

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

A356748619

FACILITY: Ford Motor Company - Sterling Plant		SRN / ID: A3567
LOCATION: 39000 MOUND ROAD, STERLING HTS		DISTRICT: Southeast Michigan
CITY: STERLING HTS		COUNTY: MACOMB
CONTACT: Adam Albright , Facility Contact		ACTIVITY DATE: 03/19/2019
STAFF: Rem Pinga	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Level 2 Target Inspection		
RESOLVED COMPLAINTS:		

On 3/19/2019, AQD staff Kaitlyn Leffert and I conducted a level 2 scheduled inspection at Ford Motor Company - Sterling Axle Plant located at 39000 Mound Road, Sterling Heights, Michigan 48310. The purpose of the inspection was to determine the facility's compliance with the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); the Air Quality Division (AQD) Administrative Rules and the facility's Opt-out Permit to Install (PTI) No. 135-11D. Prior to the physical inspection, Ms. Leffert and I showed our credentials and stated the purpose of the visit to Adam Albright, the new facility contact person. Ms. Pauline Savich went to Ford Motor Company – Van Dyke Plant.

The facility continues to manufacture automobile axles and drive shafts for large trucks, medium trucks, and automobile vehicles. The axle shaft production process at the facility still starts from either a metal sheet being cut, formed, welded, machined, finished, and assembled. The manufacturing of gears and pinions start from outsourced foundry manufactured part brought to the facility for heat treating, machining, welding, finishing/sanding/polishing, painting, and final assembly. The facility operates several heat treat furnace lines that conduct internal oil quenching processes. It also operates welding equipment, lathe equipment, roughers, miscellaneous machining equipment, one spray coating line, a maintenance spray booth, parts washers, fabrication shop, and a waste oil treatment process. The 2 boilers were shutdown and replaced by packaged space heaters and one spray coating line was also removed a few years ago. A revised Opt-out PTI No. 135-11D was approved in March 2018 to reflect the changes at the facility.

PTI No. 135-11D contained source-wide restrictions on Nitrogen Oxide (NO<sub>x</sub>), single Hazardous Air Pollutant (HAP), and combined HAPs emissions supported by monthly 12-month rolling total recordkeeping requirements to opt the facility out of the Clean Air Act of 1990, Title V, Renewable Operating Permit (ROP) requirements and classify the permit as a synthetic minor permit for the facility. The facility is restricted to a potential to emit of any single HAP regulated by the federal Clean Air Act, Section 112 to less than 10 tons per year (tpy), a potential to emit of all HAPs combined to less than 25 tpy, and source-wide NO<sub>x</sub> emissions to 98.7 tpy.

The facility sponsored a Method 24 Variability Testing Study for low water-based coatings obtained from the former Department 17 (Dept.17) coating process and participated by AQD through controlled sampling and sending the samples to several private testing laboratories. This study was conducted in late 2009 through early 2010. The tests showed results from -1.13 through 1.29 lb./gallon VOC content less water and the wide range of results indicated unreliability of current Method 24 testing for very low VOC contents on water based coating. For the facility's permit limit of 0.51 lb./gallon in the ROP, the company requested to use formulation data in lieu of Method 24 testing and the request was approved by the AQD District Supervisor for the 2 spray coating lines (Dept.16 and Dept.17) at that time. A request to use formulation data to show compliance with PTI No. 135-11, special condition FGCOATING(II.1) VOC content limit of 0.51 lb./gallon was also approved on 07/11/2012.

The applicable requirements in the various emission units contained in PTI No.135-11D, are grouped into 2 emission units (EUWTP-669 and EUDEPT21PAINT) and 3 flexible groups (FGHEATTREAT, FGQUENCH, AND FGFACILITY). The emission units and flexible groups for PTI No.135-11D are shown as follows:

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EUWTP-669	Waste Oil Treatment Process with two 20,000 gallon treatment tanks and 2,500 cfm Heil fume scrubber.	06-01-1991 / 07-01-1991	FGFACILITY
EUDEPT21PAINT	Two Binks Electrostatic Spray Booths for the E-6 Axle Coating System (West Booth - BT 803286, East Booth - BT 803287) in Dept. 21 with fabric filter for particulate control.	12-01-1991 / 01-31-1992 / 01-24-2012	FGFACILITY
EUDEPT6-HT16-18	A heat treat system consisting of three natural gas-fired pusher furnaces (Nos. 16, 17, 18) with oil quench, two shared natural gas-fired post-washers, and two shared natural gas-fired tempering furnaces in Dept. 6.	08-30-2011 / 01-24-2012	FGQUENCH, FGFACILITY
EUDEPT7-HT6-8-HT15	A heat treat system consisting of four natural gas-fired carburizing furnaces (Nos. 6, 7, 8, 15), twenty-three hydraulic quench presses, two post-washers, two endothermic gas generators, and three natural gas-fired draw furnaces in Dept. 7.	06-1956 / 05-1966 / 04-1992 / 04-01-1994 / 06-01-1994 / 12-2009 / 01-24-2012	FGQUENCH, FGFACILITY
EUDEPT8-HT10-12	A heat treat system consisting of one pre-wash station, three carburizing furnaces (Nos. 10, 11, 12), three quenching stations, one post-wash station, and one tempering furnace in Dept. 8.	01-25-1996 / 09-03-1996	FGHEATTREAT, FGQUENCH, FGFACILITY
EUDEPT8-HT13-15	A heat treat system consisting of one pre-wash station, three carburizing furnaces (Nos. 13, 14, 15), three quenching stations, one post-wash station, and one tempering furnace in Dept. 8.	10-14-1996 / 01-20-1997	FGHEATTREAT, FGQUENCH, FGFACILITY

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EUDEPT10-HT40A-D	A heat treat system consisting of four tempering furnaces, four carburizing furnaces with quench stations, two post-wash stations, two cooling stations and two endothermic gas generators.	12-01-2016	FGQUENCH, FGFACILITY

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGHEATTREAT	Two heat treat systems each with one pre-wash station, three carburizing furnaces, three quenching stations, one post-wash station, and one tempering furnace all in Dept. 8.	EUDEPT8-HT10-12, EUDEPT8-HT13-15
FGQUENCH	Heat treat systems throughout the facility with associated quench oil processes.	EUDEPT6-HT16-18, EUDEPT7-HT6-8-HT15, EUDEPT8-HT10-12, EUDEPT8-HT13-15, EUDEPT10-HT40A-D
FGFACILITY	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment.	

EUWTP-669 – Per PTI No. 135-11D special condition (EUWTP-669)(IV.1), the 2 waste oil separation process tanks were not processing at the time of the inspection. However, I verified that the tanks were hooked up to the fume scrubber. Ms. Leffert and I inspected the fume scrubber and verified that it was operating during walk-through inspection. Per PTI No. 135-11D special conditions (EUWTP-669)(III.1), the water flow indicator showed a reading of 15 gallons per minute (gpm) flow rate and the pH monitor showed 10.28. I randomly inspected and obtained sample copies of process logs and maintenance logs. Per PTI No. 135-11D special condition (EUWTP-669)(VI.2 & VI.3), records of water flow rate, pH, and preventative maintenance activities were kept. We went up the building to check on the roof enclosures of the 3 - 300,000 gallon wastewater/oil storage tanks. I verified the installed ductwork system from each tank to duct loading and unloading breathing loss air emissions into the scrubber system. This project was done voluntarily by the facility to help address potential odor issues and in cooperation with DEQ-AQD Warren District office.

EUDEPT21PAINT – This emission unit refers to Dept 21 spray coating operations previously known as Dept 16. Dept. 17 spray coating line was decommissioned in 2011 and now removed from the PTI. Per PTI No. 135-11D special condition (EUDEPT21PAINT)(III.1 & III.2), the facility captures waste coatings and handle VOC containing materials properly including covered containers for unutilized coatings. Per PTI No. 135-11D special conditions (EUDEPT21PAINT)(III.3), the facility continues to maintain an updated (revised 11/26/2018) malfunction abatement plan. During the walk-through inspection, I verified that the interlock system is in place and the electrostatic current is being checked to ensure current is maintained at the acceptable range for proper operation. I verified a voltage of 55 KV in spraybooth 1 and 53 KV in spraybooth 2. Per PTI No. 135-11D special

condition (EUDEPT21PAINT)(IV.1 & IV.2), I verified filters were in place properly and the paint application equipment has an electrostatic paint application system installed and appeared to be operating properly. Per PTI No. 135-11D special condition (EUDEPT21PAINT)(I & VI) the facility calculated and kept records of coating usage, VOC contents, monthly and 12-month rolling total VOC emission rates as determined at the end of each month. The highest monthly 12-month rolling total VOC emission rate occurred in January 2019 at 1.84 tons per year (tpy) and below the 27 tpy permit limit. The formulation data record showed VOC content less than 0.51 lb./gal.

FGHEATTREAT – this flexible group pertains to 2 heat treat systems each with one pre-wash, 3 carburizing furnaces, three quenching stations, one post wash station, and one tempering furnace located in Department 8. Per PTI No. 135-11D special condition (FGHEATTREAT)(I.1), the 2008 stack test showed 3.92 pound per hour (pph) emission rate for NOx. Per PTI No. 135-11D special condition (FGHEATTREAT)(II.1), the facility kept records of natural gas usage and showed the highest monthly 12-month rolling total gas usage rate at 38.6 MMCF usage for December 2018 in compliance with 340.834 MMCF permit limit. The monthly 12-month rolling total natural gas usage rate at the end of February 2019 was 38.5 MMCF and below the permit limit. Per PTI No. 135-11D special condition (FGHEATTREAT)(VI.2), the facility submitted summary sheet of monthly and 12 month rolling total natural gas usage rate as determined for each month.

FGQUENCH – this flexible group pertains to various heat treat systems with quench oil processes throughout the facility currently found in Department 6, 7, 8, & 10. Per PTI No. 135-11D special condition (FGQUENCH)(VI.1 & VI.2), the facility kept monthly records of tons of metals processed and monthly VOC mass emission rate. I also obtained data on monthly 12-month rolling total metal process rates and VOC emission rates, calculated using 0.51 lb. VOC/ton metal emission factor. Per PTI No. 135-11D special condition (FGQUENCH)(I.1), the facility reported the highest monthly 12-month rolling total VOC emission rate at 6.49 tpy for April 2018 and in compliance with 23.6 tpy permit limit. The VOC emission rate for February 2019 was 6.43 tpy. Per PTI No. 135-11D special condition (FGQUENCH)(II.1), the highest monthly 12-month rolling total processed metals were reported for April 2018 at 27,634 tpy and in compliance with 92,500 tpy permit limit.

FGFACILITY – this flexible group pertains to facility wide restrictions such as Hazardous Air Pollutant (HAP) and natural gas usage restrictions to opt out the facility from the ROP. The restriction on gas usage will limit NOx emissions to below threshold. Per PTI No. 135-11D special condition (FGFACILITY)(VI.2), the facility kept overall monthly records and monthly 12-month rolling total natural gas usage records. Per PTI No. 135-11D special condition (FGFACILITY)(VI.3), the facility kept individual and aggregate HAP(s) monthly and monthly 12-month rolling total records. Per PTI No. 135-11D special condition (FGFACILITY)(VI.4), the NOx emission rates were calculated using the emission factors provided in the permit condition. Per PTI No. 135-11D special condition (FGFACILITY)(I.3), the highest NOx monthly 12-month rolling total emission rate as reported from FY2018 through

February 2018, showed in November 2018 at 46 tpy and below the 98.7 tpy permit limit. Per PTI No. 135-11D special condition (FGFACILITY)(I.1), the highest monthly 12-month rolling total individual HAP records showed for Glycol Ether in April 2018 at 0.121 tpy and below the 10 tpy permit limit. Per PTI No. 135-11D special condition (FGFACILITY)(I.2), the highest monthly 12-month rolling total combined HAPs was calculated for April 2018 at 1.79 tpy and less than the 25 tpy permit limit. Per PTI No. 135-11D special condition (FGFACILITY)(II.1), the highest monthly 12-month rolling total natural gas usage was reported for November 2018 at 607 MMCF/12 months and in compliance with the 1,400 MMCF/12 months permit limit.

**EMERGENCY GENERATORS** - The facility operates 8 reciprocating internal combustion engines (RICE) classified into 5 emergency generators: Generac 1, 2, & 3, Hospital Generator, and Guard Shack Generator; and 3 fire pumps: Fire Pump 2, 3, & 4. Mr. Albright submitted the attached table of the engines showing less than 500 Hp each and subject to the RICE Maximum Achievable Control Technology (MACT) standards, 40 CFR Part 63 Subpart ZZZZ. For some of the newer engines, the requirements to comply with Subpart ZZZZ reverted back to complying with the applicable requirements of the compression ignition (CI) New Source Performance Standards (NSPS), 40 CFR Part 60 Subpart IIII or spark ignition (SI) NSPS 40 CFR Part 60 Subpart JJJJ. The facility submitted records showing that one diesel fired engine is subject to NSPS Subpart IIII and three natural gas fired engines are subject to NSPS Subpart JJJJ. All the engines are exempt from the NSPS initial notification requirements due to the facility being an area source for HAPs (synthetic minor/opt-out facility).

During inspection, I obtained records of monthly engine hours of operation, non-resettable hour meter readings, emergency and non-emergency hours of operation, monthly 12-month rolling total hours of operation including emergency and non-emergency hours, engine tune-ups – oil/filter changes, inspections of hoses/fittings, etc. Submitted records showed no engine exceeded 50 hours of monthly 12-month rolling total operating hours. During walk-through inspection, we conducted walk-through inspection at Fire Pump 2 and 3 and observed the following: hour-meter at 181.7 hours and 780.4 hours respectively with a filter change date of 08/06/2018 for both pumps. Facility submitted records that showed filter/oil changes for the following engines: Guard Shack-10/18/2018, Hospital-10/18/2018, Generac 1 & 2-5/10/2018; and maintenance conducted on Fire Pumps 2, 3, & 4-8/07/2018. The facility submitted additional data I requested such as pictures of engines showing unresettable hour meter readings. The above records are in compliance with MACT Part 63 Subpart ZZZZ, NSPS Part 60 Subparts IIII and JJJJ applicable requirements.

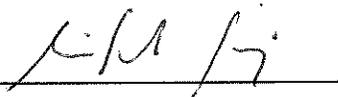
**MAINTENANCE SPRAYBOOTH** - The maintenance spray booth is located in the Fabrication Shop area along with the Carpentry Shop. During walk-through inspection, I observed the booth has filters in place and I did not observe gaps in between filters. The facility kept monthly coatings usage records that showed 24.7 gallons of coating usage for FY 2018. This usage showed compliance with the 200 gallons/month limit for the AQD Administrative Rule R 336.1287(2)(c) permit to

install requirement exemption. At the Carpentry Shop, I observed the equipment ducted into Torit dust collectors and exhausted indoors.

COLDCLEANERS - The facility has several coldcleaners/parts washers (safety kleen) located at different locations within the facility and exempt from permit to install requirements per AQD Administrative Rule R 336.1201(2) (Rule 201(2)) pursuant to Rule 278 and Rule 281(2)(h) or Rule 285(2)(r)(iv). I inspected a few parts washers (Area B Maintenance and Powerhouse Building) and observed covers were closed and safety instructions were posted at or near the equipment. The facility keeps records of parts washers in service, installation dates, air/vapor interface area, and reid vapor pressures. None of the coldcleaners/parts washers use halogenated solvents.

Overall, I did not observe any noncompliance issues during the inspection.

NAME



DATE

4/24/2019

SUPERVISOR

