

A8650  
MAY 12

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

A865036387

FACILITY: FORD MOTOR CO/ WAYNE COMPLEX		SRN / ID: A8650
LOCATION: 37625 MICHIGAN AVE, WAYNE		DISTRICT: Detroit
CITY: WAYNE		COUNTY: WAYNE
CONTACT: John Nowak , Environmental Representative		ACTIVITY DATE: 08/10/2016
STAFF: Stephen Weis	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Compliance inspection of the Ford Motor Company Wayne Assembly complex facility in Wayne. The Ford Wayne facility is scheduled for inspection in FY 2016.		
RESOLVED COMPLAINTS:		

**Location:**

Ford Motor Company  
Michigan Assembly Plant (A8650)  
38303 Michigan Avenue  
Wayne 48184

**Date of Activity:**

Wednesday, August 10, 2016

**Personnel Present:**

Steve Weis, DEQ-AQD Detroit Office  
John Nowak, Environmental Control Engineer, Ford Motor Company – Michigan Assembly Plant  
Mark Wherrett, Principal Environmental Engineer, Ford Motor Company

**Purpose of Activity**

A self-initiated inspection of the Ford Motor Company Michigan Assembly Plant facility (hereinafter "Ford Michigan") was conducted on Wednesday, August 10, 2016. The Ford Michigan facility was on my list of sources targeted for an inspection during FY 2016. The purpose of this inspection was to determine compliance of operations at the Ford Michigan 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-A8650-2010, which is in the process of being renewed, as well as Permit to Install (PTI) No. 139-15, which was issued in the time since the ROP became effective.

**Facility Site Description**

The Ford Michigan facility is located in the City of Wayne. The facility property stretches along the south side of Michigan Avenue starting just east of John Hix Road, extending east approximately 1.25 miles to the CSX railroad right-of-way just west of downtown Wayne. The assembly portion of the facility fills up the area between Michigan Avenue and the Norfolk Southern railroad right-of-way to the south. There is also a stamping portion of the facility that is contiguous to the assembly portion; it is located to the south of the Norfolk Southern railroad right-of-way, and to the east of Cogswell Road extending south to Van Born Road. According to Ford Motor Company's website, the Ford Michigan facility is a 369 acre site, and the current building/plant size is 5,000,000 square feet.

The area surrounding the facility is largely residential - there is a small residential area directly to the west of the facility; the more densely populated portions of the City of Wayne to the east and southeast of the facility; and residential areas approximately ¼ mile to the north of the facility. Areas along Michigan Avenue and to the south of the facility are a mix of commercial and industrial properties.

A facility map is attached to this report that shows the footprint of the Ford Michigan facility, including its location relative to Wayne.

**Facility Operations**

The Ford Michigan facility first began operating in 1952 with the opening of the Ford Wayne Stamping and Assembly Plant. Starting in 1957, the Ford Michigan facility became a complex that consisted of two assembly plants – Wayne Assembly and Michigan Truck - and a stamping plant. The Michigan Truck Plant, which was located on the western part of the assembly portion of the facility, assembled vehicles ranging from the Bronco to the Expedition and Lincoln Navigator. The Wayne Assembly Plant, which is located to the east of the Michigan Truck building, produced vehicles ranging from various full-size Ford and Mercury sedans in the early years of the facility to the Ford Escort, which was eventually replaced by the Focus.

The Wayne Assembly portion of the facility idled vehicle production on December 3, 2010. The Michigan Truck portion of the facility, which had been previously idled in late 2008, was upgraded and reconfigured to allow for the production of the Focus, as well as the new C-Max hybrid vehicle. Michigan Truck, now renamed Michigan Assembly, recommenced operations during the 2011 calendar year, with the first saleable job produced on February 3, 2011. All of the assembly and coating operations/emission units associated with the Wayne Assembly portion of the facility have been permanently removed from the facility, and aside from some parts sequencing and a small sub-assembly operation, both occurring at the far west end of the Wayne Assembly building, the building is empty.

The Ford Michigan facility currently consists of the Michigan Assembly Plant, which is still currently producing the Ford Focus and C-Max hybrid line of vehicles; the Wayne Stamping Plant, where body components are stamped and assembled prior to being moved to Michigan Assembly for painting and final assembly; the building that formerly contained the Wayne Assembly operations, which is currently being used to sequence parts prior to assembly, as well as to perform sub-assembly operations for Ford vehicles that are produced in other facilities; and the powerhouse, which contains boilers to provide steam and heat for the facility.

From the perspective of air quality regulations, the Wayne Stamping portion of the facility involves processes and equipment that is exempt from DEQ-AQD permitting requirements; this portion of the facility involves equipment that stamps metal into automobile body components (exempt per the provisions of Administrative Rule 285(l)(i)), and assembles the stamped body components, which includes welding (exempt per Rule 285 (i)). Similarly, the activities and processes taking place in the former Wayne Assembly building are also exempt from DEQ-AQD permitting requirements. However, the Wayne Stamping and Wayne Assembly portions of the facility were recently permitted – Permit to Install No. 139-15 was issued for the purpose of addressing and limiting natural gas usage for these two buildings.

The processes and emission units associated with the Michigan Assembly Plant portion of the facility and the powerhouse are subject to a variety of air quality regulations, and are addressed in the facility's permits. The following is a listing of the process equipment that is included in the Ford Michigan facility's current DEQ-AQD permits:

- EU-PHOSPHATE – a series of rinse, dip and spray wash tanks to pretreat the vehicle body surface prior to E-coat. The wash tanks are heated by two phosphate boilers, each rated at 16.75 MMBTU/hr.
- EU-ECOAT – a prime coat operation that applies the coating in an electrodeposition tank, which is followed by a curing oven and a dry scuff filter booth. Emissions from EU-ECOAT are controlled by a regenerative thermal oxidizer.
- EU-SEALERS – booths and work stations in which various sealers are applied to the vehicle bodies, followed by a curing oven.
- EU-GUIDECOAT – paint booths/coating lines that involve the manual and automatic application of guidecoat material (anti-chip, exterior primer surfacer, and door frame and pillar blackout. Emissions from the guidecoat area are vented to carbon concentrators followed by a regenerative thermal oxidizer.
- EU-TOPCOAT – paint booth/coating lines that involve the manual and automatic topcoat spray application and curing conducted in two parallel topcoat spray booths (Nos. 1 and 2) followed by two parallel topcoat ovens (Nos. 1 and 2) and a single dry filter topcoat scuff booth. This operation may be conducted either as a stand-alone topcoat operation or in conjunction with EU-Guidecoat in a 3-Wet (Topcoat) booths. Emissions from the topcoat booths are vented to carbon concentrators followed by a regenerative thermal oxidizer, and emissions from the topcoat ovens are vented to a regenerative thermal oxidizer.

- EU-MISCCOAT – miscellaneous coating operations that include black out and cavity wax, glass installation and final repair. Dry filter particulate controls are in place on the spray booth portions of this equipment.
- EU-PURGE&CLEAN – this emission unit covers the solvents used to clean and purge the paint system and Ford Michigan. The emission unit also includes a solvent recovery system to recover solvents used in the purging of the automatic paint spray applicators. Usage of clean-up solvents in the controlled portions of the coating lines is controlled by those coating line's associated emission control equipment.
- EU-BOILER#1, EU-BOILER#2, EU-BOILER#3, EU-FHBOILER – boilers used at the facility to provide steam and heat. Boilers 1-3 are located in the facility's boiler house, and they are capable of firing natural gas or landfill gas. The other boiler is referred to as the filterhouse boiler.
- EU-ISAFP#1WEST EU-ISAFP#2EAST, EU-WAPDIESEL, EU-FIREPUMP#1, EU-FIREPUMP#2 – diesel-fired emergency fire pumps.

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 marking ink application process that is exempt from permitting per the provisions of Administrative Rule 287(c), and is included in the FGRULE287(c) Flexible Group; and processes that are exempt from permitting per the provisions of Administrative Rule 290 that are included in the FGRULE290 Flexible Group.

### Inspection Narrative

I arrived at the facility at 10:20am. I was met by John Nowak at the main entrance to the office portion of the facility, and we proceeded to his office where we were joined by Mark Wherrett. It was decided that we begin my site visit by touring and walking through the facility, and obtaining paint samples for analysis.

We started by touring the former Wayne Assembly building. The westernmost part of the building is currently being used to store and sequence parts, and to store parts racks. In addition, there is a small sub-assembly operation that involves some welding in which body components for vehicles at other Ford facilities are assembled. These include body components for the Ford F-Series pick-up trucks, the Fusion and the Escape. The remainder of this building is empty. I was shown the location of some of the former coating lines that operated at the former Wayne Assembly Plant; all of the equipment has been removed, with only the building and floor slab left.

We then proceeded to the Michigan Assembly Plant portion of the facility, and went to the paint kitchen to get some paint samples. I chose to sample the combination of base, prime and clearcoat that is applied the most at the facility. The paint samples were taken by staff from the facility's paint shop at 10:51am, and I affixed identifying labels to the three sample bottles. We left the samples in the paint kitchen, and started to walk through the remainder of the facility.

The Michigan Assembly portion of the facility was in idle mode during the time of my site visit, so I did not observe the coating and final assembly emission units in operation on this occasion. We toured the facility by following the process in order. We started by visiting the phosphate wash process. Vehicle bodies enter the phosphate system from the body shop. The phosphate line follows a horseshoe pattern. The process consists of a wash portion, in which chips and shavings are washed from the vehicle body, and an etch and rinse portion, in which the vehicle body is etched to prepare it for e-coating.

We then walked along the e-coat line. The e-coat line consists of dip, drain and rinse tanks, and a cure oven. While in this area, we observed one of the regenerative thermal oxidizer control panels, and John pointed out that the equipment had recently been calibrated. There was a tag affixed to the control panel that indicated that the calibration had been completed on July 8, 2016. After the site visit, John sent me an e-mail that contained a pdf copy of the certificates of calibration for the RTOs; a copy of these reports is attached to this report for reference.

The next stop was the sealer line. Sealer is applied to the vehicle bodies for noise abatement and to prevent water entrainment/leaks in the finished vehicle, focusing on weld spots and the floor pans. The sealer is initially applied manually in two lines – the first seals seams, and the second seals the underbody. The final phase of sealer application is applied in a robotic zone, where more additional sealer is applied to seams and the underbody. The vehicles pass through a sealer gel oven, in which the vehicles are heated to allow some of the

sealers harden, and the others to soften so that it can spread and further fill in gaps and voids around seals.

I was told that after the sealer oven, the vehicle bodies are directed to the second floor. Here, there is an e-coat inspection and scuff line to prepare the vehicle bodies for color coating. The vehicles pass through the old prime booth and prime ovens, which are no longer in operation, and enter the "3 wet", or "3 coat" line – here, the vehicle bodies are coated with prime coat, enamel (or base coat) and clearcoat.

I was told that the different coatings in the 3 coat system are applied robotically, with manual zones as back-up. There are two 3 coat coating application lines, referred to as Enamel #1 and Enamel #2. Both lines are horseshoe-shaped, with the vehicle bodies being directed along the coating line to receive prime, base and clearcoat. After the three coatings are applied, the vehicle body enters a curing oven to set the coatings; each Enamel line has an associated curing oven. We entered the booths, and I was shown the purge holes on the coating applicators; these are used to drain purge solvent when it is run through the paint lines and coating applicators for cleaning. I was told that the purges are done when there is a change in color, after so much usage of the coating system, or after so much idle time has passed.

We observed the control panels for the regenerative thermal oxidizer for each of the ovens. Both RTO control panels were affixed with a sticker showing that the instruments were calibrated on July 8 2016.

We left the building, and walked outside to observe the paint sludge recovery pits that are located at the north end of the Michigan Assembly building. At the time of my visit, the pits were being cleaned; this cleaning is done roughly every 2 years. I was told that 100-110 tons of sludge would be removed from the pits during the cleaning process, which typically takes a few days. The collected sludge is sent to a Covanta facility in Indianapolis, IN where it is incinerated.

We returned to the paint kitchen to retrieve the coating samples, and we proceeded back to John's office to begin the records and permit review. We arrived back at John's office at 12:20pm, and I placed the coating samples in the cooler that I brought, placing ice packs around them to keep the samples cool.

Mark and John discussed the recordkeeping program that is used by the facility. The Plant Emissions Reporting System, or PERS, is a Ford database that captures and records information including material usage, parts/vehicles produced, and emissions. I was told that each month, the environmental staff receives production data that includes hours of operation and vehicles produced; this information is entered into PERS.

John and Mark then described how records are maintained for the various processes and emission units at the facility.

- For final repair operations, the operator keeps records of the number of vehicles/units that are repaired on a daily basis.
- Natural gas usage at the facility is broken down and recorded on an individual gas meter basis. There is least one gas meter in each area of the plant. The natural gas usage is recorded on a monthly basis, and quarterly summaries of natural gas usage are compiled and submitted to DEQ-AQD.
- For E-coat usage, the supplier of the e-coat, Axalta, tracks the resin, pigment and FCA usage each day that the E-coat line operates. A summary is sent to Ford's environmental staff each month.
- Similarly, the usage of body shop sealers and windshield sealants, as well as paint shop sealers, is tracked daily, and reported monthly.
- For solvent usage, Gage Products supplies all of the solvents used at the Ford Michigan facility. Gage has someone on site daily that monitors cutting, line and purge solvent usage. Gage also monitors the amount of spent solvent that is reclaimed. The information provided by Gage is entered into and tracked by Ford's PERS database.
- Paint usage is tracked in a variety of ways. Paint pour sheets are kept to track the day to day usage of paint, as well as "cutting" solvents. Each of the paint tanks is monitored in terms of usage of paint and solvents. The start and end levels of the tank are monitored and recorded, and the difference between the start and end level, also factoring in any pours, equals the amount of paint used. John receives a monthly sheet for each paint tank that summarizes the amount of paint used, and this information is entered in PERS.

Axalta supplies the prime, base and clearcoats for the facility. They supply a Certificate of Analysis to Ford monthly that provides the properties of the materials that were poured into the paint tanks during that month. John combines this information with the paint usage information that he has to calculate the monthly VOC and HAP emission estimates.

- We looked at some of the regenerative thermal oxidizer (RTO) chart recorders. I was provided with a copy of the RTO Operation and Maintenance (O&M) Control Plan, and the 2015 RTO Calibration Reports. I was told that the yearly preventative maintenance is performed on the RTOs. Valve checks and valve timing reports are performed every 6 months.

Inside of the paint booths, the exhaust filters are inspected every week, and the booth wash water is also inspected weekly.

- For the diesel-fired engines, John showed me binders that are kept for all of the engines at the facility. The binder contains information that includes logs of the hours of operation, and a description of the reason that the engine was run (i.e. emergency usage, maintenance or readiness checks).
- For the FG-Rule 290 Flexible Group, there is currently no equipment at the facility that is utilizing this exemption. For FG-Rule 287(c), the facility's general store tracks the usage of materials such as printing inks that are used at the body shop. This information is kept by John in a binder.
- For FG-ColdCleaners, records of the location, model, serial number, date of installation/removal, capacity, solvent type used (along with Reid vapor pressure of the material), air/vapor interface, and weekly inspection list for each cold cleaner that is used at the facility are kept in a binder that is monitored by Ford environmental staff. I was told that all of the cold cleaners are affixed with an orange sticker that lists the instructions for proper operating of the equipment.

After some closing discussion, I left the facility at 2:35pm, and I headed straight for the Advanced Technologies of Michigan, Inc. laboratory in Livonia to drop off the paint samples that were taken at the beginning of the site visit for analysis; the paint samples were dropped off at 3pm.

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

#### **Permits**

The Ford Michigan facility currently has a ROP and an active DEQ-AQD Permit to Install (PTI).

The facility submits extensive records, including material usage and emissions calculations, as part of their semi-annual and annual Renewable Operating Permit Report Certifications, as well as the quarterly submittals that summarize monthly emission reports for VOC and particulate matter. These records are used to verify the throughput and emissions information submitted as part of the facility's MAERS submittal, and is also used to demonstrate the facility's compliance with permit limits. The following is a summary of Ford Michigan's compliance with their permits.

#### **ROP No. MI-ROP-A8650-2010/MI-ROP-A8650-2016 (proposed)**

ROP No. MI-ROP-A8650-2010 was issued to the Ford Michigan facility with an effective date of September 1, 2010. This ROP contains two sections – Section 1 addresses the operations at the Wayne Assembly and Stamping Plant, and Section 2 addresses the operations at the Michigan Assembly Plant. As mentioned earlier in this report, operations at the Wayne Assembly Plant portion of the facility ceased on December 3, 2010, and the vehicle assembly and coating operations/emission units in Section 1 of the ROP have been permanently removed from the facility. The MAERS submittals for the Ford Michigan facility have shown no material throughputs or emissions for all of the submittals beginning with 2011. The coating-related Emission Units in Section 1 of this ROP – EU-PHOSPHATE, EU-ECOAT, EU-SEALERS, EU-GUIDECOAT, EU-TOPCOAT, EU-MISCCOAT, EU-PURGE&CLEAN – are no longer in operation and have been permanently removed from the facility. In addition, the landfill gas powered electric generators (EU-C10526, EU-C10527 and EU-C10528) have been removed from the facility. In the ROP renewal application, Ford removed all of Section 1.

As of the writing of this report, the ROP renewal for the facility, MI-ROP-A8650-2016, has been finalized; it has been reviewed and drafted, and has gone through all of the required comment periods. During the site visit and compliance review that is the subject of this report, I checked the facility's compliance against the ROP that was in place at the time, MI-ROP-A8650-2010, while also considering the content of the ROP renewal, which was

then in the proposed phase. The equipment that was identified in the proposed ROP (now the final renewed ROP), and the associated requirements, represent the current operations at the facility, and the regulatory requirements represent what the facility should be complying with going forward. An exception to this logic would be a future applicable requirement, of which there are none in the new ROP. The emission units that are included as part of the renewed ROP, when compared to those in the existing ROP, indicates which processes/emission units are no longer in operation at the Ford Michigan facility.

The following paragraphs provide a description of the Ford Michigan facility's compliance with the terms and conditions put forth by the ROP, with the headings representing the sections of the ROP. For the ROP, many of the requirements that used to be found in the Emission Unit tables are now found in the various Flexible Group tables. This was done in both the ROP that was current at the time of my site visit and the ROP renewal in an effort to group the like requirements of the Federal regulations that the various emission units that make up the automotive coating operation at the Ford Michigan facility are subject to, as well as to consider the common control equipment that serves multiple emission units.

### **Source-Wide Conditions**

There are no requirements in the Source-Wide conditions section of this ROP. There is a Flexible Group, FG-Facility, that puts forth some source/facility-wide requirements.

*\*\* All of the Emission Units and Flexible Groups evaluated in the pages that follow are in Section 2 of ROP No. MI-ROP-A8650-2010, with the exception of FG-Powerhouse, which is in Section 1 of this ROP.*

### **FG-Powerhouse**

This Flexible Group includes the three boilers identified as EU-BOILER#1, EU-BOILER#2 and EU-BOILER#3, and the three landfill gas-fired generators. The generators are no longer in operation, and have been removed from the facility.

In MI-ROP-A8650-2016, these three boilers are included in FG-POWERHOUSE, which contains the same emission limits and material limit restrictions as those found in MI-ROP-A8650-2010. These three boilers are also included in the FG-BOILERMACT Flexible Group in the renewed ROP, joining the two phosphate line boilers and the filterhouse boiler as units that are now subject to the requirements of 40 CFR Part 63, Subpart DDDDD (National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters).

### I. Emission Limits, II. Material Limits

The quarterly submittals that Ford Michigan sends to the AQD-Detroit Office include monthly tabulations of the hours of operation of the boilers, the natural gas throughput, the landfill gas throughput, and emission estimates for NO<sub>x</sub>, CO and SO<sub>2</sub> in lb/MMBTU\*hour and average pounds per hour for each month. This information is prorated to average an average hourly value for comparison to the limits in the permit. The reported values are well below and **in compliance** with the permitted levels.

### III. Process/Operational Restrictions

The facility is in compliance with III.1, as only natural gas or landfill gas is fired in the three boilers. III.2 no longer needs to be evaluated, as the landfill gas engines have been removed.

### VI. Monitoring/Recordkeeping

As referenced in the Emission/Material Limits discussion, the facility keeps the required records **in compliance** with the requirement of condition VI.1.

### VII. Reporting

The facility submits all of the required reports.

### 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, and it is assumed that the stack information provided in the ROP application, and appearing in the ROP, is accurate.

#### IX. Other Requirements

The facility is **in compliance** with the conditions in this section. There have not been any odor complaints related to the engines in the powerhouse, so condition IX.1 has not had to be implemented. The facility has had a landfill gas analysis performed to ensure that the landfill gas has not experienced an increase in contaminant species in accordance with condition IX.2. Condition IX.3 is not valid as the landfill engines are no longer in operation.

#### **EU-PHOSPHATE**

This Emission Unit represents the process through which vehicle surfaces are pretreated prior to e-coating.

There are no emission or material limits associated with this Emission Unit table.

Special Condition III.1 requires that the heat input capacity of each of the hot water heaters (also known as the phosphate boilers, Phosphate #1 and Phosphate #2) not exceed 99.9 MMBTU/hour. The rated capacity of each boiler is 16.75 MMBTU/hour, so the boilers are **compliant** with this requirement.

The only other permit conditions relate to reporting requirements, which the facility is complying with, and stack parameters. The stack parameters were not verified during this site visit. It is assumed that the stack parameters that were included in the ROP renewal application, and which appear in the permit, are accurate.

#### **EU-ECOAT**

This Emission Unit represents the e-coat prime coat operations, which include the electrodeposition tanks, curing oven and dry filter scuff booth. Air emissions from the operation of this process equipment are controlled by a regenerative thermal oxidizer (RTO#1) and dry filter particulate controls on the scuff booth.

There are no emission or material limits associated with this Emission Unit table.

#### IV. Design/Equipment Parameters

During the inspection, I was shown records from the chart recorders for the RTOs used at the facility. It was demonstrated how the three hour average temperature is monitored against the 1400°F requirement, and I was told how the temperature monitoring system communicates temperature issues. (IV.1)

In accordance with conditions VI.2 and VI.3 in FG-FACILITY, the particulate control filters in the scuff booth are inspected weekly and records are kept of the inspections (IV.2). **Compliance** with both of the conditions in this section.

#### V. Testing/Sampling

The e-coat material is analyzed by the supplier, Axalta. They analyze the material for VOC content, the physical properties of the resin, pigment and additives on a daily basis, and provide this information the facility environmental staff for tracking. I was provided with a copy of this information for May 2016. **Compliance**.

The facility is complying with the reporting requirements in this section, and while the stack dimensions were not verified, it is assumed that the stack parameters that were included in the ROP renewal application, and which appear in the permit, are accurate.

#### **EU-SEALERS**

This Emission Unit represents the various sealers that are applied to the vehicle bodies. The vehicle bodies pass through a sealer curing oven to cure the applied sealers.

There are no emission or material limits associated with this Emission Unit table.

#### V. Testing/Sampling

The facility tracks the VOC content of the sealers; this information is used to calculate the monthly VOC emissions. **Compliance**.

The facility is complying with the reporting requirements in this section, and while the stack dimensions were not

verified, it is assumed that the stack parameters that were included in the ROP renewal application, and which appear in the permit, are accurate.

#### **EU-GUIDECOAT**

This Emission Unit represents the guide/prime coat application, which operates as part of the "3-Wet" system. Emissions are vented to carbon concentrators followed by one of the RTOs; the automatic sections of the guidecoat booth are controlled by RTO#3, and emissions from the curing oven are controlled by RTO#2.

There are no emission or material limits associated with this Emission Unit table.

#### IV. Design/Equipment Parameters

During the inspection, I was shown records from the chart recorders for the RTOs used at the facility. It was demonstrated how the three hour average temperature is monitored against the 1400°F requirement, and I was told how the temperature monitoring system communicates temperature issues. (IV.1)

In accordance with conditions VI.2 and VI.3 in FG-FACILITY, the water wash particulate control system in the paint booth is inspected weekly and records are kept of the inspections (IV.2). The facility is **in compliance** with both of the conditions in this section.

#### V. Testing/Sampling

The facility tracks the VOC content and physical properties of the coatings used in this emission unit. (V.1) The supplier of the coatings, Axalta, supplies a Certificate of Analysis to facility environmental staff on a monthly basis. **Compliance.**

Regarding the requirement to test the transfer efficiency and capture efficiency of the coating lines, the last such test was performed in April 2011. This was done after the coating lines were reconfigured to the "3 wet" system. The coating line has not changed since these tests were last performed. The facility is considered **compliant** with the requirements of conditions V.2 and 3 at this time.

The facility is complying with the reporting requirements in this section, and while the stack dimensions were not verified, it is assumed that the stack parameters that were included in the ROP renewal application, and which appear in the permit, are accurate.

#### **EU-TOPCOAT**

This Emission Unit represents the two topcoat spray application lines, associated curing ovens and single dry filter topcoat scuff booth. Emissions are vented to carbon concentrators followed by one of the RTOs; the automatic sections of topcoat booth #1 are controlled by RTO#3; the automatic sections of topcoat booth #21 are controlled by RTO#4, and emissions from the oven are controlled by RTO#2.

There are no emission or material limits associated with this Emission Unit table.

#### IV. Design/Equipment Parameters

During the inspection, I was shown records from the chart recorders for the RTOs used at the facility. It was demonstrated how the three hour average temperature is monitored against the 1400°F requirement, and I was told how the temperature monitoring system communicates temperature issues. (IV.1)

In accordance with conditions VI.2 and VI.3 in FG-FACILITY, the water wash particulate control system in the topcoat booths is inspected weekly and records are kept of the inspections (IV.2). The facility is **in compliance** with both of the conditions in this section.

#### V. Testing/Sampling

The facility tracks the VOC content and physical properties of the coatings used in this emission unit. (V.1) The supplier of the coatings, Axalta, supplies a Certificate of Analysis to facility environmental staff on a monthly basis. **Compliance.**

Regarding the requirement to test the transfer efficiency and capture efficiency of the coating lines, the last such test was performed in April 2011. This was done after the coating lines were reconfigured to the "3 wet"

system. The coating line has not changed since these tests were last performed. The facility is considered **compliant** with the requirements of conditions V.2 and 3 at this time.

#### VI. Monitoring/Recordkeeping, IX. Other Requirements

The facility tracks the formaldehyde content of all of the coatings that are used at the facility. A copy of the summary titled "MAP 2016-2017 Color Palette – Formaldehyde Content" was provided to me, and is attached to this report for reference. (VI.1) The facility and their coating supplier track the formaldehyde content to ensure that it satisfies the requirements and restrictions put forth in IX.1. **Compliance.**

The facility is complying with the reporting requirements in this section, and while the stack dimensions were not verified, it is assumed that the stack parameters that were included in the ROP renewal application, and which appear in the permit, are accurate.

#### **EU-MISCCOAT**

This Emission Unit represents miscellaneous coating operations including black out and cavity wax, glass installation and final repair. The spray booth portions of this Emission Unit are equipped with dry filter particulate controls.

There are no emission or material limits associated with this Emission Unit table.

#### IV. Design/Equipment Parameters

In accordance with conditions VI.2 and VI.3 in FG-FACILITY, the dry filters are inspected weekly and records are kept of the inspections (IV.1). **Compliance.**

#### V. Testing/Sampling

The facility tracks the VOC content and physical properties of the coatings used in this emission unit. (V.1) The supplier of the coatings, Axalta, supplies a Certificate of Analysis to facility environmental staff on a monthly basis. **Compliance.**

The facility is complying with the reporting requirements in this section, and while the stack dimensions were not verified, it is assumed that the stack parameters that were included in the ROP renewal application, and which appear in the permit, are accurate.

#### **EU-PURGE&CLEAN**

This Emission Unit represents the system for handling the solvents used for the cleanup and purge of the facility's paint systems. VOC emissions in the controlled portions of the coating lines are sent to the emissions control for that portion of the process.

There are no emission or material limits associated with this Emission Unit table.

#### V. Testing/Sampling

Gage Products supplies all of the solvents that are used at the Ford Michigan facility. Gage tracks solvent usage and reclaim/recovery, and provides Ford with the physical properties of the material (V.1) **Compliance.**

The facility is complying with the reporting requirements in this section.

#### **EU-SLUDGEDRYER**

This Emission Unit is no longer in operation. This equipment was not included in the ROP renewal application, and is thus not included as part of the renewed ROP.

#### **FGFACILITY**

This Flexible Group includes all of the Emission Units and Flexible Groups that are associated with the automotive assembly and coating operations at the Ford Michigan facility, as well as their associated emissions control equipment.

### I. Emission Limits

The permit includes facility-wide VOC and PM-10 emission limits that are to be calculated on a 12 month rolling time period basis for the vehicle assembly and coating operations in the Michigan Assembly building. There is a VOC and PM-10 emission limits in tons per year, and a VOC emission limit on a pounds of VOC per job/vehicle basis.

The facility tracks throughput and emissions data in their internal system (PERS). Ford submits quarterly reports to DEQ-AQD that provide monthly emission calculations for VOC and PM-10 for the months in that calendar quarter. The report for the 2<sup>nd</sup> calendar quarter of 2016 was received in the AQD-Detroit Office on July 25, 2016. This report indicates that for June 2016, the 12 month rolling emissions were 278.37 tons of VOC (vs. the permit limit of 903 tpy), 2.42 pounds of VOC per job (vs. the permit limit of 4.8), and 4.61 tons of PM-10 (vs. the permit limit of 32.45 tpy). The facility is **in compliance** with these emission limits.

### II. Material Limits

The permit includes a natural gas usage limit for vehicle assembly and coating operations in the Michigan Assembly building. The facility also includes natural gas usage information in the quarterly reports that are submitted to DEQ-AQD. The report for the 2<sup>nd</sup> quarter of 2016 shows that the 12 month rolling time period natural gas usage for June 2016 is 417.99 MMCF, well below the permitted limit of 793.18 MMCF. **Compliance.**

### IV. Design/Equipment Parameters

The facility is **in compliance** with condition 1; all of the coating spray booths are equipped with particulate controls.

### V. Testing/Sampling

The facility is **in compliance** with the PM-10 testing requirement. The test was performed on October 19, 2011.

### VI. Monitoring/Recordkeeping

The facility is **in compliance** with the monitoring and recordkeeping requirements of this section. The quarterly report that is submitted on behalf of the facility contains all of the information required in condition VI.1a through g. A copy of the information that was submitted for June 2016, which is part of the submittal for the 2<sup>nd</sup> quarter of 2016, is attached for reference.

The facility tracks and keeps records of the weekly inspections of the particulate control systems for the paint booths (VI.2 and 3).

### VII. Reporting

The facility submitted all required certification and deviation reports, as well as the quarterly reports that provide monthly VOC and PM-10 emissions. **Compliance.**

### IX. Other Requirements

This section contains the Flexible Permit provisions for the assembly and painting operations. These requirements are triggered when the facility makes a change to the assembly and coating operations.

### **FG-CONTROLS**

This Flexible Group represents the carbon adsorption units and regenerative thermal oxidizers that are used to control the VOC emissions from the paint spray booths and the curing ovens associated with the automotive assembly and paint operations at the Michigan Assembly Plant.

There are no emission limits or material limits associated with this Flexible Group.

### III. Process/Operational Restrictions

The facility is **in compliance** with conditions III.1. A copy of the Michigan Assembly Plant Abatement System Operation and Maintenance Control Plan, referred to as the "O & M Plan" in the permit condition, is attached to this report for reference.

#### V. Testing/Sampling

The facility is **in compliance** with testing requirement in condition V.1. The test was performed in April 2011.

#### VI. Monitoring/Recordkeeping

The permit conditions in this section address the Compliance Assurance Monitoring (CAM) requirements for the control equipment. The facility is **in compliance** with these requirements. The RTOs are equipped with combustion chamber temperature monitoring devices (VI.1), and the carbon concentrators and the fluidized bed carbon concentrator are also equipped with properly installed temperature monitoring devices (VI.2 and VI.3). The fluidized bed carbon concentrator is equipped with a pressure drop monitoring device (VI.6). Data from this monitoring equipment is kept on file by the facility environmental staff.

The facility keeps records of control equipment maintenance and repair activities (VI.4). The facility records any operation during which the control equipment is bypassed, and facility environmental staff notifies DEQ-AQD District staff of bypass events (VI.5).

#### VII. Reporting

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

#### IX. Other Requirements

This section contains conditions related to CAM. The facility appears to be **complying** with the provisions of their CAM plan.

#### **FG-MACT**

This Flexible Group presents the requirements of 40 CFR Part 63, Subpart IIII (National Emission Standard for Hazardous Air Pollutants – Surface Coating of Automobiles and Light-Duty Trucks) as they apply to the topcoat operations occurring as part of the Michigan Assembly vehicle assembly and painting operations.

#### I. Emission Limits

This section of the Flexible Group presents the organic HAP emission limits put forth by Subpart IIII. The quarterly submittals that contain monthly emission reports for each calendar quarter also include monthly summaries of emissions relating to FG-MACT. The emissions report for June contains calculations for each of the emission limits presented by conditions I.1 through I.4 which demonstrates **compliance** with the emission limits. As a side note, the facility can comply with the higher organic HAP pounds per gallon applied coating solids (GACS) limit in 40 CFR 63.3901(b), 1.10 lbs per GACS, as the e-coat materials used in the coating process do not contain reportable HAPs. Also, the sealers/adhesives used do not contain HAPs, and there is no deadener usage.

#### II. Material Limits

There are no material limits in this Flexible Group.

#### III. Process/Operational Restrictions

The conditions in this section encompass the requirements of Subpart IIII to develop and implement work practice standards to minimize emissions of organic HAPs. For condition III.1-3, there are no specific items to check or records to keep. I discussed the condition with facility staff, and they told me how they handle and use HAP-containing materials, and the steps taken to minimize HAP emissions from these materials.

Regarding the other permit conditions in this section, the facility monitors operating parameters of the emission control equipment, and had implemented and maintains an operation and maintenance plan for the emissions control equipment. The facility should be **in compliance** with the requirements of this section.

#### V. Testing/Sampling

The facility has performed capture, destruction and transfer efficiency tests. The facility and their coating-related material suppliers test the materials used at the facility for HAP content; the HAP content has been determined for all of the coatings used in the Michigan Assembly Plant coating operations. **Compliance.**

## VI. Monitoring/Recordkeeping

All of the conditions in this section were not specifically reviewed. Some of them are assumed to be complied with due to the procedures in place and/or records kept by the facility. The facility met the requirements in the Testing/Sampling section, so should be compliant with VI.2. The facility maintains a parametric monitoring system for the emissions control equipment (VI.3), and keeps detailed records of material usage, emissions, and capture/transfer/destruction efficiency tests (VI.4 and VI.5). The operating parameters for the RTOs and carbon concentrators as designated in Subpart IIII are monitored to check compliance in accordance with the methods put forth in Table 1 of Subpart IIII.

## VII. Reporting

The facility is **complying** with the reporting requirements associated with this Flexible Group.

I will check with DEQ-AQD's Auto Specialist to ensure that the method by which the facility reports malfunctions of a control device are consistent with and meeting the requirements of 40 CFR 63.3120(c) and 40 CFR 63.10 (d).

### **FG-OLD**

This Flexible Group represents the organic liquid distribution (OLD) operation that was used to put fluids in the assembled vehicles. The OLD operation existed as part of the former Wayne Assembly Plant, where vehicle fluids were stored in large tanks and distributed for use in assembled vehicles. The equipment associated with this Flexible Group has been permanently removed from the facility, and this Flexible Group is not included in the new ROP (MI-ROP-A8650-2016).

For the Michigan Assembly operations, vehicle fluids are added to the vehicle right on the assembly line from 55 gallon drums.

### **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 FGCOLDCLEANER table. As discussed during the site visit, records of the location, model, serial number, date of installation/removal, capacity, solvent type used (along with Reid vapor pressure of the material), air/vapor interface, and weekly inspection list for each cold cleaner that is used at the facility are kept in a binder that is monitored by Ford environmental staff. I was told that all of the cold cleaners are affixed with an orange sticker that lists the instructions for proper operating of the equipment.

I was provided with some information relating to the cold cleaners in use at Ford Michigan during the site visit. This information consists of a list of all of the cold cleaners at the facility, and an inspection check list from August 3, 2016. I have attached this information to this report for reference.

### **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. The facility environmental staff maintains a binder that contains usage records for all of the materials that are subject to Rule 287(c). The materials currently consist of printing inks that are used in the body shop, a make up ink that is used to clean and coat the printing ink applicator head, and a structural adhesive that is used in the sub-assembly operation at the former Wayne Assembly building. I was provided with a copy of the records kept for each of these materials to demonstrate compliance with the Rule 287(c) exemption, which is attached to this report for reference.

As a side note, a check of online information about the Dow Betamate 6160 adhesive that is included as part of this Flexible Group shows that the material is used as a structural adhesive for aluminum applications; it is stated that this material is used to complement traditional fastening methods, such as welding and rivets, to bond aluminum. The attached records indicate that this material is used on the Ford F150/250, which are aluminum body vehicles. If this material is, indeed, an adhesive, it would seem that Rule 287(a) would be the more

appropriate exemption provision for the use of this material. 287(a) exempts adhesive coating lines that use less than 2 gallons per day. Based on the records kept by Ford, for some of the months, it appears that the usage on at least some of the days would have been in excess of 2 gallons per day. I will check with DEQ-AQD's auto specialist as to whether any similar materials have been included in the FG-RULE287(c) Flexible Group in other permits, particularly the permit for Ford Dearborn, where the F150/250 trucks are assembled.

#### **FGRULE290**

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

During the site visit, I was told that there are currently no emission units at the Ford Michigan facility that are utilizing the exemption criteria of Administrative Rule 290.

#### **Permit to Install No. 139-15**

This permit serves to create a Flexible Group (FG-WAYNEFACILITY) that addresses the natural gas usage for the former Wayne Assembly building and the Wayne Stamping portion of the facility, but excluding the gas usage associated with the powerhouse. This permit has been incorporated into MI-ROP-A8650-2016 with the inclusion of the FG-WAYNEFACILITY Flexible Group in the ROP.

The conditions of this permit include NOx and PM-10 emission limits, a natural gas usage limit, and monitoring and recordkeeping requirements.

The facility tracks natural gas usage around the site. I checked the supplemental information that was included with this year's MAERS submittal, and Calculation Sheet 3b provided that 125.51 MMCF of natural gas was used in 2015, NOx emissions were 6.2 tons, and PM-10 emissions were negligible. **Compliance.**

The facility monitors and records gas usage and emissions, as well as the weekly visual inspections of any particulate control systems in use as part of this Flexible Group. **Compliance.**

#### **Regulations**

##### **40 CFR Part 63, Subpart DDDDD**

As mentioned earlier in this report, six boilers at the Ford Michigan facility – Boiler #'s 1-3 in the powerhouse, the two phosphate line boilers, and the filterhouse boilers - are subject to the requirements of 40 CFR Part 63, Subpart DDDDD (National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters). There is now a Flexible Group in the facility's ROP, FG-BOILERMACT, that addresses the requirements of Subpart DDDDD. This Flexible Group was not evaluated during the site visit as it was part of a ROP that was still in its proposed stage.

Ford submitted a document titled "Notification of Compliance and Unit Tune-Up Compliance Report For Units Subject to Major Source Boiler MACT". This document summarizes the current compliance status of these boilers relative to the requirements of Subpart DDDDD. It includes information relating to the completion of the initial tune-up and the energy assessment that the boilers are required to complete. A copy of this information is attached to this report.

##### **40 CFR Part 63, Subpart ZZZZ**

There are some emergency fire pump engines at the Ford Michigan facility that are subject to the requirements of 40 CFR Part 63, Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines). These engines are included in MI-ROP-A8650-2016 in the FG-CIRICEMACT Flexible Group. These engines are identified as EU-ISAFP#1WEST, EU-ISAFG#2EAST, EU-WAPDIESEL, EU-FIREPUMP#1 and EU-FIREPUMP#2. All of these engines are identified as being installed prior to June 12, 2006, so they are not subject to the NSPS for diesel-fired engines, 40 CFR Part 60 Subpart IIII.

During the site visit, I was shown binders that the facility keeps for all of these engines. The binder is used to

track the hours of operation of the engines, and the reason that the engine was started.

### Compliance Determination

Based upon the results of the August 10, 2016 site visit, and a review of the facility's compliance records, the Ford Motor Company Wayne Assembly Plant appears to be **in compliance** with applicable rules and regulations, including with the terms and conditions of ROP No. MI-ROP-A8650-2010, and Permit to Install No. 97-13A.

### Attachments to this report:

- a facility location map;
- RTO calibration reports for 2015, and the completed reports for 2016;
- Summary sheet of coating formaldehyde content;
- June 2016 monthly summary report;
- The operation and maintenance plans for the emission controls;
- A listing of cold cleaners, and a copy of a cold cleaner checklist;
- Rule 287(c) data sheets;
- Notification of Compliance Report for the Boiler MACT;
- Information relating to the paint sample analysis, including material safety sheets for each of the coatings and sample results.

NAME

Steve Weis

DATE

9/30/16

SUPERVISOR

JK