we request that you provide the analysis showing that the affected source was not reconstructed in PTI 194-15A.

**AQD Response:**

Permit to install (PTI) 194-15A, which was issued on April 6, 2017, and is being incorporated into this ROP renewal. The PTI was to modify the project permitted under PTI 194-15 to add three (3) additional test cells to an existing flexible group. PTI 194-15 was issued in order to allow several previously grandfathered test cells to be replaced with new test cells and to move four (4) existing test cells to another wing. In the PTI application for PTI 194-15 and 194-15A, Ford submitted cost analysis documentation detailing the cost of the construction of the new engine test cells versus the cost of a new facility in order to determine if the source would trigger reconstruction as defined in 40 CFR Part 63.2. This analysis indicated that the cost of the construction for the new test cells would be less than 50% of the cost of a new facility at roughly 24.5% and is therefore not considered to be a reconstruction as defined in 40 CFR Part 63.2. Therefore, the regulatory applicability determination that 40 CFR Part 63 Subpart PPPPP does not apply because the affected source is an existing source that is exempt from the requirements pursuant to 40 CFR Part 63.9290(b) still stands.

**USEPA Comment 2:**

We request that you verify the following cross-references included in the draft ROP. It is unclear whether the referenced testing requirements are intended to demonstrate compliance with each emission limitation.

Section 1, FGTHERDYNO SC I.3 and I.4 (page 22) are NOx emission limitations referring to SC V.1, but SC V.1 only verifies the thermal oxidizer's CO and VOC efficiency.

Section 1, FGTHERDYNO SC I.5 (page 22) is a 1,3-Butadiene emission limitation referring to SC V.1, but SC V.1 only verifies the thermal oxidizers CO and VOC efficiency.

**AQD Response:**

In Section 1, FGTHERDYNO, Special Condition (SC) I.3 and I.4, on page 22, the emission limit for NOx references SC V.1, which is for CO and VOC reduction efficiency. This is a typographical error in the emission limit table of SC I.3 and I.4. This has been updated to reflect the correct compliance demonstration of SV V.2 in the permit. Similarly in section 1 FGTHERDYNO SC I.5, also on page 22, the emission limit for 1,3-Butadiene incorrectly only references SC V.1, which is for CO and VOC efficiency. Since 1,3-Butadiene is a VOC, that reference is correct, however, SC V.3 requires the verification of 1,3 butadiene concentration from FGTHERDYNO. Thus, SC V.3 was added to the emission limit table, and now references SC V.3. This change was made to the permit.

**USEPA Comment 3:**

We request that you verify the following citations to origin and authority. These appear to be minor typographical errors that do not otherwise affect the applicability of any requirement in the permit.

Section 1, FGTHERDYNO SC III.2 (page 23) cites R 336.12001 but should instead cite R 336.1201.

Section 3, FGEMERG-JJJJ SC I.1 - I.3 (page 113) each cite 40 CFR 60.6233(d) but should instead cite 40 CFR 60.4233(d).

**AQD Response:**

The citations identified in Section 1, FGTHERDYNO SC III.2, on page 23, that referenced R 336.12001 were verified and identified as a typographical error. This should cite R 336.1201. This change was made to the permit. Similarly, in Section 2, FGEMERG-JJJJ SC I.1 – I.3, on page 113, the citation of 40 CFR 60.6233(d) was verified to be a typographical error. This should be 40 CFR 60.4233(d). This change was made to the permit.

**Changes to the December 20, 2021 Draft ROP**

The following changes were made to the draft ROP.

In Section 1:

The citation for FGTHERDYNO SC III.2 on page 23 has been updated from R 336.12001 to R 336.1201.

In FGTHERDYNO SC I.3 and I.4 the monitoring/testing method column of the table was updated to reflect the correct compliance demonstration for the emission limit. This correct reference is SC V.2.

In FGTHERDYNO SC I.5 the monitoring/testing method column of the table was updated to include the reference to SC V.3, as a method to demonstration compliance with the emission limit.

In Section 2:

No changes were made to this section.

In Section 3:

The citation for FGEMERG-JJJJ SC I.1 – I.3 on page 113 has been updated from 40 CFR 60.6233(d) to 40 CFR 60.4233(d).