

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

N722843793

FACILITY: FCA US LLC - Dundee Engine Plant		SRN / ID: N7228
LOCATION: 5800 N. ANN ARBOR RD, DUNDEE		DISTRICT: Jackson
CITY: DUNDEE		COUNTY: MONROE
CONTACT: Chukwuemeka Ben Bosah , Air Compliance Engineer		ACTIVITY DATE: 03/22/2018
STAFF: Mike Kovalchick	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Inspection of T5 source.		
RESOLVED COMPLAINTS:		

Major / ROP Source. Full Compliance Evaluation (FCE) and Inspection (PCE) of FCA (Fiat Chrysler Automobiles) US LLC – Dundee Engine Plant (formally GEMA), located at 5800 North Ann Arbor Road, Dundee, Michigan 48131. SRN N7228

Facility Contacts

Krystal Brown (KB) Environmental Specialist, 734-945-6967, krystal.brown@fcagroup.com

Ben Bosah (BB), Air Compliance Engineer, 248-512-4232, chukwuemeka.bosah@fcagroup.com.

Scott Goeglein (SG), Environment Health and Safety Lead, 734-529-9226, scott.goeglein@fcagroup.com.

Purpose

On March 22, 2018, I conducted a scheduled, announced inspection of the FCA (Fiat Chrysler Automobiles) US LLC – Dundee Engine Plant (DEP) facility located in Dundee, Michigan (Monroe County) at 5800 North Ann Arbor Road. The purpose of the inspection was to determine the facility's compliance status with applicable federal and state air pollution regulations, particularly Michigan Act 451, Part 55, Air Pollution Control Act and administrative rules, and the conditions of DEP's Renewable Operating Permit (ROP) number MI-ROP-N7228-2018, issued January 8, 2018. This facility was last inspected on January 20, 2016 and found to be in compliance.

Facility Location

The facility is located within the city limits of Dundee. It is immediately surrounded by commercial / industrial / agricultural sources. See attached aerial photo.

Arrival & Facility Contacts

Visible emissions or odors were not observed upon my approach to the facility via Ann Arbor Road. I arrived at approximately 8:25 am, proceeded to the facility office to request access for an inspection, provided my identification, and asked if the air compliance specialist or EHS person was available. I viewed a safety training video and was then escorted by KB to a conference. SG was on vacation. A pre-inspection conference was held with KB and BB by phone. I informed KB and BB of my intent to conduct a facility inspection and to review the various records required by their permit. The DEP representatives extended their full cooperation during the inspection, accompanied me during the full duration of the inspection, and fully addressed my onsite questions.

Facility Background

Initially the plant was called the Global Engine Manufacturing Alliance (GEMA), and was a joint venture between Mitsubishi Motors Corporation, Hyundai Motor Company and DaimlerChrysler Corporation (groundbreaking occurred in 2003). In 2009 bankruptcy was declared and GEMA was partially acquired by FCA. Full acquisition by FCA recently occurred.

The facility consists of two parallel engine manufacturing plants (North and South) with engine assembly occurring in the middle of the facility. The engine parts are machined, processed, etc. along the facility's perimeter and gradually move towards the center. The finished engines are loaded on racks and are shipped by truck or rail to the designated automotive assembly plant. The aluminum engine blocks, engine heads and crank shafts arrive pre-cast. These components are machined and assembled with other pre-fabricated engine components to complete an engine.

Currently, the North Plant assembles the Tigershark and World Gas engines; with each having several platforms / variations (e.g. 2.0-liter or 2.4-liter). In addition, on the North Plant side, DEP machines engine heads, cranks, and blocks and then assemble the engine components.

Currently, the South Plant is idle awaiting new work. ROP modifications may be required if this plant is retooled when new work arrives.

A sample of the different engine types are tested on the onsite dynamometers. The hot test engine test stands are designed to complete more intrinsic testing of the engines. Engines that are marked as at more risk during the assembly are generally the ones being tested.

DEP usually operates two, ten hour shifts, six days a week and employs approximately 700 persons.

The DEP 2017 Michigan Air Emissions Reporting System (MAERS) reported the following emissions for pollutants having facility-wide limits: 97160 pounds / 48.59 tons CO, 11630 pounds / 5.8 tons NOx, and 6200 pounds / 3.1 tons PM10 primary. Reported emissions are well below the permit-specified, facility-wide limits of 196.8 tons per year (tpy) for CO, 63.6 tpy for NOx, and 38.5 tpy for PM.

Regulatory Applicability

The facility is a Major / ROP source for CO emissions. The facility is regulated by ROP number MI-ROP-N7228-2013 and is also subject to Title 40 of the Code of Federal Regulations (CFR), Part 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Reciprocating Internal Combustion Engines (RICE) and to Title 40 of CFR, Part 63, Subpart CCCCC, NESHAP for Area Source Gasoline Dispensing Facilities. Compliance determinations were not made regarding both NESHAP standards, as the state of Michigan has not obtained delegation authority for these standards. The facility reports its emissions to MAERS and is designated as a Fee Category I source.

Emission Unit (EU) / Flexible Group (FG) Details

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-DRYMACHINE	Various machining operations including grinding, boring, etc. The processes are maintained with PM filtration systems.	January 2005	FG-FACILITY
EU-WETMACHINE	Various machining operations including grinding, boring, etc. utilizing various cutting oils and coolants. The processes are maintained with oil mist collectors.	January 2005/ February 2010/ March 2011	FG-FACILITY
EU-DYNO1	Engine dynamometer test cell burning unleaded gasoline	May 2010/ March 2011	FG-DYNOS FG-FACILITY
EU-DYNO2	Engine dynamometer test cell burning unleaded gasoline	May 2010/ March 2011	FG-DYNOS FG-FACILITY
EU-DYNO3	Engine dynamometer test cell burning unleaded gasoline	May 2010/ March 2011	FG-DYNOS FG-FACILITY
EU-DYNO4	Engine dynamometer test cell burning unleaded gasoline	May 2010/ March 2011	FG-DYNOS FG-FACILITY
EU-DYNO5	Engine dynamometer test cell burning unleaded gasoline	May 2010/ March 2011	FG-DYNOS FG-FACILITY
EU-DYNO6	Engine dynamometer test cell burning unleaded gasoline	May 2010/ March 2011	FG-DYNOS FG-FACILITY
EU-HOT_TEST1 and EU-HOT_TEST2	Two engine test stands; each engine burns natural gas	January 2005	FG-HOT_TEST FG-FACILITY
EU-FIRE_PUMP1	Diesel fueled SI Emergency fire pump	2003	FG-EMERG-RICE, FG-FACILITY

EU-FIRE_PUMP2	Diesel fueled SI Emergency fire pump	2003	FG-EMERG-RICE, FG-FACILITY
EU-EM_GEN1	Natural gas CI Emergency Generator	2003	FG- FG-FACILITY EMERG-RICE,
EU-EM_GEN2	Natural gas CI Emergency Generator	2003	FG-EMERG-RICE, FG-FACILITY
EU-EM_GEN3	Natural gas CI Emergency Generator	2003	FG-EMERG-RICE, FG-FACILITY
EU-EM_GEN4	Natural gas CI Emergency Generator	2003	FG-EMERG-RICE, FG-FACILITY
EU-ADHESIVE	Loctite RTV adhesive	January 5, 2005	R290, FG- FACILITY
EU- GASDISPENSE	Unleaded Gasoline Dispensing Storage Tank for dynamometers	June 1, 2010	FG-GASDISPENSE

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-DYNOS	Six engine dynamometer test cells burning unleaded gasoline	EU-DYNO1 EU-DYNO2 EU-DUNO3 EU-DYNO4 EU-DYNO5 EU-DYNO6
FG-HEATERS	Air handling units, heaters, ovens, and hot water boilers; each burning natural gas fuel	NA
FG-HOT_TEST	Two engine test stands; each engine burns natural gas	EU-HOT_TEST1 EU-HOT_TEST2
FG-FACILITY	All equipment at the facility. This also includes exempt equipment and equipment covered by other permits.	
FG-EM-RICE	Two diesel fired emergency CI fire pumps and 4 natural gas fired SI emergency generators	EU-FIRE_PUMP1 EU-FIRE_PUMP2 EU-EM_GEN1 EU-EM_GEN2 EU-EM-GEN3 EU-EM-GEN4
FG-RULE 290	Loctite RTV adhesive application	EU-ADHESIVE
FG-GASDISPENSE	On-site gasoline storage tank for storing gasoline dispensed into test engines operated on dynamometers.	EU-GASDISPENSE

Pre-Inspection Meeting

I started the meeting by indicated that I was here to do an inspection to based on the newly renewed ROP permit that had been in issued. Few changes were made in the ROP so the renewal didn't change compliance much.

DEP mentioned that the South Plant had been idle for over a year and it wasn't clear when it would be restarted. When/if it gets restarted, it likely would need to be totally retooled to accommodate a new engine line. DEP did note any other changes at the facility.

BB confirmed that the Preventative Maintenance Plans (PMPs) (attached with the submitted recordkeeping items and previously submitted to the AQD on December 4, 2014) are used to maintain compliance with EU-DRYMACHINE SC IV.1 and EU-WETMACHINE SCs III.1 and IV. 1 and no changes have been made to either PMP. In addition, SG confirmed that DEP employs a central, computer based system, Total Maintenance System, to track all maintenance related actions and records.

Next, I inquired how the facility monitors natural gas usage in order to demonstrate compliance with the material limit imposed by FG-HEATERS SC II and per SC VI.2. CG confirmed that a facility wide natural gas meter is utilized and that usage is also validated against supplier invoices, etc. (I visited this location during the inspection which is located outside near a large water tank. It showed a reading of 392169 X 100 Cubic feet.)

The facility also has onsite six emergency RICE, which are on the roof, and are a part of FG-EMERG-RICE. DEP staff confirmed that they are following and complying with the requirements of NESHAP subpart ZZZZ. They also noted they are complying with Title 40 of CFR, Part 63, Subpart CCCCC, NESHAP for Area Source Gasoline Dispensing Facilities which for them is just mostly very basic housekeeping practices.

I outlined the various locations that I wanted to visit at the North plant and concluded my remarks saying that I would provide a list of documents that I would request after the conclusion of the inspection.

Onsite Inspection Narrative (Note: No photos were taken as written permission is required.)

EUWETMACHINE

DEP staff and I then proceeded to conduct an onsite tour to observe the overall facility process (the machining of engine parts and engine assembly) and specific EUs covered by their ROP. Moderate machining oil type smell was noted throughout the plant but no smoke or haze was seen anywhere inside the plant. We observed the North Plant Filtration Gallery (a second filtration gallery is located on the South Plant side), which houses coolant filtration equipment that purifies and recirculates the coolant / oil / lubricant utilized by EUWETMACHINE. Mist eliminators that vent to the outdoors, are used to control emissions from this process. They are spread out across the facility but are mainly concentrated in both the South and North Plant Filtration Galleries. Several oil mist collectors that vent to the interior of the plant are also utilized by EUWETMACHINE but are exempt because they do not vent to the outdoors / atmosphere, per Rule 285(l)(vi)(B).

This emission unit entails the wet machining of the major engine components, where coolant is centrally plumbed to enclosed stations where grinding, boring or drilling occurs. The emissions are calculated based upon the number of hours of operation, the airflow exhausted through the system and the emission factor in the permit. The shavings and liquid are collected and transported via underground piping to one of the two Filtration Galleries. Purified coolant is plumbed back to the wet machining stations. The collected coolant sludge is transported offsite for processing, while the metal shavings are collected and sent offsite for recycling, etc.

While in the North Plant Filtration Gallery, I observed oil mist collector BLK-1R. I observed set points for the alarm to activate when the second and third stage filtration static pressure is above 3 or 4 inches of water ranges, respectively. (Actual reading was 0.7".) In addition, I observed no visible opacity from any interior components or evidence of liquid leaks from this unit or from any of the other oil mist collectors that were observed during the inspection. There are currently a total of 39 mist eliminators in the plant. Of those, only 7 of them exhaust outside. They come in 3 sizes. They are rated at 4000, 6000, and 8000 CFM. Next, I observed oil mist collector BT AAA 184323. It was rated at 4000 CFM and had a static pressure at 2.1". The alarm was set at 3". The hours meter showed 81116.7 hours. It looked identical to the first one. I also observed a document attached to each mist eliminator, used by the facility, to track maintenance, etc. (e.g. dates of last filter bag change out) according to their PMP, per SC III.1, and to track compliance with SC IV.1. Later, I observed exhaust stacks from each mist eliminator that discharged the exhaust gasses unobstructed vertically upwards, through the roof, to the ambient air, per SC VIII.

EUDRYMACHINE

This emission unit entails the dry machining of the major engine components. The "dry" reference is due to the permit-specified air pollution control equipment required to control the PM, which is generated during the grinding, boring and drilling processes. The actual activity is enclosed in a booth to improve PM capture and to maintain the controlled environmental conditions within the plant. The particulate emissions are captured and ducted to one of three central PM filtration systems. The particulate waste is collected in a 55-gallon drum. The emissions are calculated based upon the number of hours of operation, the airflow exhausted through the system and the emission factor in the permit.

I observed dust collector AAA184309, which has an alarm set point above 4 inches of water, which sounds an alarm to indicate the need to replace the filter bags. I observed no visible opacity from any interior components or evidence of air leaks from this unit or from any of the remaining dust collectors that were observed during the inspection. In addition, all of the observed dust collectors operated within the set points indicated on the static pressure gauge.

I also observed a document attached to each dust collector, used by the facility, to track maintenance, etc. (e.g. dates of last filter bag change out) according to their PMP and to track compliance with SC IV.1. Finally, I observed an exhaust stack from each dust collector that discharged the exhaust gasses unobstructed vertically upwards, through the roof, to the ambient air, per SC VIII.

FG-DYNOS

These emission units are individual test cells where engines are tested for performance under controlled operating scenarios. There are a total of six engine dynamometers and unleaded gasoline is used to fuel the engines. The emissions are calculated based on the pound per gallon emission factors and the amount of fuel combusted. Each test lasts for 42 minutes and uses 4 gallons of gas. EU-DYN01, EU-DYN02, EU-DYN05 and EU-DYN06 were active during the inspection. The gasoline is stored outside in two adjacent tanks that share a common sealed enclosure. One tank is 1700 gallons in size while the other is 550 gallons. It is referred to as EU-GASDISPENSE. Each dyno has a separate usage meter. It is reset at the end of each month and recorded. #1 was reading 438 gallons, #2 271 gallons, #3 78 gallons, #4 0.001 gallons, #5 415.86 gallons, and #6 322 gallons. No odors or smoke noted. The dyno's appear to be well maintained.

FG-HOT TEST

These emission units are used to perform intrinsic diagnostic engine testing beyond what can be accomplished in the engine dynamometers. Natural gas is used for the fuel in these two test stations. (Each test stand has its own natural gas meter) About 0.1 MMBTU is used per test. Currently they test about 1 day a week on about 40 engines. Each test consists of 10 minutes of run time and 10 minutes of cool down time. No odors or smoke noted.

FG-RULE 290

These emission units are robotic adhesive application stations, where depending upon the type of engine, a specific adhesive is applied in very small quantities. I did not observe these emission units.

ROOF

We accessed the roof via stairs inside the plant. The roof and all equipment on the roof appeared to be well maintained. No odors, smoke or fallout was noted anywhere on the roof.

FG-EN-RICE

I observed 1 of the 4 emergency generators. (They also have 2 to power fire protection pumps.) It was one of two units that are located on the mezzanine level in the North plant. There are 2 more located on the mezzanine level in the South plant. It appeared to be in excellent condition with hour meter showing 638 hours. I couldn't find the face plate to show size of the engine but it appeared to be the typical average size unit manufactured by Kohler similar to what I've seen at many facilities.

Post-Inspection Meeting

We returned to conference room and held a brief post-inspection meeting. I informed DEP staff that I did not have any immediate concerns at that time. I gave them a list of records that I requested to be emailed to me by not later than Thursday, March 29. I thanked KB and BB for their cooperation and assistance and departed the facility at approximately 11:00 am.

Recordkeeping Review

Below is a summary of the records I requested, as specified by the following permit SCs or records requested to demonstrate compliance with a specific SC for the period of February 2017 through January 2018. Attachment (1) is a list of ten documents that DEP provided along with a narrative for each one.

EU or FG Designation	Record Request per Permit SC(s) for February 2017 through January 2018	Comments	Substantial Compliance (Yes or No) / Comments
EU-DRYMACHINE	IV.1	Requested examples of maintenance records to demonstrate compliance with proper operation of the PM filtration systems.	
EU-WETMACHINE	IV.1	Requested examples of maintenance records to demonstrate compliance with proper operation of the oil mist collectors.	See Attachment (2), Attachment (4) & Attachment (5). Yes.
FG-DYNOS	II.1	Requested records to demonstrate compliance with the 68 gallon per hour limit.	See Attachment (6). Yes.
	VI.2.a. through d.	Requested records to demonstrate compliance with SC I.2, 158.18 tpy CO emission limit per 12-month rolling time period and SC II.2, 101,400 gallon gasoline material limit, per 12-month rolling time period.	See Attachment (7). Yes.
FG-HEATERS	VI.3	Requested records to demonstrate compliance with SC II.1, 911 material limit, per 12-month rolling time period.	See Attachment (8). Yes.
FG-HOT TEST	VI.3	Requested records to demonstrate compliance with SC II.1, 2 million cubic feet natural gas material limit, per 12-month rolling time period.	See Attachment (9). Yes.
FG-FACILITY	VI.2	Requested records to demonstrate compliance with SC I.1, 38.5 tpy PM emission limit, per 12-month rolling time period.	See Attachment (10). Yes.
	VI.3	Requested records to demonstrate compliance with SC I.2, 63.6 tpy NOx emission limit, per 12-month rolling time period.	See Attachment (10). Yes.

	VI.4	Requested records to demonstrate compliance with SC I.3, 196.8 tpy CO emission limit, per 12-month rolling time period.	See Attachment (10). Yes.
FG-RULE 290	VI.1. a. through e.	Requested records to demonstrate compliance permit to install exemption Rule 290.	See Attachment (11). Yes.
	VI.2. a.	Requested records to demonstrate compliance permit to install exemption Rule 290.	

Also requested photos of hours meters for the emergency generators. See Attachment (3).

Note. Building height and required stack heights were confirmed during previous inspection and were not re-inspected.

Compliance Summary

Based upon the visual observations and the review of the records, DEP appears to be in substantial compliance with the requirements of their ROP.

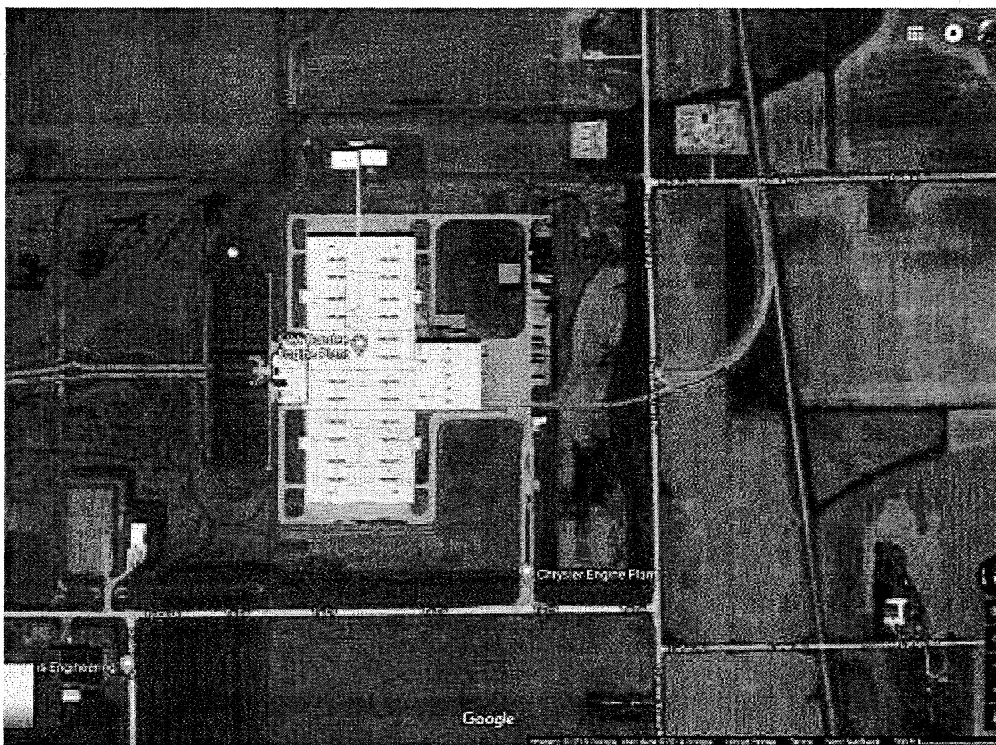


Image 1(Aerial photo) : Aerial photo

NAME M. Koralechuk

DATE 4/2/18

SUPERVISOR 