

A8638

MAWILA

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

A863842777

|   |                               |                           |
|---|-------------------------------|---------------------------|
| FACILITY: DETROIT DIESEL CORPORATION  |                               | SRN / ID: A8638           |
| LOCATION: 13400 OUTER DRIVE, WEST, DETROIT  |                               | DISTRICT: Detroit         |
| CITY: DETROIT   |                               | COUNTY: WAYNE             |
| CONTACT: Michele Buckler, Senior Environmental Engineer   |                               | ACTIVITY DATE: 12/21/2017 |
| STAFF: Stephen Weis   | COMPLIANCE STATUS: Compliance | SOURCE CLASS: MAJOR       |
| SUBJECT: Compliance inspection of the Detroit Diesel Corporation facility in Detroit. The Detroit Diesel facility is scheduled for inspection in FY 2018. |                               |                           |
| RESOLVED COMPLAINTS:  |                               |                           |

**Location:**

Detroit Diesel Corporation  
(SRN A8638)  
13400 West Outer Drive  
Detroit 48239

**Date of Activity:**

Thursday, December 21, 2017

**Personnel Present:**

Steve Weis, DEQ-AQD Detroit Office  
Michele Buckler, Senior Environmental Engineer, Detroit Diesel  
Greg Kernosek, Principal Engineer, EnviroSolutions, Inc. (facility consultant)

**Purpose of Activity**

A self-initiated inspection of the Detroit Diesel Corporation facility (hereinafter "Detroit Diesel") was conducted on Thursday, December 21, 2017. The Detroit Diesel facility was on my list of sources targeted for an inspection during FY 2018. The purpose of this inspection was to determine compliance of operations at the Detroit Diesel facility with applicable rules, regulations and standards as promulgated by Public Act 451 of 1994 (NREPA, Part 55 Air Pollution Control), and with applicable Federal standards. The facility is also subject to the terms and conditions of Renewable Operating Permit (ROP) No. MI-ROP-A8638-2012, as well as Permit to Install (PTI) No. 97-13A, which was issued in the time since the ROP became effective.

**Facility Site Description**

The Detroit Diesel facility is a roughly 3 million square foot diesel engine manufacturing, development and testing facility. Detroit Diesel produces medium-duty and heavy-duty on-highway diesel engines, axles and transmissions for the commercial truck market at this facility.

The property on which the Detroit Diesel facility is located stretches east to west between Telegraph Road and Outer Drive (¾ mile); it is bounded on the north by the Chesapeake and Ohio railroad right-of-way, and the property extends south to Wadsworth Street. The far eastern portion of the facility's main building complex contains the administrative and engineering portion of the facility, while the rest of the building complex contains the manufacturing and testing operations at the facility. Most of the operations at the facility are located in Redford Township, while the small building located adjacent to the northeast portion of the main building complex, which features the facility's main entrance, and the facility parking lot are in Detroit.

In the southwest corner of the facility property, on the south side of the truck entrance off of Telegraph Road, are two buildings – one contains the operations of Mercedes-Benz Research and Development North America, and the other, which is located along Telegraph Road, contains the facility's wastewater treatment operations.

The areas to the north and south of the Detroit Diesel facility is a densely populated residential area. The areas to the west and southwest of the facility, along and west of Telegraph Road and adjacent to Plymouth Road, primarily contain businesses of a commercial and light industrial classification. Rouge Park is located to the east of the facility on the east side of Outer Drive. The closest residences are located on the other side of the railroad right of way to the north of the facility, and on the south side of Wadsworth to the south of the facility, no more than 40 yards from the facility's property line.

### **Facility Operations**

Detroit Diesel is a subsidiary of Daimler Trucks North America LLC. The company began in 1938 as the GM Diesel Division of General Motors.

The main building at the facility contains an office area, a manufacturing area, and an engine testing/research and development laboratory. The Detroit Diesel facility currently employs around 2,200 people.

The manufacturing area produces medium and heavy duty on-highway diesel engines; front, rear and tandem axles; and transmissions. According to the company website, this facility produces 400 engines, 250 transmissions and 1,300 axles each day of production. The engines that are produced at the facility are coated with a water-reduced clearcoat. The manufacturing process currently operates 6 days per week, with final assembly work being done over two shifts, Monday through Friday. I was told during my site visit in June 2016 that the 7<sup>th</sup> day of the week is typically reserved for facility maintenance work, and that machining work sometimes occurs on a 24 hour/7 day basis, as needed.

The Detroit Diesel facility currently produces five engine models – the DD5 and DD8 medium-duty engines, and the DD13, DD15 and DD16 heavy-duty engines. I was told during the site visit that the engine blocks are pre-machined prior to arriving at the facility, where they are assembled. The facility currently produces front steer, single rear and tandem rear axles. In terms of transmission production, the facility currently produces the DT12 automated manual transmission.

There is also an extensive engine and transmission testing lab at the facility. The testing lab operates one and a half shifts, but testing of engines takes place 24 hours per day, 7 days per week with the exception of one week when the cooling towers associated with the testing lab are cleaned. In the testing /research and development lab, diesel engines are tested in rooms, or "test cells", in which the engines are fueled and operated while various mechanical, performance, and emissions control parameters are measured. I was told during the site visit that there are currently 25 Performance Test Cells, 28 Durability Test Cells, and two test cells that are used for EPA emission certifications. The Durability Test Cells involve testing engines as they run in cycles, varying the engine speed and running them under more extreme loads. Performance Test Cells involve testing engine performance under more normal loads to test the engines operation at it experiences more normal use. A standard test lasts for 2,000 hours and takes close to a month to complete. The engines that are tested are equipped with the air pollution control devices that they would be equipped with during on-road customer use; this is done not so much for emission control, but rather to check the engine's performance under actual operating conditions. The current air pollution control/aftertreatment that is utilized on the engines produced at the facility consists of a SCR (selective catalytic reduction) catalyst, a diesel oxidation catalyst, and diesel particulate filter. According to the company's website, every single engine that is produced at the plant is performance tested at idle, rated and peak torque, and the horsepower and fuel consumption are validated. The diesel engines that are manufactured at the facility also undergo a Production Test, which is a short duration run of each engine to ensure that they are operating properly prior to shipping the finished product to Detroit Diesel's customers. According to the company's website, 100% of the transmissions are hot-tested to simulate driver on-the-road usage.

There is a separate building located at the southwest corner of the facility's property that contains the operations of Mercedes-Benz Research and Development North America. This facility operates in the Powertrain & eDrive Division, which according to the company website, develops powertrain software for electric vehicles, researches high voltage battery technology, powertrain electronics, vehicle charging systems and e-mobility. This building used to operate test cells, but I was told during my site visits in 2016 that the test cells and their ambient exhaust ductwork have been removed, and that the engine testing now takes place at the Mercedes-Benz facility in Ann Arbor. The only testing that currently takes place in this building is testing of vehicle electronics.

I discussed the wastewater treatment building with Detroit Diesel staff during my site visits in June 2016. At that time, I was told that this building contains four settling tanks that receive process water from the manufacturing operations. The wastewater is allowed to settle, and alum is added to break the oil-water emulsion. Safety Kleen

is currently contracted to take the oil portion for recycling. I was told that facility staff monitors the wastewater treatment building for odors.

From the perspective of air quality regulations, the following is a listing of the process equipment that is included in the Detroit Diesel facility's current DEQ-AQD permits:

- EU0086 – a paint spray booth that was used to apply water reducible enamel paints and urethane onto Series 149 engines. The Series 149 engines are no longer produced at the facility, and this paint booth has been permanently removed from operation. This Emission Unit will be removed during the next ROP renewal.
- EU078 – an offline paint booth that was used to provide a second finish on engine blocks. This paint booth has been permanently removed from operation, and this Emission Unit will be removed during the next ROP renewal.
- EUBOILER1, EUBOILER4 and EUBOILER5 – these three natural gas-fired boilers make up the FGBOILERS Flexible Group in the ROP. Boilers 1 and 5 are Babcock and Wilcox watertube boilers that are rated at 72 MMBTU/hour, and Boiler 4 is a Wicks water tube boiler that is rated at 48 MMBTU/hour.
- EU600, EU601, EU602 and EU603 – these are paint booths that are used to apply air-dried coatings to diesel engines. EU600-602 were installed in 2007, and these emission units are included in the ROP; they make up the FG600-2 Flexible Group. EU603 was installed in August of 2013, and it is subject to the terms and conditions of Permit to Install (PTI) No. 97-13A.
- EUHDCELLS, EUNONROADCELLS, EUNATGASCELLS – these emission units represent the test cells in the testing/research and development laboratory portion of the facility.
- EU701 through EU707 – reciprocating internal combustion engine (RICE) units that are used for emergency backup power for lighting and computers, and to drive fire pumps used for fire suppression. These engines make up the FGRICEMACT Flexible Group.
- There are other, smaller regulated processes at the facility. There are some cold cleaners/parts washers that are included in the FGCOLDCLEANERS Flexible Group; a non-production, limited use paint spray booth that is used to coat maintenance items used at the facility, and is included in the FGRULE287(c) Flexible Group; and processes that are exempt from permitting per the provisions of Administrative Rule 290, an example being an engine parts cleaning tanks, that are included in the FGRULE290 Flexible Group.

### **Inspection Narrative**

I arrived at the facility at 12:55pm. I entered the main entrance, and I was met in the lobby area by Michele Buckler of Detroit Diesel and Greg Kernosek of EnviroSolutions. After signing in at the security desk, we walked to the office area of the facility, and we sat down in the area of Michele's desk.

We began the site visit by walking through portions of the facility. We observed some of the engine, transmission and axle assembly lines. We started by visiting the New Final Drive (NFD) drive axle assembly operation which is located in the northeast part of the manufacturing portion of the building. The assembly is primarily robotic, there are no emissions to the ambient air and no defined emission units from this process. The area to the west of the NFD operation is currently used to store part and material, and I was told that this area will be the future operation of the drop axle assembly operation.

We then arrived at the west end of the manufacturing operation, and we viewed the medium-duty engine (MDEG) production area. This engine is used for vehicles such as panel trucks, and it is an 8 Liter displacement, 10-cylinder engine. I was told that this engine is a relative low-production product, with a current production of about 2 MDEG engines per day. Like other engines that are produced at the facility, I was told that the MDEG engine block arrives pre-machined, and that the engine components are installed at this facility to complete the engine assembly and production.

We walked through a portion of the facility's engine testing operation. I was told that the number of hours of testing has been reduced. According to Michele, last year, 2.1 million gallons of diesel fuel was used in the

various test cells, as compared to about 4 million gallons that were used a few years ago. We looked at engine test cells 73-76, which are used to perform the final test on the MDEG engines. Test cells that are used for this purpose are referred to as production test cells, and they are used to check that each of the engines produced at the Detroit Diesel facility are able to start prior to shipping them offsite as a finished product. I was told that the test run time to quality assure the MDEG has been reduced to a 7-10 minute test run time.

We walked through the south portion of the building, passing the assembly/production area for the heavy-duty DD15-17 engines. To the east of the DD15-17 engine production area is a tooling area, where tooling that is used in the facility's production processes is repaired and sharpened, as needed. I was told that the tooling area is active every day that the facility operates. We then looked at the EU019 emission unit, which is an engines parts de-rusting process. This emission unit consists of a hot water rinse, two inhibited phosphoric acid tanks, two cold water rinse tanks, and a soluble rust preventative tank. I was told that this emission unit is used once a week to rinse and de-rust parts. At the far east end of the production area is the craft machine and tool shop where items are created for use in the production processes at the facility. This area does not vent to the ambient air, and the equipment used in the work areas are exempt from AQD permitting requirements.

We arrived back at Michele's office at around 1:45pm and we started to discuss and check the Detroit Diesel facility's compliance with applicable permits and regulations. We reviewed the facility's compliance status; we discussed the applicable permit conditions, and how the facility staff demonstrates compliance with the permit conditions. We first discussed the Source-Wide Conditions. Greg told me that he gets diesel, natural gas and paint usage from the facility every month. Greg and Detroit Diesel staff perform emission calculations using these material throughputs to double-check the final result.

I was told that anytime that something new at the facility proposes to vent to the ambient air, a Permit to Install/exemption analysis is performed to ensure that the new process is properly permitted, if necessary.

EU0086 and EU078 have permanently ceased operation. I was also told that the paint booth that was permitted via PTI No. 97-13A has not been used since before my last visit to the facility in June 2016. There is uncertainty as to whether this equipment will be used again, but Detroit Diesel included it, and the requirements of PTI No. 97-13A, in the ROP renewal.

We discussed a list of questions that I had brought relating to the ROP renewal. The questions were provided to me by Rebecca Loftus of the DEQ-AQD Detroit Office, who is drafting the ROP renewal and had some questions about items including cold cleaners, Rule 287(c) exempt equipment, emergency engines, fuel storage tanks and fuel dispensing. I provided the questions from Rebecca to Michele and Greg prior to the site visit. I have attached a copy of the e-mail response that I received from Michele dated February 2, 2018, that includes answers to the questions that are highlighted in blue, to this report for reference.

We went through each of the Emission Units and Flexible Group tables in the ROP, and I was shown the records that are kept to determine and demonstrate compliance with the permit requirements.

After we discussed information that facility staff were going to send to me to address inquiries during the site visit, I left the facility at 3:45pm.

### **Permits/Regulations/Orders/Other**

#### **Permits**

The Detroit Diesel facility currently has a ROP and an active DEQ-AQD Permit to Install (PTI). The following is a summary of the Detroit Diesel's compliance with their permits.

#### **ROP No. MI-ROP-A8638-2012**

This ROP was issued to the Detroit Diesel facility with an effective date of October 31, 2012. An administratively complete ROP renewal application was submitted by Detroit Diesel, and received by DEQ-AQD on February 3, 2017; this was within the required timeframe during which an administratively complete ROP renewal application needed to be submitted (between April 30, 2016 and April 30, 2017).

The following paragraphs provide a description of the Detroit Diesel facility's compliance with the terms and conditions put forth by the ROP, with the headings representing the sections of the ROP.

#### **Source-Wide Conditions**

The Source-Wide conditions in this ROP serve to limit the facility wide emissions of NOx and hazardous air pollutants (HAPs) to below major source thresholds. Compliance with these emission limits is demonstrated through the required keeping of fuel and coating usage records, which are factored into emission calculations. Regarding natural gas usage at the facility, there are several DTE gas meters located around the facility, some of them associated with a specific natural gas-fired combustion unit, as well as a site-wide gas meter. On the first of each month, the gas meters are read and the information is logged. The natural gas usage is entered into a spreadsheet and paired with emission factors to estimate NOx emissions. Similarly, the diesel fuel usage is compiled by staff in the testing laboratory and emission estimates are calculated.

Coatings used at the facility are tracked via an internal bill of material. The amount of coating used is tracked, and factored with the VOC and HAP content of the coatings to estimate the HAP emissions.

These material usage records and emission estimates are **in compliance** with the conditions in section VI. I have attached records that were provided to me by Detroit Diesel that show the monthly records of diesel and natural gas fuel usage on a monthly basis, and monthly and 12 month rolling NOx emission calculations. Based on the emission records, the highest Source-Wide 12 month rolling NOx emissions in the 12 months from December 2016 through November 2017 was 75.7 tons, which occurred in January 2017. I was also provided with a sheet that summarizes the 12-month rolling total HAP emissions from diesel combustion for November 2017, which is attached to this report. During the site visit, I was shown the monthly coating usage records and the HAP emissions records. These records showed that the 12 month rolling HAP emissions are well below major source thresholds.

#### **EU0086**

This Emission Unit, the Series 149/4000 paint booth, which was used for miscellaneous metal parts painting, has been permanently removed from operation. Information provided by Detroit Diesel states that this equipment has been dismantled as of January 1, 2014. This Emission Unit will be removed during the ROP renewal process.

#### **EU078**

This Emission Unit represents an offline paint booth that was used for applying a second finish on engine blocks. Information provided by Detroit Diesel states that this equipment has been dismantled as of August 8, 2014. This equipment has been permanently removed from operation; as such, this Emission Unit will be removed during the ROP renewal process.

#### **FGBOILERS**

This Flexible Group includes the Emission Units designated as EUBOILER1, EUBOILER4 and EUBOILER5, which are three natural gas-fired watertube boilers.

##### I. Emission Limits

The permit includes an emission limit for NOx (100 lbs./million cubic feet of natural gas) that appears to simply be the accepted NOx emission factor for boilers with the heat input capacities that these three boilers have. The facility uses this emission factor in the emission calculations for these emission units. The facility should be considered **in compliance** with the emission limit.

##### III. Process/Operational Restrictions

The facility is **in compliance** with Special Condition (SC) III.1; only natural gas is fired in the boilers.

##### V. Testing/Sampling

SC V.1 states that "The Department may require the permittee to conduct acceptable performance tests...". Detroit Diesel has not been asked to perform a compliance test on these boilers, and the emission limit is an accepted emission factor for this type of equipment. **Compliance.**

##### VI. Monitoring/Recordkeeping

Detroit Diesel is **in compliance** with this section. Natural gas usage is monitored and recorded by facility staff, as well as Detroit Diesel's air consultant. I was told during my June 2016 site visit that a "daily efficiency report"

is generated at the facility as part of their ISO 15001 efforts. This report tracks the amount of natural gas used by each boiler. The attached fuel throughput shows the monthly natural gas usage in the boilers.

## VII. Reporting

The facility submitted all required ROP certification and deviation reports. **Compliance.**

### **FG600-2**

This Flexible Group includes the Emission Units designated as EU600, EU601 and EU602, which are three paint booths used to apply coatings to diesel engines. The booths are equipped with dry filters for particulate control. As mentioned in the "Inspection Narrative" section of this report, there is only one coating this is being applied to the engines, a water-reducible clearcoat - Quaker Engine Coat 101 Clear.

#### I. Emission Limits

The permit includes a VOC emission limit of 36 tons per year. For 2017, the total calendar year VOC emissions that were reported in MAERS for this Flexible Group (designated as RG600-2 in MAERS) was 5.19 tons. **Compliance.**

#### II. Material Limits

The coatings used at the facility are limited to a VOC content of 3.5 pounds per gallon, minus water, as applied.

It was reiterated during this site visit that all coatings used at the facility are required to be put through an analysis that includes performing a Method 24 test to determine the VOC content of the coatings (both with and minus water), and to determine the HAP content of each coating. The information is tracked via internal Environmental Data Sheets (EDS).

I was told that the facility is using the exact same clear coat product, provided by the same supplier, that was used at the time of my last site visits in June 2016 - Quaker Engine Coat 101 Clear. A copy of the EDS for the Quaker Engine Coat 101 Clear that Detroit Diesel provided to me in 2016 is attached to this report for reference. The ESD shows a VOC content of 1.3 pounds per gallon, minus water.

Since the same material is being used, I elected to not take a sample of the clearcoat as part of this site visit. I took two samples of the clearcoat as part of the June 2016 site visits; these samples were analyzed by Advanced Technologies of Michigan (AToM) in Livonia, MI for VOC content. The test results showed that both samples had a VOC content of 0.9 pounds per gallon, minus water.

The facility appears to be **in compliance** with the VOC content limit in this condition.

#### III. Process/Operational Restrictions

The facility is **in compliance** with SCs III.1 and 2. The process by which the waste coatings and solvents is collected was described to me. The facility has a landfill free designation, and these coatings are stored in closed containers and picked up for recycling. The spent filters from the paint booths are stored and recycled by a company called Waste Free.

#### IV. Design/Equipment Parameters

The facility is **in compliance** with SCs IV.1 and 2. Facility staff stated that exhaust filters are properly maintained in the paint booths (IV.1), and the applicators in the paint booths meet the requirements of SC IV.2.

#### V. Testing/Sampling

As described in the discussion for the Material Limits section (II.), Detroit Diesel requires that their coating suppliers perform Method 24 tests on all coatings that are used at the facility. **Compliance.**

#### VI. Monitoring/Recordkeeping

I was shown how the facility maintains and keeps records of the information required in SCs VI.1 through 4.



All required calculations are kept for each month (SC VI.1). The facility maintains all of the manufacturer's information for the coatings, cleaners and solvents that are used at the facility, including in the diesel engine coating booths in FG600-2 (SC VI.2). All materials go through a screening process, and information about the materials is summarized on Environmental Data Sheets (EDS) that the company keeps on file. I have attached a blank copy of an EDS form to this report for reference.

In accordance with SC VI.3, the facility tracks all of the required coating usage, VOC content and VOC emissions calculations on a monthly basis. Each engine that is coated at the facility is tracked. Regarding condition SC VI.4, solvent usage is also tracked by the facility, but the usage of solvent in the FG600-2 coating lines has been greatly reduced with only one coating being used to coat engines. I was told that the paint lines do not need to be cleaned as they would if there were other coatings/colors being run through the coating supply/circulation system, and that mineral spirits are run through the line when they do need to be cleaned. The waste solvents are contained and shipped offsite for recycling. The application guns (and their tips) that are used for paints and inks are cleaned using an aqueous, alkaline cleaner.

#### VII. Reporting

The facility submitted all required ROP certification and deviation reports. **Compliance.**

#### VIII. Stack/Vent Restrictions

The stack parameters were not verified during this site visit. There has been no indication that these parameters have changed since the emission units were permitted.

#### **FGHDCELLS**

This Flexible Group includes the test cells that are used to test and analyze heavy duty (on highway) diesel engines that are produced at the facility. These test cells are currently used to test DD13, 15 and 16 engines and the MDEG engines.

#### I. Emission Limits

The permit includes a NOx emission limit of 92.5 pounds per 1,000 gallons of diesel fuel. There is no specific testing requirement included with this condition. The facility uses the 92.5 number as an emission factor the estimate NOx emissions from the use of these test cells. The facility is considered compliant with this requirement at this time.

#### II. Material Limits

Detroit Diesel currently uses two diesel fuels in their test cells, both BP fuels supplied by Buckeye – 5Y60 for the durability and production testing, and 5Y54 for emission certification testing. These fuels are both classified as ultra low sulfur diesel fuels. I received an e-mail message from Michele after my site visit that includes a brief description of the procedure followed at the facility to sample and analyze the fuel that they use. The e-mail also included an internal Bulk Load Acceptance Form that was completed on December 22, 2017 for a load of 5Y60 fuel. Per this form, the sulfur content of the 5Y60 fuel load was 9ppm. A copy of the e-mail and Bulk Load Acceptance Form are attached for reference. The facility is **compliant** with the sulfur in fuel limit.

#### V. Testing/Sampling

Condition 1 contains language stating the "The Department may require the permittee to conduct acceptable performance tests...". DEQ-AQD has not requesting any testing of these test cells. The facility should have emissions information from the emission certification tests that are performed. **Compliance.**

#### VI. Monitoring/Recordkeeping

As described for Section II. above, the facility keeps written logs of the sulfur content of the fuel used in these test cells (SC VI.2). SC VI.1 references Appendix 7 of the ROP, which puts forth the procedures for calculating emissions. Appendix 7.B puts forth the procedures for calculating facility NOx emissions. NOx emissions are calculated from the operation of FGHDCELLS and included as part of the source-wide emission total. **Compliance.**

#### VII. Reporting

The facility submits all required ROP certification and deviation reports. **Compliance.**

## **FGNONROADCELLS**

This Flexible Group includes the test cells that are used to test and analyze non-road diesel engines. I was told during the site visit that these test cells were used to test marine and MTU America off-highway diesel engines that used to be manufactured at the Detroit Diesel facility. MTU left the facility several years ago, and the non-road test cells have not been used since.

### I. Emission Limits

The permit includes a NOx emission limit of 196 pounds per 1,000 gallons of diesel fuel. There is no specific testing requirement included with this condition. The facility uses the 196 number as an emission factor to estimate NOx emissions from the use of these test cells when they are operated. As these test cells are not currently operating, the facility is considered compliant with this requirement at this time.

### II. Material Limits

As explained for FGHDCCELLS, Detroit Diesel currently uses two diesel fuels in their test cells, both BP fuels supplied by Buckeye – 5Y60 for the durability and production testing, and 5Y54 for emission certification testing. These fuels are both classified as ultra low sulfur diesel fuels. I received information from Michele after my site visit that includes a brief description of the procedure followed at the facility to sample and analyze the fuel that they use, and that showed that the most recent load of diesel accepted at the facility had a sulfur content of 9ppm. The facility has not operated this emission unit in some time, and based on the fuel sampling procedure in place at the facility, the facility is **compliant** with the sulfur in fuel limit.

### V. Testing/Sampling

Condition 1 contains language stating the "The Department may require the permittee to conduct acceptable performance tests...". DEQ-AQD has not requested any testing of these test cells. The facility should have emissions information from the emission certification tests that are performed. In addition, the non-road test cells have not been used for several years. **Compliance.**

### VI. Monitoring/Recordkeeping

The recordkeeping requirements in SC VI.2 are not applicable at this time as the test cells are not operating. SC VI.1 references Appendix 7 of the ROP, which puts forth the procedures for calculating emissions. Appendix 7.B puts forth the procedures for calculating facility NOx emissions. NOx emissions are calculated from the operation of FGNONROADCELLS and included as part of the source-wide emission total; there are currently no NOx emissions reported as associated with this equipment since it is not in operation. **Compliance.**

### VII. Reporting

The facility submitted all required ROP certification and deviation reports. **Compliance.**

## **FGNATGASCELLS**

This Flexible Group includes the test cells that are used to test and analyze engines when combusting natural gas or compressed natural gas. During my site visit in June 2016, I was told that these test cells did not operate in 2015-16. Based on the records for natural gas usage (a copy of which is attached to this report), the natural gas-fired test cells did not operate in 2017. I was told that these test cells have not been used since before my last site visit.

### I. Emission Limits

The permit includes a NOx emission limit of 2,840 pounds per million cubic feet of natural gas. There is no specific testing requirement included with this condition. The facility uses the 2,840 number as an emission factor to estimate NOx emissions from the use of these test cells, when they are in use. As these test cells are not currently operating, the facility is considered compliant with this requirement at this time.

### V. Testing/Sampling



Condition 1 contains language stating the “The Department may require the permittee to conduct acceptable performance tests...”. DEQ-AQD has not requested any testing of these test cells. This equipment has not operated since at least 2015-16. **Compliance.**

#### VI. Monitoring/Recordkeeping

SC VI.1 references Appendix 7 of the ROP, which puts forth the procedures for calculating emissions. Appendix 7.B puts forth the procedures for calculating facility NOx emissions. The records of NOx emissions include rows for the natural gas test cells, which show no emissions due to their not being used. **Compliance.**

#### VII. Reporting

The facility submitted all required ROP certification and deviation reports. **Compliance.**

### **FGCOLDCLEANERS**

This Flexible Group covers any cold cleaner that is grandfathered or exempt from DEQ-AQD permitting requirements pursuant to Rule 278 and either Rule 281(h or Rule 285(r)(iv).

Based on the discussions during the site visit, the facility is **complying** with the requirements of the FGCOLDLEANER table. As discussed during the site visit, Detroit Diesel keeps an inventory of all of the solvents and cleaners used at the facility, and their vendors also track the facility’s usage (Safety Kleen generates an “In/Out” report that tracks the amount of solvent provided to the facility, and the amount that is recovered). The facility keeps the operating and safety/regulatory instructions posted with the equipment. I was told that the cold cleaner that designated as EU840 (Oakite tank) in the ROP has been removed (dismantled as of January 1, 2014), and that a new cold cleaner that meets the requirements of the Flexible Group was to be installed over the end of year Holiday period in 2017. On April 12, 2018, Michele provided me with an updated list of cold cleaners/parts washers in use at the facility. The list includes a column that provides the specific solvent and/or cleaning material used in the parts washers, and I was also provided with the Safety Data Sheets (SDS) for each of the cleaning materials. The list of cold cleaners/parts washers and the SDS for each of the cleaning materials is attached to this report.

Shortly before the site visit, I received correspondence from Detroit Diesel regarding the proposed installation and operation of a new cold cleaner at the facility. The facility requested approval of equivalent VOC control per Michigan Administrative Rule 707(2)(c) for this cold cleaner. Based on the information that I received from Detroit Diesel about the operation of the proposed cold cleaner and the material that will be used in it, the request was approved. I have attached information relating to this determination to this report for reference. There is additional information in the facility file regarding the determination regarding the proposed new cold cleaner, as well.

### **FGRULE287(c)**

This Flexible Group covers any emission units that are exempt from DEQ-AQD permitting requirements pursuant to Rules 278 and 287(c).

Detroit Diesel is **complying** with the requirements of the FGRULE287(c) table. I was told that at this time, the only emission unit at the facility for which the Rule 287(c) requirements are being applied is the maintenance paint spray booth in the Carpenter/Painter Shop, which is designated as EU017. Records of material usage are kept at the booth by facility staff who use the equipment. I was told that every can of paint that is used at the booth has been approved for use through the facility’s material approval procedure. The material usage records are provided to Michele, and they are included with the facility’s monthly material usage and VOC emission records. I was shown a recordkeeping sheet titled “Maintenance Paint Booth EU019 FGRULE287(c)” that contains weekly records of the amount of coating used in the equipment that is subject to these requirements, which demonstrates that the facility is complying with the 200 gallons per month, as applied, minus water, per emission unit limit.

### **FGRULE290**

This Flexible Group covers any emission unit that emits air contaminants, and that is exempt from DEQ-AQD permitting requirements pursuant to Rules 278 and 290.

Detroit Diesel is **complying** with the requirements of the FGRULE290 table. The records kept by the facility include a section titled "Rust Removal/Inhibitor EU019 FGRULE290". This section of the records includes a monthly summary of the amount of the material used, and the resulting emission estimate of HAPs for each month using DEQ-AQD's Rule 290 template, as well as a summary table that was created by Detroit Diesel. This information serves to demonstrate that the facility is complying with the exemption requirements of Rule 290.

### **FGRICEMACT**

This Flexible Group covers the emission units designated as EU701-707 - diesel-fired reciprocating internal combustion engines (RICE) that are subject to 40 CFR Part 63, Subpart ZZZZ (a/k/a RICE MACT). The subject equipment is rated at less than 300 hp, over 20 years old, and located at an area source of HAPs. It should be noted that while the requirements of Subpart ZZZZ are included in the facility's ROP, DEQ-AQD does not have delegated authority for this Subpart. I checked the facility's compliance with the Special Conditions in this Flexible Group, but EPA is the delegated authority to determine the facility's compliance with the requirements of Subpart ZZZZ.

During a follow-up discussion to the site visit, Michele provided additional information regarding the engines included in this Flexible Group. According to information sent by Michele, there are five diesel emergency engines at the facility that are subject to the RICE MACT – three fire pump engines, a 400 kW engine that is one of the Series 60 engines that used to be produced at the facility, and a 1,000 kW engine that is one of the Series 149 engines that used to be produced at the facility. Michele and Greg could find no records of additional engines, and they did not know why the facility provided seven Emission Unit designations for these engines. For the purposes of the ROP renewal, Michele proposed the following EU designations for the existing diesel engines at the facility:

- EU-701 – Fire Engine Pump Outer Drive (GM/DDC Series 4-71; 170 HP at 1750 RPM – installed ~ 1950)
- EU-702 – Fire Engine Pump Telegraph North (GM/DDC Series 4-71; 170 HP at 1750 RPM – installed ~ 1950)
- EU-703 – Fire Engine Pump Telegraph South (GM/DDC Series 4-71; 170 HP at 1750 RPM – installed ~ 1950)
- EU-704 – Diesel Generator 149 (located on NE corner of M-13; DDC Series 16V149TI Engine 1000 kW – installed ~ 1977)
- EU-705 – Diesel Generator PCS (located in E4 Courtyard; DDC Series 60 Engine 400 kW – installed ~ late 1990's)

This information was provided to Rebecca Loftus of the DEQ-AQD Detroit Office, who is drafting the ROP renewal for the facility. Michele also provided that there is a pending diesel generator installation at the facility that will be associated with the administration section computer room. The facility is awaiting specifications and company approval for funding the generator. Michele proposes that this generator, if installed, will be designated as EU-706.

Facility staff maintain records specific to these engines, and their requirements relating to the RICE MACT. These records include a monthly summary for each engine that provides the hour meter readings of the engine, the hours that the engine operated for emergency vs. non-emergency purposes, and a checklist that indicates if and when during a given month that an oil filter change, air cleaner inspection or hose and belt inspection occurred. As discussed earlier in this report, the facility tracks and records the sulfur content of the diesel fuel used in diesel-fired combustion equipment, which satisfies the sulfur in fuel material limit in SC II.1. I was told that the fire pumps are tested once each month, and that the Fire Department is present during the tests. Facility security is responsible for tracking the hours of operation of the fire pumps, while Michele tracks the hours of operation of the two generators. Michele, Greg and I discussed the permit conditions in this Flexible Group. The facility appears to be **in compliance** with the applicable conditions in this Flexible Group. For the section III permit conditions, the facility operates the engines in accordance with manufacturer's recommendations as well as the facility's own preventative maintenance plan (SC III.2); I was told that the engines are operated and maintained in a manner consistent with safety and good air pollution control practices (SC III.3); the facility's preventative maintenance plan addresses the maintenance and inspection requirements in SC III.4; I was told that the time spent at idle during startup and the amount of startup time is minimized (SC III.6); the facility tracks the amount of hours to determine compliance with SCs III.7 and 8. The engines utilize

hours meters (SC. IV.1). The facility is maintaining the appropriate records put forth in the applicable conditions in section VI (Monitoring/Recordkeeping). There are no control devices on the engines, so the requirements in SCs VI.3 and 4 do not apply. I was told that there have been no periods of malfunction to report, as described in SC VI.5. The facility maintains records of the maintenance that is performed on the engines, as required in SC VI.7. I was told that the RICE MACT requirements are in the facility's preventative maintenance plan for these engines.

#### **Permit to Install No. 97-13A**

This permit addresses the installation and operation of an offline engine spray booth equipped with manual HVLP applicators that is designated by the permit as EU603. The permit was issued on August 16, 2013. The permit conditions in PTI No. 97-13A are almost identical to the conditions in the FG600-2 Flexible Group in Detroit Diesel's ROP. The VOC content limit for the coatings used in EU603; the requirement to properly handle waste coatings, solvents, and filters; the requirement to operate the emission unit with properly installed and operating exhaust filters and paint applicators; the requirement to determine the VOC content of the coating used; the requirement to track and record coating usage, VOC content and VOC emissions are the same or similar to the requirements for FG600-2.

During my site visit in June 2016, I was shown that this equipment is not currently being used. I was told during this (December 2017) site visit that the equipment is still not being used, and that it has not been used since my last site visit. I was told by Michele that the future use of this equipment is unknown at this time. No further evaluation of the spray booth addressed in PTI No. 97-13A was performed as part of this site visit. The requirements of PTI No. 97-13A are included as part of the facility's ROP renewal application.

#### **Regulations**

The Detroit Diesel facility is a synthetic minor facility with regard to the Prevention of Significant Deterioration (PSD) regulations of Title 40 of the Code of Federal Regulations, Part 52.21. This is accomplished through the NOx emission limit put forth in the Source-Wide Conditions section of the facility's ROP. This section of the ROP also limits the facility-wide HAP emissions to below major source thresholds; the facility is classified as an area source of HAPs.

The reciprocating internal combustion engines (RICE) identified as EU701-EU707 make up the FGRICEMACT Flexible Group, which contains regulatory requirements associated with 40 CFR Part 63, Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines). The engines are subject to the area source requirements of Subpart ZZZZ.

As part of the ROP renewal process, the facility was asked about the number and type of storage tanks on site, and whether any fuel dispensing occurs at the facility. Michele provided me with a list of the tanks and bulk storage containers at the facility that even includes batteries in the battery room. The list provides the location of the tank/container at the facility, the type of tank/container, and the size of each unit. A copy of this list is attached to this report for reference.

Regarding fuel distribution, 40 CFR Part 63, Subpart CCCCCC (National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities) applies to gasoline dispensing facilities (GDF) located at area sources of HAP emissions. Michele provided that the Detroit Diesel facility dispenses 100-150 gallons of gasoline per month from their gasoline tank for onsite vehicle use, and 50-100 gallons of diesel fuel per month, also for onsite vehicle use. Michele stated that all of this fuel use is tracked monthly, and that there are reports and receipts that provide the exact amount of fuel that is dispensed. Based on the gasoline throughput, the facility looks to be subject to the requirements of 63.11116 (Requirements for facilities with monthly throughput of less than 10,000 gallons of gasoline), which includes suggested provisions in paragraph (a)(1) through (4) for handling gasoline in a manner that minimizes vapor releases to the atmosphere for extended periods of time. The facility records meet the requirements in 63.11111(e). DEQ-AQD does not have delegated authority for Subpart CCCCCC. EPA is the delegated authority to determine the facility's compliance with this Subpart.

#### **Compliance Determination**

Based upon the results of the December 21, 2017 site visit and a review of the facility's compliance records, the Detroit Diesel Corporation facility, located in Detroit and Redford Township appears to be **in compliance** with applicable rules and regulations, including with the terms and conditions of ROP No. MI-ROP-A8638-2012, and Permit to Install No. 97-13A.

Attachments to this report: records of the diesel fuel and natural gas usage at the facility; a summary sheet of source wide 12 month rolling NOx emissions from December 2016 through November 2017; a summary of the total diesel combustion HAPs from December 2016 through November 2017; information relating to the tracking of the sulfur content of the diesel fuel used at the facility; a list of the cold cleaners used at the facility and the SDS for each of the materials used in the cold cleaners; information relating to a Rule 707(2)(c) equivalent control determination from December 2017; a list of the storage tanks and bulk containers at the facility; a copy of an e-mail exchange that addresses questions from the DEQ-AQD staff writing the ROP renewal for the facility.

NAME Steve Wilson

DATE 7/9/18

SUPERVISOR JK