

B6230
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DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

B623055185

FACILITY: FORD MOTOR CO RESEARCH & DEV CTR		SRN / ID: B6230
LOCATION: 1701 Village Road, DEARBORN		DISTRICT: Detroit
CITY: DEARBORN		COUNTY: WAYNE
CONTACT: Robert Frew , Senior Environmental Compliance Engineer		ACTIVITY DATE: 09/18/2020
STAFF: Jorge Acevedo	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT:		
RESOLVED COMPLAINTS:		

COMPANY NAME : Ford R&E Center

FACILITY ADDRESS : 21500 Oakwood Blvd, Dearborn 48124

STATE REGISTRAT. NUMBER : B6230

NAICS CODE : 541712

LEVEL OF INSPECTION : PCE

DATE OF INSPECTION : 9/18/20

TIME OF INSPECTION : 10:00

DATE OF REPORT : 9/30/20

REASON FOR INSPECTION : Annual Compliance Inspection

INSPECTED BY : Jorge Acevedo

PERSONNEL PRESENT : Buffie Burns, Rob Frew, Rob Rebecca

FACILITY PHONE NUMBER : (313) 248-1334

FACILITY FAX NUMBER : (313) 323-0559

FACILITY BACKGROUND:

The R&E Center is a 40 building research and development complex engaged in testing various automobile engines and components. Approximately 25000 are employed at the complex including all shift workers and salaried personnel. Wayne County was redesignated to attainment for PM 2.5 on August 29, 2013. Wayne County was redesignated to attainment for Ozone on June 29, 2009. Portions of Wayne County are designated as non-attainment for Sulfur Dioxide.

The R & E Center is a major source under the following programs:

10/10/20

10/10/20

Renewable Operating Permit (ROP) program and Prevention of Significant Deterioration program.

INSPECTION NARRATIVE:

On September 30, 2020, I conducted an annual compliance inspection of the Ford Motor – Research and Engineering Center (R&E Center). I met with Buffie Burns, Robert Frew, and Rob Rebecca. Because of COVID-19 restrictions, we were not allowed to sit in a conference room. We walked through the “F” Wing and “G” Wing. The two wings were built in the early nineties. The wings are used for development of engines and emissions from the engines are evaluated. While we were walking the room the group from Ford explained that the interlock test had been performed and that the system worked as designed. We then went into the “A” Wing. This is the newest wing for the dynamometer laboratory. The rooms in the wing are used to test durability of the engines. It is the engine only that is tested. Emissions from the “A” wing are controlled by a thermal oxidizer. Several rooms in the “D” wing were decommissioned when the “A” wing was constructed. Exhaust from the “A” Wing test cells goes through the basement and a quench tank before sent to the oxidizers. We went into the basement of the “A” wing and Mr. Rebecca showed how the exhaust coming out of the A “Wing” is sent through a quench tank.

We then went into the “C” Wing. There were eight cells in this wing. We stepped into Room “7C” and Mr. Rebecca showed how the test cell is exhausted into the basement and is quenched before exhausting uncontrolled. The “C” Wing was built prior to 1967. After observing the “C” Wing, we went into the “D” Wing. While on the way to the “D” wing, I observed a parts washer. The lid was closed and not in use. The Ford staff explained that there were three parts washers in the building. The “D” Wing is part of the older dynamometer rooms. Again, only the engine is tested for developmental purposes. This wing is also uncontrolled. Next, I observed the “E” Wing. There were 19 rooms. The engine exhaust is directed below the floor before being quenching prior to exiting the stack.

The next stop was to observe the Oxidizers for both the “A” Wing and “F” and “G” Wing. We first went into the control room to see the temperatures. The Ford staff pointed out where the spare parts were being stored.

All four of the oxidizers were currently operating above 1400°F. I observed the computer system monitoring the oxidizer operations.

Oxidizer #1 1450 °F

Oxidizer #2 1450 °F

Oxidizer #3 1450 °F

Oxidizer #4 1453 °F

For the "A" Wing Thermal Oxidizers, they were reading:

RTO 1000-1609 °F

RTO 2000-1613 °F

RTO 3000-1608 °F

Next, we went to observe the "F" and "G" thermal oxidizers. I then walked to the roof to observe the oxidizers. I did not observe any opacity. The oxidizers appeared to be in good working condition. I did not see a lot of rust or leaks.

We then went and observed the "A" Wing oxidizers. There are three oxidizers but the Ford staff explained that they can run on only two oxidizers. The "A" Wing, as explained by the Ford staff, have regenerative thermal oxidizers whereas the "F" and "G" wing have recuperative thermal oxidizers.

After the viewing the oxidizers, we went down to the first floor. I observed a machining room. There were pieces of equipment like drilling, cutting, and grinding machines. None of the machines are vented to the atmosphere. I did not go to the Research Innovation Center or Rotunda Administrative Building during this inspection.

I left the facility at 11:47AM. Records were received via email on September 30, 2020.

COMPLAINT/COMPLIANCE HISTORY:

There have not been any citizen complaints registered against Ford.

OUTSTANDING CONSENT ORDERS:

None

OUTSTANDING LOVs

None

OPERATING SCHEDULE/PRODUCTION RATE:

The Dynamometer Building is a 24-hour per day, 7 days per week, 8760 hours per year operation. The RIC is an 8-hour per day, 5 days per week, 2080 hours per year operation.

PROCESS DESCRIPTION:

In the Dynamometer Building, Ford has six wings (A, C, D, E, F, G) and tests internal combustion engines in dynamometer cells. The dynamometers are electrical diagnostics devices measuring mechanical performance of the engines. All dynamometers are interfaced with personal computers that continuously monitor engine feedback parameters. Emissions result from the combustion of gasoline by the engines.

The typical engine tests are as follows:

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

In the RIC, Ford tests internal combustion engines in 10 dynamometer cells. The focus in the SRL is not that much different than in the Dynamometer Building. Rather than focusing on endurance as in the Dynamometer Building, the focus in the SRL is on how the engines and their components react with different fuels. Also, the focus is on projects that are in the development stages and 3-10 years from production.

The Rotunda Center is used for administrative purposes.

EQUIPMENT AND PROCESS CONTROLS

16 test cells are located in the "A Wing". The test cells in the "A Wing" are the newest cell in the dynamometer laboratory. The wing is controlled by three oxidizers.

14 test cells are located in the "C Wing". 7 are currently inactive. The test cells in the "C Wing" are grandfathered. The wing has two stacks and does not have any add on controls.

18 test cells are located in the "D Wing". The test cells in the "D Wing" are grandfathered. The wing has two stacks and does not have any add on controls.

19 test cells are located in the "E Wing". None are currently inactive. The test cells in the "E Wing" were built in 1979 and 1980 and are exempt. The facility was able to use the Rule 285 (g) exemption because rule 278 was not promulgated until 1993. The wing has two stacks and does not have any add on controls.

13 test cells are located in the "F Wing" and 17 are located in the "G Wing." The test cells are controlled by four thermal oxidizers. The exhaust loading supplied by the cells under test automatically activates the oxidizer's variable fan speed. Each oxidizer is equipped with tube heat exchangers for some recuperative potential. Each oxidizer maintains a minimum temperature of 1400° F with a minimum retention time of .5 seconds. The test cells' ability to run is dependent on the temperature. If the oxidizer temperature falls below 1400°, the test cells will not be able to run. Average volumetric air flow rate is 16000 acfm. There are four stacks, one for each oxidizer. Each oxidizer stack is 2.2' internal diameter and 57' high.

10 test cells are located in the RIC and are uncontrolled. The amount of time they are used does not justify the cost for controls.

APPLICABLE RULES/PERMIT CONDITIONS:

ROP MI-ROP-B6230-2013b was finalized on December 18, 2013 and revised last on March 14, 2016.

Permit conditions are evaluated in Appendix A. (Appendix A)

The following conditions apply Source-Wide to: FGOTHERDYNO-S1

DESCRIPTION

This flexible group represents the 30 Dynamometer Test Cells located in the Dynamometer Laboratory (F&G Wings). The dynamometers are controlled with four oxidizers.

Emission Units: EUTHERDYNO1-S1 through EUTHERDYNO30-S1

POLLUTION CONTROL EQUIPMENT

Four Thermal Oxidizers

I. EMISSION LIMIT(S)

Pollutant	Limit	Compliance Status	Comments
1. Carbon Monoxide	1416 pounds/day ²	Compliance	Records are provided quarterly. The highest emissions of CO did not exceed 1416 pounds.
2. Carbon Monoxide	44.3 Tons/year ²	Compliance	Records are provided Quarterly. Emissions have been below 44.3 tons per year.
3. Nitrogen Oxides	1200 pounds/day ²	Compliance	Records are provided quarterly. NOx emissions have been less than 1200 pounds/day.

Pollutant	Limit	Compliance Status	Comments
4. Nitrogen Oxides	37.5 Tons/year ²	Compliance	Records are provided quarterly. NOx emissions have been less than 37.5 tons per year.
5. 1,3-Butadiene	32.6 Pounds/day ¹	Compliance	Records are provided quarterly. Emissions of 1,3-Butadiene are well below 32.6 pounds per day.

II. MATERIAL LIMIT(S)

Material	Limit	Compliance Status	Comments
1. Fuel	75,000 MMBTU/year ²	Compliance	Records are provided quarterly. Fuel is well below 75000 MMBTU/year that is consumed.
2. Fuel	1200 MMBTU/day ²	Compliance	Records are provided quarterly. The amount of fuel consumed has been less than 1200 MMBTU/day
3. Lead	7 kilograms of lead in the engine test cells/week ²	Compliance	Leaded fuel is no longer used. Records are provided quarterly.

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Permittee shall not operate FGOTHERDYNO-S1 unless the group of four thermal oxidizers are installed, maintained and operated in a satisfactory manner. Satisfactory operation of the thermal oxidizer includes maintaining a minimum combustion chamber temperature above the most recent acceptable performance test value less 50 degrees Fahrenheit and a minimum design retention time of .5 seconds.² (R 336.1205, R 336.1225, R 336.1901, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d), 40 CFR 64.6(c)(1)(i and ii))

Compliance- Oxidizers appeared to be working correctly. Inspection of the temperature indicated that it was above 1400 degrees.

2. Permittee shall develop a test protocol to ensure that representative uncontrolled and controlled emissions can be determined. This protocol must be submitted to the AQD at least 30 days prior to the proposed test date and approved by AQD. Emissions information gathered testing FGOTHERDYNO-S1 can be used to show compliance for FGC10759-S2. (R 336.12001)

Compliance- Test protocol was submitted 30 days prior to testing.

IV. DESIGN/EQUIPMENT PARAMETER(S)

N/A

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. Once during the five years of this permit, the permittee shall verify the CO and VOC reduction efficiency rates of each thermal oxidizer portion of FGOTHERDYNO-S1, by testing at owner's expense, in accordance with Department requirements. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test.² (R 336.1205, R 336.1910, R 336.2804, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21 (d))

COMPLIANCE- Stack testing was conducted in December 2014.

2. Once during the five years of this permit, the permittee shall verify the NOx and CO, emission factors from FGOTHERDYNO-S1 prior to control by its thermal oxidizer, by testing at owner's expense, in accordance with Department requirements. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test.² (R 336.1205, R 336.1225, R 336.1910, R 336.2803, R 336.2804, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))

COMPLIANCE - Stack testing was conducted in December 2014.

3. Upon MDEQ request, the permittee shall verify the 1,3 Butadiene concentration from FGOTHERDYNO-S1, by testing at owner's expense, in accordance with EPA Federal Reference Test Method 18. No less than 30 days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test.
(R 336.2004(1)(o), R 336.1213(3))

Compliance- 1,3 Butadiene may be requested to test in the future.

4. Whenever leaded fuel is used, the permittee shall verify the lead usage emission rate from FGOTHERDYNO-S1, in accordance with Appendix 7-S1. (R 336.1225, R 336.1901)

COMPLIANCE- Records are kept regarding leaded fuel usage. According to Ms. Brinkman, no leaded fuel is being used.

5. Whenever leaded fuel is used, the permittee shall verify the lead content of the fuel used in FGOTHERDYNO-S1, in accordance with Method 2. (R 336.1225, R 336.1901, 40 CFR Part 80, Appendix B)

COMPLIANCE- According to Ford, no leaded fuel is being used. Records are kept regarding leaded fuel usage.

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a temperature monitoring device in the combustion chamber of the thermal oxidizers for FGOTHERDYNO-S1 to monitor and record the combustion temperature on a continuous basis during operation. Temperature data recording shall consist of measurements made at equally spaced intervals, not to exceed 15 minutes per interval. (R 336.1225, R 336.1901, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d), 40 CFR 64.6(c)(1)(i and ii))

COMPLIANCE-The temperature of the combustion chamber is monitored continuously.

2. The permittee shall properly maintain the monitoring system including keeping ready access parts for routine repair of the monitoring equipment. (R 336.1225, R 336.1901, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d), 40 CFR 64.7(b))

COMPLIANCE- Monitoring system appeared to be working correctly. Dynos are interlocked with the thermal oxidizers, therefore, dynos are shut down if temperature goes below 1400.

3. The permittee shall calculate the daily heat input rate in million BTU based upon monthly recordkeeping prorated to a daily rate. Should the prorated daily rate exceed 90 percent of the daily limit, the permittee shall commence daily recordkeeping for a minimum of two months until the daily rate falls below 90 percent of the daily limit. (See Appendix 7-S1) (R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))

Compliance- Records are provided monthly.

4. The permittee shall keep a record of the heat input rate in million BTU per calendar month, and the annual heat input usage rate in million BTU per 12-month rolling time period as determined at the end of each calendar month. (R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))

COMPLIANCE- Records are provided monthly.

5. The permittee shall keep the following information on a monthly basis for FGOTHERDYNO-S1:

- a) A record of the days of operation.
- b) The amount and type of each fuel used, per calendar day, per month and per 12-month rolling time period.
- c) NO_x emission calculations determining the daily emission rate in pounds per calendar day.
- d) NO_x emission calculations determining the monthly emission rate in tons per calendar month.
- e) NO_x emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.
- f) CO emission calculations determining the daily emission rate in pounds per calendar day.
- g) CO emission calculations determining the monthly emission rate in tons per calendar month.

h) CO emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.

i) 1,3-Butadiene emission calculations determining the daily emission rate in pounds per calendar day.

The permittee shall keep the records in a format acceptable to the AQD District Supervisor. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request. (R 336.1205, R336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))

COMPLIANCE- Records are provided quarterly.

6. The permittee shall calculate and maintain a record of the weekly lead emissions. (R 336.1225, R 336.1901)

COMPLIANCE- Records are provided monthly.

7. The permittee shall implement a Preventative Maintenance Plan for oxidizer combustion chamber temperature monitoring and recording equipment. (R 336.1910, R336.1213(3))

COMPLIANCE- A preventative maintenance plan is implemented and maintained

VII. REPORTING

1. The permittee shall submit monthly reports of the records required by Special Condition V.5 to the AQD District Supervisor in a format acceptable to the AQD District Supervisor. Reports shall be submitted by the 21st day of the calendar month, for the previous calendar month. (R 336.1205, R336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))

COMPLIANCE- Records are provided quarterly. This condition was revised through PTI 174-09A.

Semi-annual and Annual ROP reporting has been timely.

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1.SVDYNO-OXIDIZER	34 ²	65 ²	R 336.1225 R 336.1901 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
2.SVDYNO-OXIDIZER2	34 ²	65 ²	R 336.1225 R 336.1901 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
3.SVDYNO-OXIDIZER3	34 ²	65 ²	R 336.1225 R 336.1901 R 336.2803 R 336.2804 40 CFR 52.21 (c) & (d)
4.SVDYNO-OXIDIZER4	34 ²	65 ²	R 336.1225 R 336.1901 R 336.2803 R 336.2804

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
			40 CFR 52.21 (c) & (d)

COMPLIANCE- Stack heights appeared correct. Measurements were not taken.

IX. OTHER REQUIREMENT(S)

1. For the purposes of Compliance Assurance Monitoring (CAM), excursions will be defined as follows:

(40 CFR 64.6(c)(2))

a) A temperature excursion is defined as a confirmed three-hour period during which the average fails to meet the specified temperature requirements in Special Condition III.1.

b) A monitoring excursion is defined as a failure to properly monitor as required in Special Condition VI.1.

(40 CFR 64.3(b)(4))

2. The permittee shall perform quality assurance measures annually on the monitoring equipment to ensure maximum performance. (40 CFR 64.6(c)(1)(iii))

3. The permittee shall comply with all applicable requirements of 40 CFR Part 64. (40 CFR Part 64)

COMPLIANCE- Quality assurance is conducted on monitoring equipment. Temperature monitoring is done continuously and appeared to be working correctly and in the right range. The dynos are interlocked and if there is a drop in temperature- the dynos are automatically shut down.

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

<p>◦ FGC10759-S2</p> <p>FLEXIBLE GROUP CONDITIONS</p>
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DESCRIPTION

10 Dynamometer Test Cells located in the Research Innovation Center

EMISSION UNITS: EUC10759D1-S2 THROUGH EUC10759D10-S2

NA

POLLUTION CONTROL EQUIPMENT

I. EMISSION LIMIT(S)

Pollutant	Limit	Compliance Status & Date	Comments
1. Carbon Monoxide*	28.62 lbs/mmBTU of heat input2.	COMPLIANCE	Records provided indicate that emission limit was not exceeded. Stack Testing was conducted in April 2015.
2. Volatile Organic Compounds (VOC) **	1.69 lbs/mmBTU of heat input2	COMPLIANCE	Records provided indicate that emission limit was not exceeded.

Pollutant	Limit	Compliance Status & Date	Comments
			Stack Testing was conducted in April 2015.
3. 1,3 butadiene (corrected to 70°F and 29.92 inches Hg) ¹	11.9 milligrams per cubic meter of exhaust air ¹	COMPLIANCE-	AQD may request testing

* This is equivalent to a carbon monoxide emission rate of 149 pounds per hour and 63.29 tons per year, based on a maximum gasoline usage of 39 gallons per hour.

** This is equivalent to a VOC emission rate of 10 pounds per hour and 3.76 tons per year, based on a maximum gasoline usage of 39 gallons per hour

II. MATERIAL LIMIT(S)

Material	Limit	Compliance Status & Date	Comments
1. fuel	121.68 million BTUs/day ²	COMPLIANCE-	Records provided show that daily fuel usage did not exceed permit limit. Highest usage over past year was 10.11 mmBTU/day.
2. fuel	4.42 billion BTUs/year ²	COMPLIANCE-	Records provided show that 12 month

Material	Limit	Compliance Status & Date	Comments
			rolling fuel usage did not exceed permit limit. Highest amount over past year was 2.2 billion BTU/year
3. lead	4.0 kilograms/week ²	COMPLIANCE	Records were provided. No unleaded fuel was consumed.

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Permittee shall develop a test protocol to ensure that representative uncontrolled and controlled emissions can be determined. This protocol must be submitted to the AQD at least 60 days prior to the proposed test date and approved by AQD. Emissions information gathered testing FGOTHERDYNO-S1 can be used to show compliance for FGC10759-S2 (R336.1201(3))

Compliance- Facility conducted testing on April 2015.

IV. DESIGN/EQUIPMENT PARAMETER(S)

1.NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. Every five years, the permittee shall verify the Carbon Monoxide emission rates from FGC10759-S2, by testing at owner's expense, in accordance with EPA Federal Reference Test Method 10. No less than 60

days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test.
(R336.2004(1)(m), R336.1213(3))

Compliance- Facility conducted testing on April 2015

2. Every five years, the permittee shall verify the Volatile Organic Compound emission rates from FGC10759-S2, by testing at owner's expense, in accordance with EPA Federal Reference Test Method 25A. No less than 60 days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test.
(R336.2004(1)(t), R336.1213(3))

Compliance- Facility conducted testing on April 2015.

3. Upon MDEQ request, the permittee shall verify the 1,3 Butadiene concentration from FGC10759-S2, by testing at owner's expense, in accordance with EPA Federal Reference Test Method 18. No less than 60 days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test.
(R 336.2004(1)(o), R 336.1213(3))

Compliance- Facility will test if requested by AQD.

4. Whenever leaded fuel is used, the permittee shall verify the lead usage emission rate from FGC10759-S2, in accordance with Appendix 7-S1.
(R336.1213(3))

UNDETERMINED- Leaded fuel does not appear to be used.

5. Whenever leaded fuel is used, the permittee shall verify the lead content of the fuel used in FGC10759-S2, in accordance with Method 2. (40 CFR Part 80, Appendix B, R336.1213(3))

UNDETERMINED- Leaded fuel does not appear to be used.

See Appendix 5-S2

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. The permittee shall calculate the daily heat input rate in million BTU based upon monthly recordkeeping prorated to a daily rate. Should the prorated daily rate exceed 90 percent of the daily limit, the permittee shall commence daily recordkeeping for a minimum of two months until the daily rate falls below 90 percent of the daily limit. (See Appendix 7-S2) (R336.1201(3))

COMPLIANCE- Records are kept.

2. The permittee shall keep a record of the heat input rate in million BTU per calendar month, and the annual heat input usage rate in million BTU per 12-month rolling time period as determined at the end of each calendar month.

COMPLIANCE- Records are kept. (R336.1201(3))

3. Weekly lead usage rates shall be determined from the lead content and the amount of each fuel used in the test cells. (See Appendix 7-S2) R336.1201(3)

COMPLIANCE- It appears that leaded fuel is not used.

See Appendix 7-S2

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be

postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year.

(R 336.1213)

(4)(c))

See Appendix 8-S2

Compliance- Semi Annual and Annual Compliance Certifications are submitted.

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
SVDYNO-01	162	592	(R336.1201(3))
SVDYNO-02	162	592	(R336.1201(3))

COMPLIANCE- It appears that stack heights are correct. Measurements were not taken.

IX. OTHER REQUIREMENT(S)

1.NA

Footnotes:

1This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

2This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FGEMERGRICE-S3

FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Existing CI and SI engines at a major source, Emergency

Compliance date – May 3, 2013 for CI Engines

Compliance date – October 19, 2013 for SI Engines

Emission Units: EUEMERGRICECECGEN-S3, EUEMERGRICEDYNOGEN-S3, EUEMERGRICEEVBGEN-S3, EUEMERGRICEGTL1GEN-S3, EUEMERGRICEGTL2GEN-S3, EUEMERGRICERIC1GEN-S3, EUEMERGRICERIC2GEN-S3, EUEMERGRICERIC4GEN-S3, EUEMERGRICERIC5GEN-S3, EUEMERGRICEPFL1GEN-S3, EUEMERGRICEPFL2GEN-S3, EUEMERGRICEBLG6GEN-S3, EUEMERGRICEAECGEN-S3, EUEMERGRICECFDSGEN-S3, EUEMERGRICERCGEN-S3, EUEMERGRICEWT2FP-S3, EUEMERGRICERICFP-S3, EUEMERGRICEOAKFP-S3, EUEMERGRICEPDCFP-S3, EUEMERGRICEBLG3FP-S3, EUEMERGRICEAECFP-S3, EUEMERGRICEPOEFP-S3, EUEMERGRICERC1FP-S3, EUEMERGRICERC2FP-S3

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall operate and maintain any affected RICE, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

(40 CFR 63.6605)

(b) R 336.1910)

Compliance assumed- The engines are run infrequently. Records regarding hour logs were provided along with maintenance records.

2. The permittee shall comply with the following requirements, except during periods of startup:

(40 CFR 63.6602, 40

CFR 63.6640(a))

For CI Engines: (40 CFR 63.6602, Table 2c item 1)

a) Change oil and filter every 500 hours of operation or annually, whichever comes first, except as allowed in SC III.5.

b) Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary.

c) Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

Compliance- All engines are used approximately several hours per year and are not used frequently.

3. The permittee shall comply with the following requirements, except during periods of startup:

(40 CFR 63.6602, 40

CFR 63.6640(a))

For SI Engines: (40 CFR 63.6602, Table 2c item 6)

- a) Change oil and filter every 500 hours of operation or annually, whichever comes first, except as allowed in SC III.5.
- b) Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary.
- c) Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

Compliance- All engines are used approximately several hours per year and are not used frequently.

4. The permittee shall operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop you own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air-pollution control practice for minimizing emissions.

(40 CFR

63.6625(e)(2), R336.910)

Compliance- No after treatment control device is used.

5. The permittee may utilize an oil analysis program in order to extend the specified oil change requirement in 40 CFR 63.6602 and as listed in SC III.2. The oil analysis program must be performed at the same frequency as oil changes are required. The analysis program must analyze the parameters and keep records as required in 63.6625(i).

(40 CFR 63.6625

(i))

Compliance- The facility may use this but based on usage, the facility will rarely meet the 500 hours.

6. The permittee may utilize an oil analysis program in order to extend the specified oil change requirement in 40 CFR 63.6602 and as listed in SC III.3. The oil analysis program must be performed at the same frequency as oil changes are required. The analysis program must analyze the parameters and keep records as required in 63.6625(j).

(40 CFR 63.6625(j))

Compliance- The facility may use this but based on usage, the facility will rarely meet the 500 hours.

7. The permittee shall operate FGEMERGRICE according to the requirements specified in 40 CFR 63.6640(f)(1) through 63.6640(f)(4). In order for the engine to be considered an emergency stationary RICE under 40 CFR 63, Subpart ZZZZ, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs 40 CFR 63.6640(f)(1) through 63.6640(f)(4), is prohibited. If the permittee does not operate FGEMERGRICE according to the requirements in paragraphs 40 CFR 63.6640(f)(1) through 63.6640(f)(4), the engine will not be considered an emergency engine under 40 CFR 63, Subpart ZZZZ and must meet all requirements for non-emergency engines.

Compliance- Facility uses engines solely for emergency purposes.

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip and maintain FGEMERGRICE with a non-resettable hour meter.
(40 CFR 63.6625(f))

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. If using the oil analysis program for CI Engine(s), the permittee shall test for Total Base Number, viscosity and percent water content.
(40 CFR 63.6625(i))

Not applicable because oil analysis is not used.

2. If using oil analysis program for SI Engines, the permittee shall test for Total Acid, viscosity, and percent water content.
(40 CFR 63.6625 (j))

Not applicable because oil analysis is not used.

See Appendix 5-3

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. For each RICE engine, the permittee shall keep records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment.

(40 CFR 63.6655(a)(2), 63.6660)

Compliance- Facility keeps maintenance records for engines and copies were received.

2. The permittee shall keep records of all required maintenance performed on the air pollution control and monitoring equipment.
(40 CFR 63.6655(a)(4), 63.6660)

Compliance- Facility keeps maintenance records for engines and copies were received.

3. The permittee shall keep records of actions taken during periods of malfunction to minimize emissions in accordance with 63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

(40 CFR

63.6655(a)(5), 63.6660)

Compliance- Facility keeps maintenance records for engines and copies were received.

4. The permittee shall keep records as required in SC III.3 and SC III.4 to show continuous compliance with each emission or operating limit that applies.

(40 CFR 63.6655(d), 63.6660)

Compliance- Facility keeps maintenance records for engines and copies were received.

5. The permittee shall keep records of the maintenance conducted on the stationary RICE in order to demonstrate that permittee operated and maintained the stationary RICE and after-treatment control device (if any) according to permittee's maintenance plan.

(40 CFR

63.6655(d), 63.6660)

Compliance- Facility keeps maintenance records for engines and copies were received.

6. The permittee shall keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engines are used for demand response operation, the owner or operator must keep records of the notification of the emergency situation, and the time the engine was operated as part of demand response. (40 CFR 63.6655(f), 63.6660)

Compliance- Facility keeps hour log records for engines and copies were received.

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213 (3)(c)(ii))

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. (R 336.1213(4)(c))

Compliance- Facility submits semi-annual and annual compliance certifications.

See Appendix 8-3

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subparts A and Subpart ZZZZ, as they apply to FG-EMERGENCYRICE.
(40 CFR 63 Subparts A and ZZZZ)

Compliance- Based on a review of hour logs and maintenance records, it appears that facility is complying with applicable subpart.

Footnotes:

1 This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

2 This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

FGBOILERS-S3

FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Boilers and Process Heaters, with a heat input capacity less than 50 MMBTU/hr, subject to 40 CFR 63, Subpart DDDDD.

Emission Units: EUBOIL81002-S3, EUBOIL81003-S3

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment Monitoring/ Testing Method		
			Underlying Applicable Requirements		
NA	NA	NA	NA	NA	NA

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment Monitoring/ Testing Method Underlying Applicable Requirements		
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall conduct a tune-up of the boiler or process heater beginning January 31, 2016, annually, biennially, or once every 5 years, depending on its size, as specified in § 63.7540.

- a. Annually (within 13 months) for boilers or process heaters greater than or equal to 10 MMBTU/hr and less than 50 MMBTU/hr.
- b. Biennially (within 25 months) for boilers or process heaters greater than 5 MMBTU/hr and less than 10 MMBTU/hr
- c. Every five years (within 61 months) for boilers or process heaters less than or equal to 5 MMBTU/hr.

Compliance- Facility submitted report regarding tune up.

(40 CFR 63.7500)

**2. The permittee must have a one-time energy assessment performed by a qualified energy assessor as required in Table 3 of 40 CFR 63, Subpart DDDDD.
(40 CFR 63.7500)**

Compliance- Facility submitted report regarding energy assessment.

3. The permittee, at all times, must operate and maintain any affected source (as defined in § 63.7490), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

Unknown- Boilers were not inspected during this visit. Facility submitted maintenance records for the boilers.

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. See S.C. No. IX.1

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. See S.C. No. IX.1

See Appendix 5-3

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. See S.C. No. IX.1

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for

reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30.
(R 336.1213(3)(c)(i))

- Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year.

(R 336.1213
(4)(c))

- As specified in § 63.9(b)(4) and (5), if you startup your new or reconstructed affected source on or after January 31, 2013, you must submit an Initial Notification not later than 15 days after the actual date of startup of the affected source. (40 CFR 63.7545(c), 40 CFR 63.9(b)(4), 40 CFR 63.9(b)(5))

Compliance- Annual and Semi-Annual Compliance certifications are submitted. Facility submitted Initial Notification and is in the file.

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

- The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subparts A and Subpart DDDDD, as they apply to FG-BOILERS-S3. (40 CFR 63 Subparts A and DDDDD)

Unknown- Boilers were not inspected during this visit.

PTI 194-15A

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FG WINGA

DESCRIPTION: 16 Engine Durability Dynamometer Tests Cells located in Wing A

Emission Units: EU_1A, EU_2A, EU_3A, EU_4A, EU_5A, EU_6A, EU_7A, EU_8A, EU_9A, EU_10A, EU_11A, EU_12A, EU_13A, EU_14A, EU_15A, EU_16A

POLLUTION CONTROL EQUIPMENT: Single stack for all test cells equipped with a thermal oxidizer system

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Compliance Determination
1. CO	3.0308 lb/MMBtu	Test Protocol*	FG_WINGA	Compliance- Testing was completed in July 2020. Results were 1.1525 lb/MMBTU
2. VOC		Test Protocol*	FG_WINGA	

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Compliance Determination
	0.0569 lb/MMBtu			Compliance- Testing was completed in July 2020. Results were <0.0501 lb/MMBTU
*Test protocol shall specify averaging time				

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate FG_WINGA unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the thermal oxidizer system, has been submitted 60 days prior to operation, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. (R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, 40 CFR 52.21(d))

Compliance- MAP was submitted prior to thermal oxidizer system operating. The plan was submitted in August 2018.

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate FG_WINGA unless the thermal oxidizer system is installed, maintained and operated in a satisfactory manner. Satisfactory operation of the thermal oxidizer

includes maintaining a minimum combustion zone temperature of 1400o F or the minimum combustion zone temperature from the most recent acceptable stack test, and a minimum retention time of 0.5 second. (R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(a), R 336.1910, 40 CFR 52.21(d))

Compliance- Temperatures were above 1600°F during the inspection.

2. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a temperature monitoring device in the thermal oxidizer near the combustion chamber outlet to monitor and record the temperature on a continuous basis, during operation of FG_WINGA. (R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(a), R 336.1910, 40 CFR 52.21(d))

Compliance- Facility has monitoring device which continuously measures temperature.

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. Within 180 days after commencement of trial operation of the eighth new test cell in Wing A as authorized by this Permit to Install, the permittee shall verify CO and VOC emission factors by testing each thermal oxidizer at owner's expense, in accordance with Department requirements. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. (R 336.1205(1)(a) & (3), R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(d))

Compliance- Testing was conducted July 7-9, 2020. Results showed that emissions were below permit limits.

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. The permittee shall complete all required records in a format acceptable to the AQD District Supervisor by the 30th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. (R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(a), 40 CFR 52.21(d))

Compliance- Records were kept and received upon request.

2. The permittee shall monitor and record the temperature in the thermal oxidizer near the combustion chamber outlet, on a continuous basis, during operation of FG_WINGA. Temperature

data recording shall consist of measurements made at equally spaced intervals, not to exceed 15 minutes per interval. (R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(a), R 336.1910, 40 CFR 52.21(d))

Compliance- Monitoring device records and stores temperatures of the oxidizer.

3. The permittee shall keep, in a satisfactory manner, records of the temperature in the thermal oxidizer near the combustion chamber outlet on a continuous basis, as required by SC VI.2. The permittee shall keep all records on file and make them available to the Department upon request. (R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(a), R 336.1910, 40 CFR 52.21(d))

Compliance- Monitoring device records and stores temperatures of the oxidizer.

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/ Dimensions (inches)	Minimum Height Above Ground (feet)	Compliance Determination
1. SV_WINGA	34	85.75	Undetermined but stack appeared to be appropriate height and diameter.

IX. OTHER REQUIREMENTS

NA

FGTESTCELLS

DESCRIPTION: All Engine Dynamometer Test Cells located in Wings A, C, D, E, and three eddy current durability cells in the dynamometer laboratory

Emission Units: EU_1A, EU_2A, EU_3A, EU_4A, EU_5A, EU_6A, EU_7A, EU_8A, EU_9A, EU_10A, EU_11A, EU_12A, EU_13A, EU_14A, EU_15A, EU_16A, EU_1C, EU_3C, EU_5C, EU_6C, EU_8C, EU_11C, EU_16C, EU_18C, EU_1D, EU_2D, EU_3D, EU_5D, EU_6D, EU_8D, EU_9D, EU_10D, EU_11D, EU_13D, EU_14D, EU_16D, EU_21D, EU_26D, EU_31D, EU_39D, EU_41D, EU_42D, EU_1E, EU_2E, EU_3E, EU_4E, EU_5E, EU_6E, EU_7E, EU_8E, EU_9E, EU_10E, EU_11E, EU_12E, EU_13E, EU_14E, EU_15E, EU_16E, EU_17E, EU_18E, EU_19E

POLLUTION CONTROL EQUIPMENT: FG_WINGA has a thermal oxidizer system. No other control required.

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Compliance Determination
1. NOx	101.2 tpy	12-month rolling time period as determined at the end of each calendar month.	FGTESTCELLS	Compliance- Emissions from Aug '19 to July '20 have been less than 50 TPY or roughly half of the permit limit.
2. CO	1,028.7 tpy	12-month rolling time period as determined at the end of each calendar month.	FGTESTCELLS	Compliance- Emissions from Aug '19 to July '20 have been less than 650TPY.
3. VOC	1,730.4 lbs/day	Daily.	FGTESTCELLS	Compliance- Emissions of VOC are around 1.45 TPY at the highest.

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Compliance Determination
4. VOC	35.5 tpy	12-month rolling time period as determined at the end of each calendar month.	FGTESTCELLS	Compliance- VOC emissions from Aug'19 to Aug '20 have been less than 35.5 tpy. The highest monthly 12 month rolling total was 23.71 TPY.
5. 1,3-Butadiene	22.4 lbs/day	Daily.	FGTESTCELLS	Compliance- 1,3- Butadiene was assumed to be in compliance with the daily limit as the rolling 12 month total was below 0.5 tpy.
6. 1,3-Butadiene	0.5 tpy	12-month rolling time period as determined at the end of each calendar month.	FGTESTCELLS	Compliance- 1,3- Butadiene emissions have been less than 0.5 TPY on a 12 month rolling average for the time period of Aug '19 to July '20
7. Acetaldehyde	8.3 tpy	12-month rolling time period as determined at the end of each calendar month.	FGTESTCELLS	Compliance- Acetaldehyde emissions have been less than 8.3 tpy on a 12 month rolling average for the time period of Aug '19 to July '20.

II. MATERIAL LIMITS

1. The permittee shall only burn unleaded gasoline, methanol/gasoline fuel blends, ethanol/gasoline fuel blends, alcohols, diesel, LPG (or propane), and natural gas in FGTESTCELLS. (R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))

Compliance- Facility is only using compliant fuels.

2. Upon initial operation of the first new testcell in Wing A, the maximum total fuel usage for FGTESTCELLS shall not exceed 31,849 MMBTU per calendar day and the maximum total uncontrolled fuel usage for FGTESTCELLS shall not exceed 1,451 MMBtu per calendar day. When burning both controlled

and uncontrolled in a calendar day, the following equation shall be used to determine maximum allowed total fuel usage:

$$\text{Total Fuel Usage in MMBTU/day} = 31,849 \text{ MMBTU/day} - 20 * U$$

Where U is the total uncontrolled fuel in MMBTU per calendar day. (R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))

Compliance- A wing, for the period of Aug '19 through July '20 did not exceed 31,849 MMBTU/day and did not exceed 1,451 MMBTU/ calendar day for the uncontrolled period.

3. The total fuel usage for FGTESTCELLS shall not exceed 167,198 MMBTU per 12-month rolling time period as determined at the end of each calendar month.

a. Of the 167,198 MMBtu, the permittee shall not burn more than 56,847 MMBtu of total uncontrolled fuel per 12-month rolling time period as determined at the end of each calendar month.

b. Of the 167,198 MMBtu, the permittee shall not burn more than 19,435 MMBtu of total diesel fuel per 12-month rolling time period as determined at the end of each calendar month.

c. Of the 167,198 MMBtu, the permittee shall not burn more than 147,000 MMBtu of total alcohol fuel per 12-month rolling time period as determined at the end of each calendar month.

d. Included in the 147,000 MMBtu of total alcohol fuel and the 56,847 MMBtu of total uncontrolled fuel, the permittee shall not burn more than 49,980 MMBtu of total uncontrolled alcohol fuel per 12-month rolling time period as determined at the end of each calendar month.

(R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(a), R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))

Compliance- Records were received and showed that fuel consumed did not exceed any of the aforementioned limits during the period of Aug'19 to July '20.

III. PROCESS/OPERATIONAL RESTRICTIONS

1. Within 90 days after completion of the installation of each new test cell in A wing of FGTESTCELLS, the permittee shall remove a corresponding test cell from the durability section of the dynamometer laboratory. Completion of the installation is considered to occur not later than commencement of trial operation of the test cell. (R 336.1201(7)(a))

Compliance- Notices have been received for each new test cell installed in wing "A".

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the fuel usage rates for FGTESTCELLS on a continuous basis. (R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1702, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))

Compliance- Fuel usage is monitored on a continuous basis.

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. Within 180 days after commencement of trial operation of the eighth new test cell in Wing A as authorized by this Permit to Install, the permittee shall verify NOX emission rates from FGTESTCELLS, by testing each thermal oxidizer at owner's expense, in accordance with Department requirements. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. (R 336.1225, R 336.2001, R 336.2003, R 336.2004, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))

Compliance- Testing was conducted on July 7-9, 2020.

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the 30th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. (R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))
2. The permittee shall keep the following information on a monthly basis for FGTESTCELLS:
 - a. A record of the days of operation.
 - b. MMBtu of each fuel, total and uncontrolled, used per month and 12-month rolling time period.
 - c. Total and uncontrolled combined fuel use calculations determining the annual usage rate in MMBtu per 12-month rolling time period as determined at the end of each calendar month.

- d. NO_x, CO, VOC, 1,3-butadiene, and acetaldehyde emission calculations determining the monthly emission rate in tons per calendar month.
- e. NO_x, CO, VOC, 1,3-butadiene, and acetaldehyde emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.

Compliance- Calculations are being kept and records were submitted upon request.

The permittee shall keep the records in a format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request. (R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))

3. Upon initial operation of the first new test cell in Wing A, the permittee shall keep the following information on a daily basis for FGTESTCELLS:
 - a. Daily total fuel and total uncontrolled fuel use.
 - b. VOC and 1,3-butadiene emission calculations determining the daily emission rate in pounds per calendar day.

Compliance- Fuel usage and total uncontrolled fuel use is recorded. VOC and 1,3-butadiene emission calculations are being kept.

The permittee shall keep the records in a format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request. (R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))

4. The permittee shall keep a record of all gasoline deliveries to confirm that no leaded gasoline was used.. The permittee shall keep all records on file and make them available to the Department upon request. (R 336.1205(1)(a) & (3), 40 CFR 52.21(d))

Compliance- Records are kept of fuel deliveries. A review of the records indicated that no leaded gasoline was delivered and subsequently used.

4. The permittee shall keep, in a satisfactory manner, records of the maximum sulfur content in the diesel fuel for each delivery. The permittee shall keep all records on file and make them available to the Department upon request. (R 336.1205(1)(a) & (3), R 336.1402(3) 40 CFR 52.21(c) & (d))

Compliance- Diesel fuel records are being kept and were received upon request.

6. The permittee shall keep, in a satisfactory manner, records of the dates of installation and removal of each test cell as required by SC III.1. The permittee shall keep all records on file and make them available to the Department upon request. ((R 336.1201(7)(a)), 40 CFR 52.21(c) & (d))

Compliance- Notifications have been mailed to the District office detailing the installation date and removal of each test cell.

VII. REPORTING

1. Within 30 days after the initial operation of each new test cell in Wing A, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than removal of the last durability test cell. (R 336.1201(7) (a))

Compliance- Notifications have been mailed to the District office detailing the installation date and removal of each test cell.

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/ Dimensions (inches)	Minimum Height Above Ground (feet)	Compliance Determination
1. SV_WINGA	34	85.75	Compliance assumed- The diameter and height of the stack were not measured but appeared to be correct.

Stack & Vent ID	Maximum Exhaust Diameter/ Dimensions (inches)	Minimum Height Above Ground (feet)	Compliance Determination
2. SV_WINGC1	20	85.75	Compliance assumed- The diameter and height of the stack were not measured but appeared to be correct.
3. SV_WINGC2	20	85.75	Compliance assumed- The diameter and height of the stack were not measured but appeared to be correct.
4. SV_WINGD1	20	85.75	Compliance assumed- The diameter and height of the stack were not measured but appeared to be correct.
5. SV_WINGD2	20	85.75	Compliance assumed- The diameter and height of the stack were not measured but appeared to be correct.
6. SV_WINGE	18	85.75	Compliance assumed- The diameter and height of the stack were not measured but appeared to be correct.

IX. OTHER REQUIREMENTS

N/A

APPLICABLE FUGITIVE DUST CONTROL PLAN CONDITIONS:

N/A

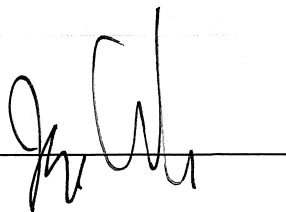
MAERS REPORT REVIEW

(These figures include grandfathered test cells.)

Pollutant	2019 Emissions(TPY)
CO	570.74
NOx	62.9
PM	4.75
Sox	4.39
VOC	26.64

FINAL COMPLIANCE DETERMINATION:

It appears that the Dynamometer Laboratory is operating in compliance with MI-ROP-B6230-2013 and PTI 194-15A.

NAME 

DATE 9-30-20

SUPERVISOR 
5/25/22