DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

B276755426

FACILITY: FCA US LLC WARREN TRUCK ASSEMBLY PLANT		**SRN / ID:** B2767
LOCATION: 21500 Mound Road, WARREN		**DISTRICT:** Warren
CITY: WARREN		**COUNTY:** MACOMB
CONTACT:		**ACTIVITY DATE:** 07/30/2020
STAFF: Iranna Konanahalli	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: FY 2020 scheduled ROP CMS inspection of FCA US Chrysler's Warren Truck Assembly Plant		
RESOLVED COMPLAINTS:		

Warren Truck Assembly Plant (B2767)
a.k.a. Warren Dodge Truck Plant
FCA US, LLC
21500 Mound Road
Warren, Michigan 48091-4840

North American Industry Classification System (NAICS) Code: 336112 (SIC; 3711)

CAA Sec. 114(a): FCA received CAA Sec. 114(a) letter dated May 15, 2018. FCA (Mathew Read, Office of General Counsel) responded to this request on July 10, 2018, with an electronic document copies package (first installment) to Jillian Rountree, Esq. Regional Counsel, US EPA 5.

2015 ROP Renewal: Application No. 201500086 received on June 08, 2015

RO Permit Number: MI-ROP-B2767-2016, Effective December 6, 2016, Expires December 6, 2021. ROP Renewal Application is Due Between June 6, 2020 and June 6, 2021

Auto Protocol: "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light Duty Truck Topcoat Operations", EPA-450/3-88-018 or as amended. FCA US (Chrysler) follows the protocol procedures for both NSPS MM (2M: prime coat, guide coat [aka primer surfacer] and topcoat operations installed / modified after October 5, 1979; the LAER permits were issued in 1984) and RACT Rule 336.1610. While NSPS MM calculations may use NSPS Table values for Transfer Efficiency (Table TE: substantially higher (90s) than those TE values achieved in practice anywhere(60s)), Rule 610 and LAER calculations must use tested TE values according to the Protocol. TE values have impact on LAER & NSPS emissions rates because the emissions rates are expressed in pounds (kilograms) per gallon (liter) of coatings solids applied or deposited; in other words, solids overspray is accounted for in this type of emissions rate unit.

Consent Order (CO) No. 11-1984: AQD Chief Dennis M. Drake terminated CO on June 9, 2002. CO resolved excessive Particulate Matter (PM) emissions violation for Boiler Nos. 1 thru 5. **Settlement $10,000.00**. AQD Chief Robert P. Miller (Acting Richard Johns) executed the consent order on July 06, 1984. CO required Chrysler to permanently discontinue the use of Boiler Nos. 1 & 2. Regarding, Boiler Nos. 3 thru 5, Chrysler shall

obtain a permit with plans and specifications for PM control. While Boilers Nos. 3 (125,000 pounds of 150-psig saturated steam per hour, 500 SCF NG per hour, 2 burners), 4 (80,000 pound of 150-psig saturated steam per hour, 250 SCF NG per hour, 1 burner), and 5 (125,000 pounds of 150-psig saturated steam per hour, 500 SCF NG per hour, 2 burners) were installed at WTAP before June 19, 1984 and converted to natural gas, Boiler #6 (150,000 pounds of 150-psig saturated steam per hour, 1500 SCF NG per hour, 2 burners) was relocated from Chrysler's Detroit Forge plant and converted to natural gas. The conversion was a part of particulate matter emission control. All conversions to natural gas from coal occurred pursuant to Rule 285 in 1990s (PTI Nos. 309-84, 448-84 & 161-96).

Subject to (opt-out of control device requirements via use of HAP compliant coatings): Auto MACT, NESHAP / MACT 4I, 40 CFR, Part 63, Subpart IIII—National Emission Standards for Hazardous Air Pollutants: Surface Coating of Automobiles and Light-Duty Trucks (Federal Register / Vol. 69, No. 80 / Monday, April 26, 2004 / Rules and Regulations/ Final Rule). Because FCA US (Chrysler) opted out of the post –11/15/90 NSPS (Auto NSPS MM was promulgated before 1990) or NESHAP / MACT federal regulations for control devices (e.g., RTO, TO) via compliance with Auto MACT by coatings formulations, the control devices are subject to CAM regulations (VOC).

Subject to: Compliance Assurance Monitoring (CAM) (40 CFR Part 64) for VOC control devices (e.g., RTO, TO). Page 54900 Federal Register / Vol. 62, No. 204 / Wednesday, October 22, 1997 / Rules and Regulations / Final rule; Final rule revisions /Compliance Assurance Monitoring (CAM). CAM is a part of enhanced monitoring and compliance certification for ROP / Title V sources under the Clean Air Act. Obviously, if the control devices (e.g., RTO, TO) were subject the auto MACT monitoring, the devices would be not be subject to CAM monitoring and the MACT's monitoring would be presumptive CAM. FCA US (Chrysler), like other Auto-manufacturers, chose to comply with the Auto MACT via coatings formulations without use of thermal oxidizers. Coating process are subject to the federal Compliance Assurance Monitoring (CAM) rule under 40 CFR, Part 64. These emission units have a control device and potential pre-control emissions of VOCs greater than the major source threshold level (100 tpy VOC). The monitoring for the control device(s) is continuous temperature monitoring, bypass monitoring, and inspections and maintenance of the control devices at a minimum of every 18 months. In brief, VOC CAM plan for one e-coat RTO and other TOs consists of continuous temperature monitoring and recording (accuracy: ± 2.5 ºC; minimum temperature readings: 1/15 minutes), annual replacement or calibration of thermocouples, inspection and maintenance (I&M), repair activities, bypass monitoring, etc. The minimum operating temperatures are established by VOC destruction efficiency testing.

Subject to Major Source Boiler MACT 5D (reconsidered [2011] MACT 5D: Annual Tune-up or Pentennial / Quinquennial (1/5Yr) Tune-up if boiler is equipped with oxygen trim system, one time Energy Assessment (EA) or ISO 50001): Major Source Boiler NESHAP / MACT 5D, 40 CFR Part 63, Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, Page 7138, Federal Register / Vol. 78, No. 21 / Thursday, January 31, 2013 / Rules and Regulations / Final rule; notice of final action on reconsideration. The December 23, 2011 proposed rule addressed specific issues and provisions the EPA identified for reconsideration. This summary of the final rule reflects the changes to 40 CFR, Part 63, subpart DDDDD (March 21, 2011 Final

Rule) regarding those provisions identified for reconsideration and on other discrete matters identified in response to comments or data received during the comment period. All FCA Warren Truck's natural gas boilers, except Temp Boilers (which now have been removed), are equipped with Oxygen Trim Systems. An Oxygen Trim System is a system of monitors that is used to maintain excess air (EA) at the desired level in a combustion device. A typical system consists of a flue gas analyzer for oxygen (O2) and / or carbon monoxide (CO) and a feedback signal to the combustion controller. In other words, an Oxygen Trim System is designed to continuously measure and maintain optimum air-to-fuel ratio in the combustion zone. If such system exists, annual tune-up is not required; however, pentennial / quinquennial (1/5Yr) tune-up is required. FCA does follow ISO 50001, Energy Management System for continuous improvement of energy performance, energy efficiency, energy consumption and for reduction of energy use, energy costs, greenhouse gas emissions (GHG), etc. If ISO 50001 is followed properly, one-time energy assessment (EA) is not required. Mr. Dan Omahen, Plant Manager, on March 30, 2016, submitted MACT 5D Notification of Compliance Status. Andrew Ragalyi submitted MACT 5D compliance statement dated March 14,2018, for two Temp Boilers (EU-TEMPBOILER1 & EU-TEMPBOILER2) to US EPA (tune-up on 05/23/2017 and burner inspection on 05/08/2017). Subsequently (February 2019 although idled since October 2018), the NSPS Dc Temp Boilers (2) have been removed.

Not subject to: NSPS Dc, New Source Performance Standards (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units (40 CFR, Part 60, Subpart Dc). Fuel oil is never used in the boilers. Only boilers installed after June 9, 1989, are subject to NSPS Dc. The two NSPS Dc Temp Boilers have been removed. Boiler Nos. 3 thru 6 are identified historically as NSPS Dc boilers in the ROPs; this is incorrect. Boiler Nos. 3 thru 6 are neither NSPS Dc nor NSPS Db boilers by based upon installation dates (installed before June 19, 1984 and converted from coal to gas due to particulate emissions violation and attendant consent order).

NSPS Dc Revisions:

1. 72 FR 32759 = Page 32759 Federal Register / Vol. 72, No. 113 / Wednesday, June 13, 2007 / Rules and Regulations / Final Rule – to add compliance alternatives and to revise certain recordkeeping and reporting requirements.

2. 74 FR 5091 = Page 5091 Federal Register / Vol. 74, No. 17 / Wednesday, January 28, 2009 / Rules and Regulations / Final Rule - to correct technical and editorial errors.

The NSPS Dc revisions simplified the natural gas usage recordkeeping. ROP and MAERS natural gas recordkeeping satisfies NSPS Dc.

NSPS Db Boilers: Four (4) boilers (EU-BOILER3-6, > 100 MM BTU per hour, NG, , installed after June 19, 1984) appear to be subject to 40 CFR Part 60 Subpart Db, NSPS Db—Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units —each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hour)). 72 FR 32742, June 13, 2007, Federal Register / Vol. 72, No. 113 / Wednesday, June 13, 2007 / Rules and Regulations. The boilers are covered by Permit No. 188-01 (AQD Engineer: Charley) dated December 12, 2001. The permit did not, correctly, incorporate NSPS Db. AQD conducted further investigation for missed NSPS Db regulations and determined that NSPS Db was not applicable based upon conversions of coal fired boilers to gas (PTI No. 188-01 Boiler Nos. 3 thru 6:152,106, 152 &192 MM Btu per hour with an Aggregate NOx limit of 119 tpy). Please see above under consent order. Although ROP says the Boiler Nos. 3 thru 6 (FG-BOILERS) are subject to NSPS Dc, the boilers are neither subject NSPS Dc nor NSPS Db based upon design heat input capacity and installation dates (before June 19, 1984 for NSPS Db June 9, 1989, for NSPS Dc).

Subject to: OLD NESHAP / MACT EEEE/ MACT 4E, 40 CFR Part 63, Subpart EEEE, National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (OLD)(Non-Gasoline); Page 5038 Federal Register / Vol. 69, No. 22 / Tuesday, February 3, 2004 / Rules and Regulations/ Final Rule; Page 42898 Federal Register / Vol. 71, No. 145 / Friday, July 28, 2006 / Rules and Regulations/ Final Rule - Amendments; notice of final action on reconsideration. 7,500 gallons / month > 5,000 gallons / month of purge solvent usage makes this facility subject to this NESHAP.

Subject to: Prevention of Significant Deterioration (PSD) (40 CFR 52.21) or Rule 336.1220 (during LAER review) / Rule 336.2902 (now) Major Offset Source depending upon attainment status.

Subject to: 40 CFR, Part 60, Subpart MM (NSPS MM or 2M)—Standards of Performance for Automobile and Light Duty Truck Surface Coating Operations (NSPS MM) (45 FR 85415, December 24, 1980). NSPS MM applies to an automobile/ light duty truck assembly plant constructed or modified after October 05,1979. The permits were issued in 1984.

Subject to: Rule 336.1610. The Rule 610 compliance calculations must be done pursuant to "**Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light Duty Truck Topcoat Operations", EPA-450/3-88-018 or as amended.** FCA US does not perform NSPS MM calculations separately. Instead the Auto Protocol calculations are used to satisfy NSPS MM emission limits. It is allowed because the tested lower TE values (60s) are used instead of NSPS 2M Table values (90s).

Not Subject to (cold-cleaners): NESHAP/ MACT T, area source National Emission Standards for Hazardous Air Pollutants: Halogenated Solvent Cleaning (40 CFR, Part 63, Subpart T; NESHAP/ MACT T); Correction; 29484 Federal Register / Vol. 60, No. 107 / Monday, June 5, 1995 / Rules and Regulations; amended National Air Emission Standards for Hazardous Air Pollutants: Halogenated Solvent Cleaning (40 CFR, Part 63, Subpart T); Final Rule; Page 25138 Federal Register / Vol. 72, No. 85 / Thursday,

May 3, 2007 / Rules and Regulations. FCA does NOT use the MACT T listed halogenated HAP solvents (>5%w: methylene chloride (CAS No. 75-09-2), perchloroethylene (CAS No. 127-18-4), trichloroethylene (CAS No. 79-01-6), 1,1,1-trichloroethane (CAS No. 71-55-6), carbon tetrachloride (CAS No. 56-23-5), and chloroform (CAS No. 67-66-3)) in the cold-cleaners.

PTI Nos. 13-19 (WTAP), 13-19A(WTAP), 13-19B (WTAP, under review) 14-19 (Mack Avenue), 14-19A (Mack Avenue)

The above permits are intertwined as Warren Truck Assembly Plant (WTAP) gives the required VOC offsets (110%) to both brand new Mack Avenue Assembly Plant (MAAP) and new paint shop at WTAP. Hence, the WTAP limits have three phases:

1. current ROP (MI-ROP-B2767-2016) limits,

2. reduced VOC limits when MAAP starts production and

3. further reduced VOC limits when WTAP starts production using new paint lines (East & West). New West paint line and modified Existing East paint line.

Currently (September 2020), WTAP is at the current ROP limits because the construction of MAAP is not over yet and, hence, MAAP has not started operations. 13-19A (WTAP) allows construction. However, 13-19A is being modified to 13-19B. LAER determinations are highly like to be revised.

PTI No. 14-19 (David Thompson): The permit is for new automobile assembly and coating line at the existing Mack Avenue Engine Plant (MAEP). Historically, Jefferson North Assembly Plant (N2155, JNAP) and Mack Avenue Engine Plant (M4085, MAEP) have been considered separate stationary sources. Upon building Mack Avenue Assembly Plant (MAAP), AQD has determined that the JNAP and MAAP are deemed to be one stationary source under SRN N2155 as the plants are adjacent. As Mack Avenue Assembly Plant (MAAP) and Jefferson North Assembly Plant (JNAP) are combined into one single stationary source by AQD according to ROP / LAER / PSD regulations (contiguousness / adjacency), FCA has decided to refer to this plant as the Detroit Assembly Complex – Mack (DACM, N2155). In PTI Application No. 13-19, FCA proposed to create 421.75 tons of available VOC offsets by reducing the allowed VOC emissions from FCA Warren Truck.

The following table shows the actual VOC emissions from FCA Warren Truck for 2016 and 2017 for five areas of the facility:

FCA Warren Truck Actual VOC Emissions Data

Source	Description			Total	

		2016 VOC Mass (tons)	2017 VOC Mass (tons)		2-Year Average
EU-SOLVENT-WIPE	Body Solvent Wipe & Purge Materials	646.7	732.9	1379.6	689.8
EU-COLOR-ONE	Spraybooth-Color 1	565.5	566.3	1131.8	565.9
EU-COLOR-TWO	Spraybooth-Color 2	565.5	566.3	1131.8	565.9
EU-REPROCESS	Reprocess Spraybooth	50.4	50.5	100.9	50.45
EU-TUTONE	Spraybooth-Tutone	26.5	22.9	49.4	24.7
Total					1896.75

As shown in the table, the 2-year average for VOC emissions for these five emission units was 1,896.75 tons. It may be noted that FCA made corrections to historical MAERS data of WTAP that increased slightly historical emissions in the MAERS database.

By accepting the following permanent, quantifiable, and federally enforceable restrictions on these five Emission Units in the proposed permit No. 13-19, **421.75** tons of VOC offsets are created:

FCA Warren Truck Proposed Limits and Resulting Offsets

Source	Description	2-Year Average (tpy)	Proposed Limit (tpy)	Offsets Created (tpy)
EU-SOLVENT-WIPE	Body Solvent Wipe & Purge Materials	689.8	555.0	134.8
EU-COLOR-ONE	Spraybooth-Color 1	565.9	430.0	135.9
EU-COLOR-TWO	Spraybooth-Color 2	565.9	430.0	135.9
EU-REPROCESS	Reprocess Spraybooth	50.45	40.0	10.45
EU-TUTONE	Tutone Spraybooth	24.7	20.0	4.7
Total		1896.75	1475.0	**421.75**

VOC emission calculations on a monthly and a 12-month rolling time period basis will be performed and maintained.

In addition to the annual VOC emission decreases, and due to the substantial decrease from the current permit limit, associated reductions in the pounds per hour (pph) limits for EU-SOLVENT-WIPE, EU-REPROCESS, and EU-TUTONE were implemented. The proposed pounds per hour emission limits were:

FCA Warren Truck Short-Term Proposed Emission Limits

Source	Description	Current Limit	Proposed Limit
EU-SOLVENT-WIPE	Body Solvent Wipe & Purge Materials	488.6 pph	440.0 pph
EU-REPROCESS	Reprocess Spraybooth	89.9 pph	45.0 pph
EU-TUTONE	Tutone Spraybooth	381.1 pph	50.0 pph

The VOC pounds per hour limits for EU-COLOR-ONE and EU-COLOR-TWO, along with the reduced VOC pounds per hour limits for EU-SOLVENT-WIPE, EU-REPROCESS, and EU-TUTONE provide short-term limits. In combination with requirements in the USEPA's "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat Operations", EPA-453/R-08-002 dated September 2008, the offsets are considered federally enforceable.

The new VOC emission limits on these five emission units at FCA Warren Truck are scheduled to become effective upon **startup** of the proposed automotive assembly line (MAAP) associated with proposed permit No. 14-19. As such, the offsets will be in place prior to the need for them in FCA Mack Avenue.

PTI No. 13-19 (David Thompson): The purpose of the permit is to reduce the allowable VOC emissions for five emission units at the Warren Truck Assembly Plant (Warren Truck) to provide 110% offsets for MAAP. This permit has gone through the public participation process because these reductions are being used as offsets for a Nonattainment New Source Review, PTI Application No. 14-19 (MAAP). In PTI No. 13-19, FCA is to create **421.75** tons of available VOC offsets by reducing the allowed VOC emissions from Warren Truck.

The allowed VOC emissions from the following processes to provide offset emissions for MAAP PTI application.

- EU-SOLVENT-WIPE, body wipe and purge/cleaning solvents
- EU-COLOR-1, topcoat spraybooth #1
- EU-COLOR-2, topcoat spraybooth #2
- EU-REPROCESS, reprocessing spraybooth
- EU-TUTONE, tutone spraybooth

The following information contains the existing permit limits and submitted emissions for the five EUs.

EU ID	Existing Permit Limit (tpy)	2016 Emissions (tpy)	2017 Emissions (tpy)
EU-SOLVENT-WIPE	1502.58	646.7	732.9
EU-COLOR-1	582.11	565.5	566.3
EU-COLOR-2	582.11	565.5	566.3
EU-REPROCESS	193.74	50.4	50.5
EU-TUTONE	821.0	26.5	22.9

Emission Units (EUs) and Flexible Groups (FGs)
The emission units and flexible groups that are affected by this permit application are listed in the table below.

Emission Unit ID	Changes, Updates, and Noteworthy Information	Flexible Group ID
EU-SOLVENT-WIPE		FG-AUTOMACT

Emission Unit ID	Changes, Updates, and Noteworthy Information	Flexible Group ID
	This EU is for solvent wipes and purge/cleaning solvents throughout the coating operation.	
EU-COLOR-ONE	Topcoat line #1, consisting of spray booths and a curing oven. There are separate VOC limits for the spray booth and the oven, and only the spray booth limits are being changed.	FG-AUTOMACT, FG-TOPCOAT
EU-COLOR-TWO	Topcoat line #2, consisting of spray booths and a curing oven. There are separate VOC limits for the spray booth and the oven, and only the spray booth limits are being changed.	FG-AUTOMACT, FG-TOPCOAT
EU-REPROCESS	A high bake repair operation consisting of spray booths and a curing oven for vehicle repair operations. There are separate VOC limits for the spray booth and the oven, and only the spray booth limits are being changed.	FG-AUTOMACT, FG-TOPCOAT
EU-TUTONE	A coating booth and curing oven for applying topcoat on tutoned vehicle bodies. There are separate VOC limits for the spray booth and the oven, and only the spray booth limits are being changed.	FG-AUTOMACT

Flexible Group ID	Changes, Updates, and Noteworthy Information	Associated Emission Unit IDs
FG-TOPCOAT	This FG was created for the topcoat operations at the facility. Emission limits within the FG have been changed.	EU-COLOR-ONE, EU-COLOR-TWO, EU-REPROCESS

Please note, these EUs are not considered modified, as there are no physical changes to the equipment or changes in the method of operation. The EUs are taking these restrictions to create offsets for the proposed automotive assembly line in PTI Application #14-19 (MAAP).

The applicant has proposed the following limits:

FCA Warren Truck Proposed Limits and Resulting Offsets

Source	Description	2-Year Average (tpy)	Proposed Limit (tpy)	Offsets Created (tpy)
EU-SOLVENT-WIPE	Body Solvent Wipe & Purge Materials	689.8	555.0	134.8
EU-COLOR-ONE	Spraybooth-Color 1	565.9	430.0	135.9
EU-COLOR-TWO	Spraybooth-Color 2	565.9	430.0	135.9
EU-REPROCESS	Reprocess Spraybooth	50.45	40.0	10.45
EU-TUTONE	Tutone Spraybooth	24.7	20.0	4.7
Total		1896.75	1475.0	421.75

VOC emission calculations on a monthly and a 12-month rolling time period basis will be performed and maintained.

In addition to the annual VOC emission decreases, and due to the substantial decrease from the current permit limit, associated reductions in the pounds per hour (pph) limits for EU-SOLVENT-WIPE, EU-REPROCESS, and EU-TUTONE are being implemented. The proposed pounds per hour emission limits are:

FCA Warren Truck Short-Term Proposed Emission Limits

Source	Description	Current Limit	Proposed Limit
EU-SOLVENT-WIPE	Body Solvent Wipe & Purge Materials	488.6 pph	440.0 pph
EU-REPROCESS	Reprocess Spraybooth	89.9 pph	45.0 pph
EU-TUTONE	Tutone Spraybooth	381.1 pph	50.0 pph

The VOC pounds per hour limits for EU-COLOR-ONE and EU-COLOR-TWO, along with the reduced VOC pounds per hour limits for EU-SOLVENT-WIPE, EU-REPROCESS, and EU-TUTONE provide short-term limits. In combination with requirements in the USEPA's "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat Operations", EPA-453/R-08-002 dated September 2008, the offsets are considered federally enforceable.

The new VOC emission limits on these five emission units at FCA Warren Truck are scheduled to become effective upon **startup** of MAAP associated with PTI No. 14-19 (MAAP). As such, the offsets will be in place prior to the need for them in FCA Mack Avenue or MAAP. As of today (Sep 2020), MAAP has not yet completed construction of the plant and, hence, WTAP still has its original ROP limits.

PTI No. 13-19 application was required to go to public comment because it is associated with the NNSR application #14-19.

PTI No. 13-19A (**David Thompson):** The permit is for new automotive paint shop and modifications to the existing automotive assembly line at the Warren Truck Assembly Plant. PTI No. 13-19 provided offsets to MAAP. This permit further reduces emissions to provide itself the required 110% VOC offsets after it already gave offsets to MAAP. As of today (Sep 2020), the new paint lines (East & West) are under construction. Existing paint lines Color1, Color2, Tu-tone, Hi-bake Reprocess, etc. will be replaced. COVID-19 has had significant impact on construction schedule. PTI No. 13-19A has gone through the public participation process because it is subject to Non-Attainment New Source Review (NNSR). WTAP operates under ROP # MI-ROP-B2767-2016. The Potential to Emit (PTE) from the facility is greater than 250 tpy for Volatile Organic Compounds (VOCs), greater than 10 tpy for a single Hazardous Air Pollutant (HAP), and greater than 25 tpy for aggregate HAPs. Warren Truck is located in Macomb County, which is currently meeting all of the National Ambient Air Quality Standards (NAAQS) set by the United States Environmental Protection Agency (USPA), except for ozone (O_3).

Going forward, the existing body shop will feed into both the new and existing paint shop; the automobiles from both paint shops will go into the existing general assembly area. The

new paint shop has been referred to as the “West” paint shop and the existing paint shop has been referred to as the “East”.

New (West) Paint Shop

The west paint shop will have the following process flow:

1. Pretreatment
2. E-Coat
3. Sealer Application
4. Primer
5. Topcoat

Extensive control equipment will be installed at the west paint shop to meet the requirements of the NNSR review.

Existing Body Shop, East Paint Shop, and General Assembly
In addition to the modifications in the east paint shop, the existing body shop and general assembly operations are considered to be modified as a result of the addition of the new paint shop. Servicing two separate paint shop is considered to be a change in the method of operation for the body shop and general assembly areas.

With the existing assembly line being modified, both the existing equipment associated with the assembly line is subject to NNSR for VOCs. After the NNSR review, including the LAER analysis, the following changes were required for the existing assembly line:

- Control equipment and updated VOC limits are required to meet LAER emission limits for the existing cleaning operations (updated tpy limit); E-Coat tank and oven (updated lb/gallon of applies coating solids, lb/GACS and tpy limits); and topcoat operations (updated lb/GACS and tpy limits). The applicant has elected to use a **new concentrator and a regenerative thermal oxidizer (RTO)** for the control equipment. The existing thermal oxidizers in the east paint shop will continue to control the oven portions of the coating processes. In lieu of installing control equipment on one of the topcoat processes (EU-COLOR-TWO), the applicant has opted to accept enforceable conditions to permanently shut down that Color2 process. As a matter of fact, based upon FY 2020 inspection, the last vehicle produced was on June 25, 2020, and subsequently, **WTAP is shutdown for construction.**
- VOC content and updated tpy limits were established for the existing powder primer, repair (final repair and spot repair), and sealer operations throughout the existing assembly line to meet the respective LAER limits. The VOC tpy limits have been also updated for fluid fill operations as a result of the review.

The paint lines construction project does not change the status of the facility. It remains an existing major source for PSD, Nonattainment, and Title h.

All EUs and FGs in the West paint shop are considered new.

The existing emission units and flexible groups that are affected by this permit application are listed in the table below.

Emission Unit ID	Changes, Updates, and Noteworthy Information	Flexible Group ID
EUECOATEAST ***(modified)***	E-Coat process. Formerly EU-UNIPRIME.	FGCONTROLS, FGAUTOMACT, FGRTOEAST, FGNEWNGEAST, FGPSWEST/NEWEAST
EUPWDRPRMEAST ***(new)***	The powder anti-chip coating application process not previously permitted.	FGCONTROLS, FGAUTOMACT, FGPSWEST/NEWEAST
EUPURGECLEANEAST ***(modified)***	Cleaning Operations in the body shop, east paint shop, and general assembly area. Formerly EU-SOLVENT-WIPE.	FGCONTROLS, FGAUTOMACT, FGRTOWEST, FGPSWEST/NEWEAST
EUSPOTREPAIREAST ***(new)***	Spot repair process in the east paint shop, prior to the topcoat application. Not previously permitted.	FGCONTROLS, FGAUTOMACT, FGPSWEST/NEWEAST
EUSEALERS ***(modified)***	Various sealer application stations throughout the facility. Formerly EU-SEALERS&ADHESIVES.	FGAUTOMACT, FGPSWEST/NEWEAST
EUFINALREPAIR ***(modified)***	Final repair operations in the general assembly area. Formerly EU-FINAL-REPAIR	FGCONTROLS, FGPSWEST/NEWEAST
EUFLUIDFILL ***(modified)***	Fluid fill process for vehicles. Formerly EU-FLUID-FILL	FGPSWEST/NEWEAST
EU-TUTONE ***(modified)***	Tutone spray booth and associated curing oven. This process will be shutdown at the completion of this project.	FGAUTOMACT, FGPSWEST/NEWEAST
EU-COLOR-ONE ***(modified)***	Color1 line that will be controlled by the east concentrator and east RTO.	FGAUTOMACT, FGTOPCOATEAST, FGCONTROLS, FGRTOEAST, FGNEWNGEAST, FGPSWEST/NEWEAST

Other new EUs include the thirteen hot water generators, three natural gas-fired emergency engines, and other new natural gas equipment (air supply housing and space heating units to be installed in support of this project).

Flexible Group ID	Changes, Updates, and Noteworthy Information	Associated Emission Unit IDs
FGTOPCOATEAST ***(modified)***	Formerly FGTOPCOAT	EU-COLOR-ONE, EU-COLOR-TWO, EU-REPROCESS
FGCONTROLS ***(new)***		

Flexible Group ID	Changes, Updates, and Noteworthy Information	Associated Emission Unit IDs
	New FG to cover requirements for the control equipment at the facility, including thermal oxidizers, concentrators, and particulate matter control systems.	EUECOATWEST, EUPRIMERWEST, EUTOPCOATWEST, EUPURGECLEANWEST, EUSPOTREPAIRWEST, EUECOATEAST, EUPWDRPRMEAST, EU-COLOR-ONE, EU-REPROCESS, EUPURGECLEANEAST, EUSPOTREPAIREAST, EUFINALREPAIR, EUNEWNGASSEMBLY, EUNEWNGPSEAST
FGSPOTPRIMEWEST ***(new)***	Covers the two new spot prime operations in the new paint shop.	EUSPOTPRIMEWEST1, EUSPOTPRIMEWEST2
FGRTOWEST ***(new)***	NOx, PM, PM10, and PM2.5 for new west RTO	EUECOATWEST, EUPRIMERWEST, EUTOPCOATWEST, EUPURGECLEANWEST
FGRTOEAST ***(new)***	NOx, PM, PM10, and PM2.5 for new east RTO	EUECOATEAST, EU-COLOR-ONE, EUPURGECLEANEAST
FGAUTOMACT (***modified)***	Includes new equipment subject to 40 CFR 63 Subpart IIII.	EUPRETREATWEST, EUECOATWEST, EUPRIMERWEST, EUTOPCOATWEST, EUPURGECLEANWEST, EUBODYWIPEWEST, EUSPOTREPAIRWEST, EUECOATEAST, EUPWDRPRMEAST, EUPURGECLEANEAST, EUSPOTREPAIREAST, EUSEALERS, EUFINALREPAIR, EU-COLOR-ONE, EU-COLOR-TWO, EU-REPROCESS, EU-TUTONE
FGBOILERMACTHWG ***(new)***	40 CFR 63 Subpart DDDDD requirements for 13 new hot water generators.	EUHWG1, EUHWG2, EUHWG3, EUHWG3, EUHWG4, EUHWG5, EUHWG6, EUHWG7, EUHWG8, EUHWG9, EUHWG10, EUDSBCHWG, EUDSSBHWG, EUDSCCHWG

Flexible Group ID	Changes, Updates, and Noteworthy Information	Associated Emission Unit IDs
FGNGWEST ***(new)***	New natural gas-fired equipment in the west paint shop.	EUPRETREATWEST, EUECOATWEST, EUPRIMERWEST, EUTOPCOATWEST, EUNEWNGASSEMBLY, EUHWG1, EUHWG2, EUHWG3, EUHWG4, EUHWG5, EUHWG6, EUHWG7, EUHWG8, EUHWG9, EUHWG10
FGNEWNGEAST ***(new)***	New natural gas-fired equipment in the refurbished east paint shop.	EUECOATEAST, EU COLOR-ONE, EUDSBCHWG, EUDSSBHWG, EUDSCCHWG, EUNEWNGPSEAST
FGNGEMENG ***(new)***	Requirements for three new natural gas-fired emergency engines	EUNGGEN1, EUNGGEN2, EUNGGEN3

Control Devices

The proposed new (West) paint shop will have the following controls:

- A **concentrator and RTO** for the control of VOC emissions from the following equipment:
  - E-Coat tank and oven
  - Primer, basecoat, and clearcoat spray booths, flash-off zones, and curing ovens
  - Solvent-borne purge materials used in the primer and topcoat spray booths and not reclaimed in the purge recovery system

- **Low NO_x burners must be installed on all natural gas-fired units associated with the West paint shop.**

- Particulate control systems on the following equipment:
  - Primer, basecoat, and clearcoat spray booths are controlled by a water wash system and an additional dry abatement filter house prior to the concentrator
  - The E-coat primer prep booth, the primer color prep and reprocess heavy sand booths, the rapid reprocess small repair booths, and the final repair booths are controlled by dry filter particulate control systems. In addition, exhaust from the primer color prep and reprocess heavy sand booths and the final repair booths are recirculated.

  - Direct-fired natural gas units, including all air supply houses (ASH), air housing units (AHU), and all curing ovens are required to have pre-filtration units

    The modified existing assembly line (including the East paint shop) will have the following controls:
- A **concentrator and RTO** for the control of VOC emissions from the following equipment:
  - E-Coat tank and oven

- Basecoat and clearcoat spray booths and flash-off zones
- Solvent-borne purge materials used in the topcoat spray booths and not captured in the purge recovery system

- An existing thermal oxidizer will continue to control VOC emissions from the basecoat oven.
- An existing thermal oxidizer will continue to control VOC emissions from the topcoat oven.
- An existing thermal oxidizer will continue to control VOC emissions from the reprocess oven.
- Particulate control systems on the following equipment:
  - Basecoat and clearcoat spray booths are controlled by a water wash system and an additional dry abatement filter house prior to the concentrator
  - The spot repair, powder primer, and final repair booths are controlled by dry filter particulate control systems. In addition, exhaust from the powder primer and final repair booths are recirculated and not directly exhausted to the ambient air.

Emissions

Table 1 provides the estimated emissions for each regulated pollutant from the proposed new paint shop at Warren Truck and their respective significant emission rate (SER). Please see the attached calculations.

Table 1: New Paint Shop Potential Emissions Increase Summary

Pollutant	Estimated Emissions Tons per year (tpy)	Significant Emission Rate (tpy)	Subject to PSD Review?	Subject to Nonattainment New Source Review**?
NO_x	22.7	40	No	No
CO	50.3	100	No	NA
Particulate Matter (PM)	14.9	25	No	NA
PM10	3.35	15	No	NA
PM2.5	3.35	10	No	NA
SO_2	0.4	40	No	NA
Lead	2.99×10^{-4}	0.6	No	NA
VOCs	202.0	40	No	Yes
Green House Gases expressed as Carbon Dioxide Equivalents (GHGs as CO_2e)*	55,271	75,000	No	NA

* A recent decision by the Supreme Court (*Utility Air Regulatory Group v. U.S. EPA), No. 12-1146 (June 23, 2014*) determined that PSD review for GHGs is only required if one or more of the other regulated new source review pollutants exceeds a PSD threshold. VOCs are subject to NNSR review, not PSD; therefore, GHGs are not required to go through PSD review.
** Macomb County, where FCA Warren Truck is located, is designated as nonattainment for ozone; therefore, NO_x and VOCs (because they are precursors for ozone) are the only pollutants that could be subject to NNSR.

Table 2 provides a summary of the expected emissions from the entire project at the Warren Truck Assembly Plant; both the new paint shop and the modernization of the existing paint shop. As can

be seen, there are no pollutants other than VOC which are subject to PSD nor NNSR. Please see the attached calculations.

Table 2: Total Warren Truck Project Potential Emissions Summary

Pollutant	Baseline Emissions (tpy)	Estimated Emissions Increase Tons per year (tpy)	Total Estimated Emissions from Project (tpy)	Subject to PSD Review?	Subject to Nonattainment New Source Review*?
NO_x	111.65	39.0	150.65	No	No
CO	87.1	74.6	161.7	No	NA
PM	4.95	24.9	29.85	No	NA
PM10	10.6	9.95	20.55	No	NA
PM2.5	8.1	9.95	18.05	No	NA
SO_2	0.65	0.51	1.16	No	NA
Lead	5.27×10^{-4}	4.36×10^{-4}	9.63×10^{-4}	No	NA
VOCs	NA	202.0	710.78	No	Yes
* Macomb County, where FCA Warren Truck is located, is designated as nonattainment for ozone; therefore, NO_x and VOCs (because they are precursors for ozone) are the only pollutants that could be subject to NNSR.					

The long-term emissions for coating operations were calculated using maximum material usage per job and the maximum production rate of **261,870 jobs per year**.

Based on the lowest value of the most comparable operation, FCA proposed the new topcoat operation to meet the value of 3.53 lbs VOC/GACS. This value will be achieved by the use of waterborne basecoats and solvent-borne clearcoats, the use of robotic electrostatic and bell application technology coupled with Concentrator / RTO control on the spray booth, flash-off, and curing oven portions of the topcoat application process. FCA has developed a proposed annual emission rate of 75.3 tpy for topcoat application based on 3.53 lbs VOC/GACS. This emission rate is LAER for the topcoat operations and is incorporated into the permit.

PTI No. 13-19B (David Thompson): The permit associated with APP-2020-0201 is currently being reviewed. FCA is requesting emission limits modifications. LAER limits may be revaluated.

On July 30, 2020, I conducted level-2 **FY 2020 scheduled ROP CMS inspection** of FCA US Chrysler's Warren Truck Assembly Plant, located at 21500 Mound Road, Warren, Michigan 48091-4840. The inspection was conducted to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451; Michigan Department of Environment, Great Lakes and Energy, Air Quality Division (EGLE-AQD) administrative rules and the RO Permit Number MI-ROP-B2767-2016. Emission reductions required by MAAP (PTI No. 14-19) and WTAP (PTI Nos. 13-19 & 13-19A) new paint line are not applicable yet as the production has started in neither plant; both plants are still under construction.

Ms. Laura Hall (Phone: 248-512-3236; Cell: 519-791-1321; E-mail: Laura.Hall@fcaGroup.com), EHS Environmental Manager, assisted me. Ms. Hall replaced Mr. Smith on March 1, 2019.

About March 2019**, Mr. Matthew W. Smith** (Phone: 586-497-2444; Cell: 248-229-7018; E-mail: Smith Matthew 2 (FCA) <matthew.smith@fcagroup.com>), EHS Environmental Manager, assisted me. Mr. Smith moved to Facilities Management at WTAP.

Mr. Brian D. Sayles (Phone: 586-497-3486; Fax: 586-497-6939; Cell: 586-524-5420; E-mail: saylesb@dteenergy.com), P.E., Utilities Services Manager, Chrysler Warren Truck, DTE Energy Services, was not present to assist with natural gas fired powerhouse.

Messrs. Kevin Waszak (Phone: NA; Cell: 248-224-5896; E-mail: NA), EHS Manager (about Aug 2013 moved to training center), Mark C. Werthman (Phone: 248-576-7377; Cell: NA; E-mail: mdw25@chrysler.com), CHMM, Manager, Corp. Regulatory Planning and Environmental Affairs, Scott Goeglein (Phone: 248-202-3705), EHS Manager, were not present.

Mr. Tom Thornton (Phone: 586-897-2444 at Dodge Truck and 586-978-6129 at Sterling Heights Assembly, Cell: 248-535-5845; E-mail: **tt158@chrysler.com**), Resident Environmental Specialist, Paint Operations, and Ms. Amy J. Berendt (Ph: 586-497-3143; Fax: 586-497-2512; E-mail: ajb75@Chrysler.com and amy.berndt@arcadis-us.com), Staff Engineer, separated from Environmental Duties at Chrysler WTA; but still with Chrysler.

In 2010, Ms. Berendt replaced **Mr. Michael Check** (Phone: 586-497-3143; Fax: 586-497-2512; E-mail: michael.check@arcadis-us.com and mc1140@chrysler.com). Mr. Check worked for Arcadis G&M of Michigan, LLC, 28550 Cabot Drive, Suite 500, Novi, Michigan 48377. Mr. Check replaced **Ms. Brenna Harden** (Phone: 248-994-2240; Fax: 248-994-2241; E-mail: brenna.harden@arcadis-us.com), Staff Engineer, a contract employee, who in turn replaced Ms. Sandy Lopez, who retired about 2008. Ms. Harden also worked for Arcadis G&M of Michigan, LLC, 28550 Cabot Drive, Suite 500, Novi, Michigan 48377.

Mr. Tim J. Nelson (Ph: 586-497-3486, Fax: 586-4976939, Cell: 586-634-0787), Utilities Services Manager, Chrysler Warren Truck, DTE Energy Services, separated from DTE about 2013.

FCA US LLC Warren Truck Assembly Plant (FCA WTAP) is located at the northeast corner of 8 Mile Road and Mound Road in the city of Warren, Macomb County, Michigan. The plant is located in an industrial area with FCA Stamping and GM powertrain plants towards north on Mound Road (between 8 Mile and 10 Mile Roads). The plant receives stamped parts from FCA Stamping via tunnel at 9 Mile Road. The plant manufactures or assembles light-duty trucks. Prior to coating, the truck bodies are cleaned and pretreated to prepare vehicle bodies for painting: body cleaning and phosphate treatment. The principal emissions are volatile organic compounds (VOC), including hazardous air pollutants (HAP), from coating operations: primer (dip e-coat), primer surfacer (guide coat powder coating with practically nil emissions), topcoat, high bake reprocess, final repair, sealers and adhesives, miscellaneous solvents, etc. About 1984, the truck plant obtained construction (Permit-to-Install) permits pursuant to Rule 336.1220 for VOC Major Offset Sources in

ozone non-attainment area. The permits required installation and operation of Lowest Achievable Emission Rate (LAER) technology for coating operations that emit VOC. The coating bake oven VOC emissions are controlled by five thermal oxidizers (one RTO for a dip e-coat bake oven and four thermal oxidizers for topcoat bake ovens). Paint overspray particulate emissions are controlled by downdraft water wash systems from topcoat booths and dry filter system from other operations such as final repair, repair deck, etc. The VOC emissions from topcoat coating booths are released to ambient air, via stacks on the roof, without destruction or removal using VOC control systems. While oven emissions account for 15% of VOC from painting, booth emissions account for 85% VOC. While smaller fraction oven emissions are controlled using thermal oxidizers, larger fraction booth emissions are not. The natural gas fired boilers (two portable temporary (FG-TEMPBOILERS: EU-TEMPBOILER1& EU-TEMPBOILER2) and four permanent (FG-BOILERS: EU-BOILER3-6)) that principally emit nitrogen oxides (NOx) provide steam for space heating and process needs. In winter, permanent boilers provided steam. Temp boilers have been removed.

The assembly process begins with the framing of body by welding together various vehicle parts, such as doors, hoods, etc. After the body is framed, it then proceeds through a body cleaning and phosphate treatment step. An Electro Deposition Coating (E-Coat) dip painting process coats and primes the body surface in preparation for final paint finish. Powder coating is applied as primer surfacer and anti-chip. The powder coating anti-chip and powder coating primer surfacer are not a part of the RO permit. The application of topcoat painting finish is carried out through two identical parallel coating lines (Color1 & Color2). Tu-tone (4% of vehicles) and highbake reprocess (for repairs) lines are also present. Color1 (EU-COLOR-ONE), Color2 (EU-COLOR-TWO) and Highbake Reprocess (EU-REPROCESS) are part of topcoat (FG-TOPCOAT). In Highbake Reprocess (EU-REPROCESS) booth, part of truck needing substantial repairs is repainted. Cleaning and equipment purging are also associated with the coating operations. Several smaller coating operations, such as final repair, spot repair deck, etc., are also located throughtout the assembly plant. In addition, volatile organic compounds (VOCs) are emitted from coating processes, cleaning operations, and various other related processes.

When the original air quality permits were issued for the coating processes in 1984, Macomb County was designated as nonattainment area for ozone (O_3). The plant met the definition of a "**major offset source**" and was subject to Rule 336.1220 (during LAER review) / Rule 336.2902 (now, >2008). The proper installation, operation and maintenance of the thermal oxidizers (aka incinerators) and regenerative thermal oxidizer for E-coat process (E-coat RTO), which were permitted under Lowest Achievable Emission Rate (**LAER**) permits, are still requirements under LAER. The LAER requirements cannot be relaxed pursuant to the federal Clean Air Act. To ensure that an incinerator is operated in accordance with the LAER requirements, the ROP requires the plant to monitor the temperature of each thermal oxidizer. Also, a minimum temperature requirement has been set for each thermal oxidizer based upon most recent Destruction Efficiency (DE) tests. It may be noted that proper DE requirements were not included during LAER review permits. However, the DE values are used in compliance calculations.

WTAP is considered a major source under 40 CFR Part 70 because the potential emission of criteria pollutant: Nitrogen Oxides (NOx), Carbon Monoxide (CO), and Volatile Organic Compounds (VOC) are more than 100 tons per year and therefore exceed the major source

thresholds. Under Section 112 of the Clean Air Act, a major source is defined as any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit any single hazardous air pollutant (HAP) more than 10 tons per year or aggregate HAPs more than 25 tons per year. For the purpose of applicability to Michigan's Renewable Operating Permit Program, Fiat-Chrysler Group's Warren Truck Assembly Plant is a major stationary source of HAPs, and is considered contiguous to the Chrysler Warren Office and Warehouse as well as to the Chrysler Warren Stamping Plant.

FCA WTAP is subject to many state and federal regulations:

PSD / LAER: WTAP is subject to Prevention of Significant Deterioration (PSD) (40 CFR 52.21) regulations because the stationary source has the potential to emit volatile organic compounds greater than 250 tons per year. Original permits for the assembly plant were LAER permits and upon modification new permits will be LAER permits based upon ozone non-attainment status of Southeast Michigan.

NSPS:

1. Immersion cathodic e-coat primer (EU-UNIPRIME) and topcoat (EU-TUTONE, EU-COLOR-ONE, EU-COLOR-TWO and EU-REPROCESS) operations at the stationary source are subject to the Standards of Performance for Automobile Light-Duty Truck Surface Coating Operations promulgated in 40 CFR Part 60, Subparts A and MM.

1. Two portable temporary natural gas fired boilers (EU-TEMPBOILER1 and EU-TEMPBOILER2) and three of four permanent (installed after June 9, 1989) natural gas fired boilers (EU-BOILER3, EU-BOILER4 and EU-BOILER5) at the stationary source are subject to the Standards of Performance for Small Industrial Commercial-Institutional Steam Generating Units promulgated in 40 CFR Part 60, Subparts A and Dc. One of four natural gas fired boilers (EU-BOILER6) is not subject to this NSPS Dc standard as it was installed before June 10, 1989 (October 29, 1984).

2. One Fire Pump Emergency Engine (EU-ENG-FPH2) at the stationary source is subject to the Standards of Performance for Stationary Compression Ignition Internal Combustion Engines promulgated in 40 CFR Part 60, Subparts A and IIII (4I). (FG-CI-RICE-NSPS4I<500)

NESHAP/MACT:

1. EU-UNIPRIME, EU-SOLVENT-WIPE, EU-SEALERS and ADHESIVE, EU-BLACKOUT-BOOTH, EU-TUTONE, EU-COLOR-ONE, EU-COLOR-TWO EU-REPROCESS (high-bake repair), EU-FINAL-REPAIR (low-bake spovens), EU-SPOT-REPAIR-DECK (1-12 stations with filters and carbon adsorption) at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Surface Coating of Automobiles and Light-Duty Trucks promulgated in 40 CFR Part 63, Subparts A and IIII (4I) (FG-AUTOMACT). FCA complies with auto MACT 4I via coating formulations without use of thermal oxidizers' VOC / HAP destruction credit in the calculations. Hence, FCA must implement CAM.

2. Methanol storage tanks at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Organic Liquids (non-gasoline) Distribution (OLD) promulgated in 40 CFR Part 63, Subparts A and EEEE (4E) (FG-OLDMACT).

3. Two portable temporary natural gas fired boilers (EU-TEMPBOILER1 and EU-TEMPBOILER2) and four permanent natural gas fired boilers (EU-BOILER3, EU-BOILER4, EU-BOILER5 and EU-BOILER6) at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Major Sources Industrial, Commercial, and Institutional Boilers and Process Heaters promulgated in 40 CFR Part 63, Subparts A and DDDDD (5D) (FG-BOILER-MACT5D). FCA removed temp boilers to save on their rents.

4. Existing CI RICE Engines (EU-ENG-FPH1<500HP, EU-ENG-SMB1>500HP and EU-ENG-SMB2>500HP) at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines; New Source Performance Standards for Stationary Internal Combustion Engines (ICE) promulgated in 40 CFR Part 63, Subparts A and ZZZZ (4Z) (FG-CI-RICE-MACT4Z<500HP and FG-CI-RICE-MACT4Z>500HP).

CAM: Both dip cathodic e-coat primer (known as Uniprime EU-UNIPRIME) and topcoat (EU-COLOR-ONE EU-COLOR-TWO, EU-REPROCESS) in addition to EU-TUTONE operations at the stationary source are subject to the federal Compliance Assurance Monitoring (CAM) rule under 40 CFR Part 64. These emission units have a control device and potential pre-control emissions of Volatile Organic Compounds (VOC) greater than the major source threshold level. NESHAP/MACT 4I (40 CFR Part 63 Subpart IIII) is a post-11/15/1990 (April 26, 2004) presumptively acceptable CAM. However, the permittee opts to show compliance with the Auto MACT HAP emission limits without taking HAP destruction credit pertaining to the oven thermal oxidizers via use of compliant coatings. Hence, custom CAM is a part of ROP. CAM monitoring conditions are found in EU-UNIPRIME, EU-TUTONE, and FG-TOPCOAT.

Rule 610 and Auto Protocol: The coating process is also subject to Rule 336.1610, which is considered Reasonably Available Control Technology (RACT) standard. Rule 336.1610 compliance calculations must be done pursuant to “Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light Duty Truck Topcoat Operations”, EPA-450/3-88-018 or as amended. The protocol determines the daily VOC emission rate (pounds of VOC per gallon of coating solids deposited), for complete automobile & light-duty truck topcoat operations. The protocol considers and describes how to determine the following factors, including the necessary testing and recordkeeping requirements:

1. Daily usage of each coating
2. VOC generated per gallon of each coating used

3. Volume solids content of each coating used
4. Daily weighted transfer efficiency of each coating used
5. Daily weighted bake oven exhaust control credit

The RO Permit consists of 9 emission units and 15 flexible groups (9 EU and 15 FG). The emission units are:

1. Mechanical body washer for cleaning light duty truck bodies (EU-MECH-WASHER)

2. Cathodic electro-deposition primer system (EU-UNIPRIME)

3. Solvent wipes and body cleaning operation (EU-SOLVENT-WIPE)

4. Sealers and adhesives applications (EU-SEALERS&ADHESIVE)

5. Blackout booth (EU-BLACKOUT-BOOTH). Idle and used an inspection area.

6. Topcoat on tutoned light duty truck bodies (EU-TUTONE)

7. Operations of filling fuel tanks and windshield washer solution reservoirs in new light duty trucks (EU-FLUID-FIL)

8. Final repair systems (EU-FINAL-REPAIR) with spovens (2).

9. Spot repair deck (EU-SPOT-REPAIR-DECK) with Monroe Environmental filters and carbon adsorption.

Paint sludge dryer (EGSLUDGE-DRYER), which has been, after CY2009, permanently shut down.

The flexible groups (15) are:

1. Topcoat and topcoat repair operation (FG-TOPCOAT). Two identical topcoat lines (EU-COLOR-ONE & EU-COLOR-TWO) and one high bake-repair operation (EU-REPROCESS). Tu-tone is associated with Color1 (but not Color2).

2. Two natural gas fired, trailer-mounted, 25 million BTU per hour heat input temporary boilers, portable and rented (FG-TEMPBOILERS: EU-TEMPBOILER1 & EU-TEMPBOILER1).

3. Four (4) natural gas fired boilers to produce steam (FG-BOILERS: EU-BOILER3-6)

4. One unleaded gasoline storage tank (FG–GASOLINE-TANKS: EU–UNLEADEDGAS1 (TK1 25,000 gal)). Above-ground storage tank with spill containment.

5. Operations including carpenter shop (maintenance tool shop – removed), etc. that are subject to Rule 331 (FG-RULE-331: EU-CARPENTERSHOP). Plasma cutting operation is removed.

6. Various emission units that have the same particulate requirements (FG-PM-MISC

7. Auto MACT (FG-AUTOMACT: EU-UNIPRIME, EU-SOLVENT-WIPE, EU-SEALERS&ADHESIVE, EU-BLACKOUT-BOOTH, EU-FINAL-REPAIR, EU-SPOT-REPAIR-DECK, EU-TUTONE, EU-COLOR-ONE, EU-COLOR-TWO, EU-REPROCESS).

8. Organic Liquid Distribution (OLD) MACT (FG-OLDMACT) for existing (construction pre dates April 2, 2002) liquid storage tanks which hold more than 5,000 gallons but less than 50,000 gallons and/or new liquid storage tanks which hold more than 5,000 gallons but less than 10,000 gallons of methanol/windshield washer fill solvents that are dispensed to newly assembled vehicles.

9. Boiler MACT 5D (FG-BOILER-MACT5D). Except temp boilers, all boilers are equipped with oxygen trim systems for increased thermal efficiency and complete combustion.

10. RICE MACT CI 266 HP < 500 HP, Emergency generator (FG-CI-RICE-MACT4Z<500HP).

11. RICE MACT (FG-CI-RICE-MACT4Z>500HP: EU-ENG-SMB1 (900 HP) and EU-ENG-SMB2 (900 HP))

12. RICE NSPS 4I. Fire Pump emergency engine (FG-CI-RICE-NSPS4I<500: EU-ENG-FPH2 (305 HP, 1/1/2011))

13. Cold cleaners (FG-COLD-CLEANERS)

14. Rule 201 exempt units pursuant to Rule 290 (FG-RULE-290)

15. Miscellaneous coating booths using less than 200 gallons of coatings per month (FG-RULE-287(c))

The company does not use any of the halogenated solvents regulated by Maximum Achievable Control Technology (MACT T) in the cold cleaners; therefore, the cold cleaners are not subject to the MACT standards for halogenated solvent cleaner (40 CFR 63 Subpart T).

Steam for plant process and heating is produced by four natural gas-fired boilers on site (FG-GAS-BOILERS). Portable boilers provide steam during non-heating season (summer).

Production

1. CY2014: 296,600 painted and 315,728 built.

2. CY2015: 312,247 painted and 329,883 built.

3. CY2016: 352,565 painted and 339,673 built.

4. CY2017: 354,187 painted and 340,469 built.

5. 4Q2019: 60,086 painted and 56,988 built.

Note: Errors in production records CY2014-16. Built vehicles must be less than painted vehicles.

FCA WTAO Air Pollution Control Devices

Emission Unit	Control Equipment	Comment. Minimum temperature
Uniprime (E-Coat Process)	Recuperative Thermal Oxidizer (RTO)	Durr Rotary design RTO. 1378 ° F (E-coat RTO test (RWDI # 1600240,Sampled 2015-11-05). DE = 92.5%
Blackout Booth	Dry Filters	Removed. For a decade so it was as a storage or an inspection area.
TuTone	Thermal Oxidizer Water Wash System	1291 ° F Removed Nov 2018.
Final Repair	Dry Filters	
Spot repair deck (1-12)	Activated Carbon Filters Dry Exhaust Filters	
Color One Color Two Reprocess (Hi-Bake)	Thermal Oxidizer Water wash System	Color1: 1370 ° F (RWDI #1703283,Sampled 2018-09-25). DE = 99.6% Coler2: 1291 ° F (RWDI # 1703283,Sampled 2018-02-13). DE = 99% Reprocess: 1291 ° F (RWDI # 1703283,Sampled 2018-09-26). DE = 96.8%
ColorOneSand PolishDeck Reprocessand ReProPolish UniPrimeSand	Dry Filters	
Carpenter Shop	Baghouse (Bag Filters)	

FCA WTAP has the following emission units:

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-MECH-WASHER	Mechanical body washer in “Body-in-White” is for cleaning vehicle bodies with a cleaner and a rust-inhibitor.	07/31/1984	NA
EU-UNIPRIME	Uniprime is a cathodic electrodeposition primer system to apply primer to vehicle bodies with an associated curing oven. Uniprime system is immersion (dip) e-coat system with DC voltage, where vehicle bodies are grounded and coating solids are positively charged. One regenerative thermal oxidizer (RTO) for curing oven emissions.	07/31/1984	FG-AUTOMACT
EU-SOLVENT-WIPE	Emissions from solvent wipes and body cleaners throughout the plant.	07/31/1984	FG-AUTOMACT
EU-SEALERS&ADHESIVE	Application of sealers and adhesives and associated gelling oven.	07/31/1984	FG-AUTOMACT
EU-BLACKOUT-BOOTH	Spray booth for applying blackout paint to vehicle bodies. The booth is on long-term idle.	07/31/1984	FG-AUTOMACT
EU-TUTONE	The Tutone booth for applying topcoat on Tutoned vehicle bodies and associated curing oven. One down-draft waterwash system for paint overspray particulate control and one thermal oxidizer for VOC from the bake oven.	06/17/1992	FG-AUTOMACT
EU-FLUID-FILL	Stations for filling fuel tanks (gasoline) and windshield washer solution, brake, power steering etc. reservoirs. Onboard Re-fueling Vapor Recovery systems for vehicles.	07/31/1984	NA
EU-FINAL-REPAIR (Low-bake spovens)	Final repair system, for low-bake, includes two spot repair stations with associated spovens (one spoven per booth) and sanding booths in Repair Dept. 9190 of Main Building. Prep booths or sanding booths are equipped with side-draft dry filters. The spovens (spot ovens) are equipped with IR Heat and are located inside the downdraft spray booths. The booths (2) are equipped with downdraft filters like collision shop booths.	07/22/1996	FG-AUTOMACT
EU-SPOT-REPAIR-DECK (1-12 stations)	1 through 12 spot repair painting stations with portable hose emissions capture system and associated IR (infra-red) curing ovens. The emissions are ducted to a common control system consisting of series of dry filters and carbon adsorption. Carbon is monitored for breakthrough	07/22/1996	FG-AUTOMACT

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
	using color change at sight glass. Dry filter system and carbon adsorption system.		
EU-COLOR-ONE	Color1 line (one of two identical top coat lines) consists of spray booths for applying topcoat to vehicle bodies and oven for curing. Downdraft Water Wash System and Thermal Oxidizer for bake oven.	07/31/1984	FG-AUTOMACT FG-TOPCOAT
EU-COLOR-TWO	Color2 line (one of two identical top coat lines) consists of spray booths for applying topcoat to vehicle bodies and oven for curing. Downdraft Water Wash System and Thermal Oxidizer for bake oven.	07/31/1984	FG-AUTOMACT FG-TOPCOAT
EU-REPROCESS (High-bake)	Reprocess is high bake repair operation that consists of spray booths for topcoat application to repair vehicle bodies and oven for curing. Wash System and Thermal Oxidizer for bake oven.	07/31/1984	FG-AUTOMACT FG-TOPCOAT
EU-TEMPBOILER1	25 million BTU per hour, natural gas only fired trailer-mounted temporary boiler.	03/19/2009	FG-TEMPBOILERS FG-BOILER-MACT5D
EU-TEMPBOILER2	29 million BTU per hour, natural gas only fired trailer-mounted temporary boiler.	03/19/2009	FG-TEMPBOILERS FG-BOILER-MACT5D
EU-BOILER3	152 million BTU heat input per hour (Babcox & Wilcox Boiler3, installed 7/11/98) natural gas only boiler equipped with low NOx burners.	07/11/1998	FG-BOILERS FG-BOILER-MACT5D
EU-BOILER4	106 million BTU heat input per hour (Babcox & Wilcox Boiler4, installed 7/11/98) natural gas only boiler equipped with low NOx burners.	07/11/1998	FG-BOILERS FG-BOILER-MACT5D
EU-BOILER5	152 million BTU heat input per hour (Wickes Boiler5, installed 9/1/96) natural gas only boiler equipped with low NOx burners.	09/01/1996	FG-BOILERS FG-BOILER-MACT5D
EU-BOILER6	192 million BTU heat input per hour (Riley Stoker Boiler6, installed 10/29/84) natural gas only boiler equipped with oxygen trim system but not low NOx burners.	10/29/1984	FG-BOILERS FG-BOILER-MACT5D
EU–UNLEADEDGAS1	TK1 25,000-gallon gasoline storage tank – above-ground storage tank with spill containment.	03/192013	FG–GASOLINE-TANKS
EU-CARPENTERSHOP	Wood saws, lathes, etc. Carpenter shop baghouse.	07/31/1984 07/31/1984	FG-RULE-331 FG-PM-MISC

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EU-COLOR-ONE-SAND	Miscellaneous particulate matter source with associated exhaust filters.		
EU-POLISH-DECK	Miscellaneous particulate matter source with associated exhaust filters.	07/31/1984	FG-PM-MISC
EU-REPROCESS-SAND	Miscellaneous particulate matter source with associated exhaust filters.	07/31/1984	FG-PM-MISC
EU-REPRO-POLISH	Miscellaneous particulate matter source with associated exhaust filters.	07/31/1984	FG-PM-MISC
EU-UNIPRIME-SAND	Miscellaneous particulate matter source with associated exhaust filters.	07/31/1984	FG-PM-MISC
EU-OLDMACT	The permittee shall maintain an up-to-date list of emissions units subject to FG-OLDMACT.	07/31/1984	FG-OLDMACT
EU-Eng-FPH1	Existing CI (Diesel) Engines located at a Major Source 266 HP < 500 HP, Emergency.	01/01/1985	FG-CI-RICE-MACT4Z<500HP
EU-ENG-SMB1	Existing CI Engines located at a Major Source > 500 HP, Emergency.	01/01/1985	FG-CI-RICE-MACT4Z>500HP
EU-ENG-SMB2	Existing CI Engines located at a Major Source > 500 HP, Emergency.	01/01/1985	FG-CI-RICE-MACT4Z>500HP
EU-ENG-FPH2 Fire Pump emergency engine	This flexible group includes new emergency compression ignition (CI) natural gas fired stationary reciprocating internal combustion engines (RICE) that have a maximum site rating of greater than or equal to 100 brake horsepower (HP), but less than 500 (HP) and subject to 40 CFR 60, Subpart IIII.	01/01/2011	FG-CI-RICE-NSPS4I<500

FCA WTPA has the following flexible groups:

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-TOPCOAT	Two topcoat lines (EU-COLOR-ONE & EU-COLOR-TWO) and one high bake-repair operation (EU-REPROCESS), which is a part of the topcoat system. Each topcoat line consists of spray booths for applying topcoat to vehicle bodies and oven for curing. Reprocess is high bake repair operation that consists of spray booths for topcoat application to repair vehicle bodies and oven for curing. While Color1 (36 JPH) and Color2 (36 JPH) lines are identical topcoat lines (72 JPH), reprocess line is shorter and slower.	EU-COLOR-ONE EU-COLOR-TWO EU-REPROCESS (high bake repair)
FG-TEMPBOILERS	Two natural gas fired boilers. These are trailer-mounted temporary boilers installed since 2009 and mostly used in non-heating season (summer). Although capable of being moved,	EU-TEMPBOILER1 EU-TEMPBOILER2

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
	the boilers have been located at the plant for at least two years (as of March 2016). AQD received both NSPS Dc (April 30, 2007) and Major Source Boiler MACT 5D (May 24, 2013) notifications.	
FG-BOILERS	Four (4) natural gas fired boilers to produce steam and heat.	EU-BOILER3 EU-BOILER4 EU-BOILER5 EU-BOILER6
FG–GASOLINE-TANKS	Three unleaded gasoline storage tanks.	EU–UNLEADEDGAS1
FG-RULE-331	Wood saws, lathes, etc.	EU-CARPENTERSHOP
FG-PM-MISC	This group consists of various emission units that have the same particulate requirements.	EU-COLOR-ONE-SAND EU-POLISH-DECK EU-REPROCESS-SAND EU-REPRO-POLISH EU-UNIPRIME-SAND
FG-AUTOMACT	FG-AUTOMACT: Each new, reconstructed, or existing affected source as defined in Title 40 of the Code of Federal Regulations (CFR), Part 63.3082, that is located at a facility which applies topcoat to new automobile or new light duty truck bodies or body parts for new automobiles or new light duty trucks; AND/OR in which you choose to include, pursuant to 40 CFR 63.3082(c), any coating operations which apply coatings to new other motor vehicle bodies or body parts for new other motor vehicles; parts intended for use in new automobiles, new light duty trucks or new other motor vehicles; or aftermarket repair or replacement parts for automobiles, light duty trucks or other motor vehicles; and that is a major source, is located at a major source, or is part of a major source of emissions of hazardous air pollutants (HAPs) except as provided in 63.3081(c). This includes equipment covered by other permits, grandfathered equipment, and exempt equipment.	EU-UNIPRIME EU-SOLVENT-WIPE EU-SEALERS&ADHESIVE EU-BLACKOUT-BOOTH EU-FINAL-REPAIR EU-SPOT-REPAIR-DECK EU-TUTONE EU-COLOR-ONE EU-COLOR-TWO EU-REPROCESS
FG-OLDMACT	The affected source is each new, reconstructed, or existing Organic Liquid Distribution (OLD) (non-gasoline) operation that is located at, or is part of a major source of hazardous air pollutant (HAP) emissions. The affected source is comprised of storage tanks, transfer racks, equipment leak components associated with storage tanks, transfer racks and pipelines, transport vehicles, and all containers while loading or unloading at transfer racks subject to this subpart. Equipment that is part of an affected source under another NESHAP is excluded from the affected source.	
FG-BOILER-MACT5D	Requirements for existing Gas 1, (Natural Gas only) for existing Boilers and Process Heaters at major sources of Hazardous Air Pollutants per 40 CFR Part 63, Subpart DDDDD. These existing boilers or process heaters must comply	EU-TEMPBOILER1 EU-TEMPBOILER2 EU-BOILER3 EU-BOILER4 EU-BOILER5

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
	with this subpart no later than January 31, 2016, except as provided in 40 CFR 63.6(i).	EU-BOILER6
FG-CI-RICE-MACT4Z<500HP	Existing CI Engines located at a Major Source < 500 HP, Emergency.	EU-ENG-FPH1
FG-CI-RICE-MACT4Z>500HP	Existing CI Engines located at a Major Source > 500 HP, Emergency.	EU-ENG-SMB1 EU-ENG-SMB2
FG-CI-RICE-NSPS4I<500	This flexible group includes new emergency compression ignition (CI) Diesel fired stationary reciprocating internal combustion engines (RICE) that have a maximum site rating of greater than or equal to 100 brake horsepower (HP), but less than 500 (HP) and subject to 40 CFR 60, Subpart IIII.	EU-ENG-FPH2 (305 HP, 01/01/2011, Fire Pump emergency engine)
FG-COLD-CLEANERS	Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278 and Rule 281(h) or Rule 285(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.	
FG-RULE-290	Any emission unit that emits air contaminants and is exempt from the requirements of Rule 201 pursuant to Rules 278 and 290.	
FG-RULE-287(c)	Any emission unit that emits air contaminants and is exempt from the requirements of Rule 201 pursuant to Rules 278 and 287(c).	

EU-MECH-WASHER

Removed: April 2019

Mechanical body washer in “Body-in-White” is for cleaning vehicle bodies with a cleaner and a rust-inhibitor.

Before a car body leaves welding area, the body is washed with cleaner and rust inhibitor using mechanical body washer. Soap (Hazardous Substance Liquid, NOS Sodium Nitrate) is used. After soap and hot water wash, truck is blow-dried.

MI-ROP-B2767-2016, EU-MECH-WASHER, I

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Actual emissions (2017)	
1. VOC	21.5[2 β] Pounds per hour	Hour	EU-MECH-WASHER	0.46	
2. VOC	45.24[2] Tons per year	12-month rolling time period	EU-MECH-WASHER	0.10	

[β]Based upon monthly values using methods acceptable to AQD.
All actual emissions are based upon CY 2017 and 4Q2017 reports.

MI-ROP-B2767-2016, EU-MECH-WASHER, VI:

Hours of operation, materials usage, VOC emission rates, and VOC content records are kept. The required calculations are performed to show compliance with the limits.

The records and calculations are kept on file until EU-MECH-WASHER was removed in April 2019.

EU-UNIPRIME (FG-AUTOMACT)

Uniprime is a cathodic electrodeposition primer system to apply primer to vehicle bodies with an associated curing oven. Uniprime system is an immersion (dip) e-coat system with DC voltage, where vehicle bodies are grounded and coating solids are positively charged. Both coating and water are recycled/reused using ultrafiltration (UF) membranes.

Control: One regenerative thermal oxidizer (Durr Rotary design RTO) for curing oven emissions (about 2008 one E-coat oven RTO replaced two thermal oxidizers).

This is a cathodic electrodeposition primer system (there is no anodic system in US anymore), which applies a primer coating to vehicle bodies, which are cured in an oven. The process is equipped with one regenerative thermal oxidizer (1 e-coat RTO, Durr Rotary Disign) to destroy VOC from e-coat bake oven. In CY2008, one e-coat Durr RTO replaced two existing e-coat thermal oxidizers (2 TO) as a part of energy savings program. In 2009, 2 E-coat TOs that an RTO replaced moved to Color1 and Tu-tone ovens; one TO at each location. These older TOs in turn were replaced in CY 2019.

Durr Rotary Disign RTO accomplishes heat recovery using twelve (12) “Regenerative” heat recovery chambers containing beds of ceramic heat recovery media accomplish energy recovery. The chambers reside in a common housing fabricated from steel plate with internal divider walls of stainless steel and ceramic material.

Before electrodeposition (e-coat), aka uni-prime, a car body is cleaned and prepared for coating application. Cleaning and preparation is done in many stages:

- Stage 0: Pre-clean with water; water is recycled.

- Stage 1 & 2: Hot water (steam is replaced), chemical detergent cleaning with high velocity nozzles. Stage 1 soap water spray. Phosphate system stage 2 immersion cleaner (Hot).

- Stage 3: Stage 3 cold water spray. Rinse with water, which is recycled to stage 1 upon filtration.

- Stage 4: Rinse with titanium-based solution (34,000-gallon conditioner tank).

- Stage 5: Zinc phosphate immersion coating (acidic, 200 ppm Ni, 600 ppm Mg). 200 mg per sq. ft phosphate deposit. Sludge from Stage 5, is filtered on a filter paper with a vacuum to pull water.

- Stages 6-9: Rinsed with city (Stage 6), DI water, virgin DI water. Water is recycled in a counter-current fashion in a staged operation; i.e., Stage 9 water is recycled to Stage 8 and so on. 200-300 mg of zinc phosphate per square feet.

For assembled car bodies (non-painted), two (2) Saint Clair Systems X-Therm Ultra High Efficiency hot water heaters were present to supply hot water for body wash. The heaters (2) were fired with natural gas. Dry-off blowers were present to remove water from bodies. However this entire system was removed to make room for construction.

Uniprime system consists of immersion cathodic e-coat with an application of DC Voltage. While a car body is grounded (negative - cathode), paint particles are positively charged. Due to the application of DC Current (182 Volts & 3-6 Amps) and plating reaction, an acid (sulfamic) solution is created. Paint temperatures are tested (91-95º F). Paint solids are maintained at 20% by mass in 110,000-gallon paint bath; rest is DI (RO) water. Water is purged based upon acidity (electrical conductivity, 1165 mhos, 5.28 Ph reading during the inspection) and equal amount of fresh make-up water is added to balance purge and losses; the purging maintains proper pH (5.28 pH during the inspection). Also, biocides are added. Ultrafiltration Unit (UF) is used to recover paint; recovered paint (UF concentrate) is recycled into e-coat bath. Upon completion of electrodeposition (e-coat) of paint solids on a car body, a body is removed and excess paint is rinsed in three (3) stages. Paint and water are recycled using UF membranes. Ultrafiltration (UF) Unit is used to recover paint; recovered paint (UF concentrate) is recycled into e-coat bath. Finally, a body is rinsed with virgin DI water (RO). Thus e-coated truck's excess water is blown off. Paint solids are always returned to the e-coat bath; UF permeate is used to wash truck body being e-coated and UF concentrate (paint solids) is returned to e-coat bath. Small molecular size paint solids in UF permeate help put finishing touches to just e-coated car / truck body.

The following processes exist:

1. Spray wash system, 2,500 gallons / minute and 5-10 psi

2. Wash bath solids, 0.8% conductivity, 800-2000 mhos, pH = 4.5-6.2 T=85-95 ºF

3. DI (actually RO) water wash – recirculation tank

The e-coated car body is baked in an oven at 375 ºF. Solvent (85% IPA, 15% water) wipes were used in the past to clean a body; the solvent wipes are not used anymore. E-coat oven is natural gas fired. When RTO malfunctions, e-coat system completely shuts down via an inter-lock system. A cool-off tunnel is present to cool the trucks / jobs after baking at 375 ºF. In order to facilitate production interruption (lunch, overnight), a strip bank is present to hold up to 170 jobs.

Mr. Keith White assisted with e-coat process.

MI-ROP-B2767-2016, EU-UNIPRIME, I.

Jobs per hour (JPH)reduced substantially due to full production at SHAP and due to WTAP plant's construction of new paint line. (CY 2018 = 68 Vs CY 2019 = 40 JPH)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Actual emissions CY 2017	Actual emissions CY 2019
1. VOC	14.5[2 β] Pounds per hour	Hour	EU-UNIPRIME (dip tank)	2.01	**2.64**
2. VOC	31.23[2] Tons year	12-month rolling time period	EU-UNIPRIME (dip tank)	10.79	**5.16**
3. VOC	8.2[2 β] Pounds per hour	Hour	EU-UNIPRIME (oven)	0.61	**0.66**
4. VOC	17.66[2] Tons per year	12-month rolling time period	EU-UNIPRIME (oven)	2.07	**1.53**
5. VOC	1.34[2] Pounds per gallon of applied coating solids	Monthly average	EU-UNIPRIME (dip tank and oven)	0.09	**0.112**

[β]Based upon monthly values using methods acceptable to AQD.
All actual emissions are based upon CY 2017 & 4Q2017 (or December 2017) and CY 2019 & 4Q2019 (or December 2019) reports.

MI-ROP-B2767-2016, EU-UNIPRIME, III.1.

E-coat RTO is operating properly based upon temperature charts. Set point is 1375 ºF. EU-UNIPRIME, III.1 requires minimum operating temperature of 1450 ºF or the most recent performance test temperature. However, based upon November 2010, E-coat RTO Ladder Study, AQD approved the RTO operating temperature of 1375 ºF via Robert Byrnes' Dec 21, 2010, e-mail to Mary Turner. The ROP limit's 1450 ºF was based upon March 11, 2008, Destruction Efficiency (DE) tests. November 05, 2015, Destruction Efficiency (DE) tests at 1378 ºF achieved 92.8% destruction. ROP does not require minimum DE but the values are used in calculations.

Note: *About 2008, concerning E-coat oven, one Regenerative Thermal Oxidizer (RTO) replaced two thermal oxidizers.*

MI-ROP-B2767-2016, EU-UNIPRIME, V.1: US EPA Reference Test Method 24

VOC: PPG determines coating VOC content using US EPA RM24. US EPA Reference Method 24 (US EPA RM24) tests are done by PPG.

MI-ROP-B2767-2016, EU-UNIPRIME, V.2-3. Transfer Efficiency (TE) and Oven Solvent Loading (OSL) or Capture Efficiency (CE)

OSL: Oven Exhaust Control Device VOC loading (Oven Solvent Loading) was conducted in 1990s. OSL is assumed to be 85%. At any rate, as allowed by the Protocol, default TE value is assumed to be 100 percent for e-coating process.

MI-ROP-B2767-2016, EU-UNIPRIME, V.4: Destruction Efficiency (DE)

September 2001 DE tests for 2 TOs

Based upon the September 2001 tests, destruction efficiencies (DE) are 99 and 98 percents for two thermal oxidizers (2 TO), which served E-coat ovens A & B (two ovens). Oven loading is assumed to be 85 percent. However, in CY2008, two old thermal oxidizers (2 TO) were replaced by one Durr Rotary Regenerative Thermal Oxidizer (1 Durr Rotary RTO).

2008 and 2010 DE tests for e-coat RTO: DE and E-coat RTO Ladder Study

On February 06, 2008, AQD received the e-coat RTO test plan dated February 5, 2008. AQD's Tom Maza approved the test plan via DE test plan approval letter dated March 6, 2008. Durr Systems, Inc. hired Bureau Veritas North America, Inc. (248-344-2661) of Novi, Michigan, to conduct DE tests. AQD received the DE test report (the cover letter dated April 16, 2008), on April 23, 2008. Inlet and outlet VOC sampling were conducted on March 11, 2008. Destruction Efficiency (DE) reported is 95 percent based upon three run (91, 96 & 97) average. RTO firebox temperature was 1,450 ºF. On October 21, 2010, AQD received an E-coat RTO Ladder Study plan. AQD neither approved this plan nor observed the sampling. The purpose of the ladder study was to reduce the E-coat RTO operating temperature from 1450 ºF to 1337 ºF. The RTO was able to destroy 92.7% of VOC at 1337 ºF. The same RTO was able to destroy 95.2% (average of 95.1 and 95.3) of VOC at 1375 ºF during November 9-10, 2010 testing. Hence, AQD approved the RTO operating temperature of 1375 ºF (EU-Uniprime, III). Bureau Veritas North America, Inc. (248-344-2661) of Novi, Michigan, conducted DE tests for the E-coat RTO ladder study. AQD (Tom Maza) did not review the ladder study report in detail; only spot checks were done.

2015 DE tests for e-coat RTO

FCA US (Chrysler) performed destruction efficiency (DE) tests about November 05, 2015. RWDI AIR Inc. (RWDI Project #1600240, December 2, 2015) of Windsor, Ontario, Canada sampled on November 05, 2015. Sampling was witnessed by Mr. Mark Dziadosz of AQD-TPU. USEPA Reference Method 25A flame ionization analyzer was used. Three 1-hour tests concurrently at the inlet and outlet were conducted in order to determine the average destruction efficiency of the RTO. An average Destruction Efficiency based on mass rates (inlet = 21.2 & outlet = 1.5 pounds per hour NMVOC as propane) is 92.8% at 1378 ºF. Production rates remained, on average, between 31 and 37 vehicles per hour during the testing.

MI-ROP-B2767-2016, EU-UNIPRIME, VI.1: temperature measurement device of RTO

E-coat RTO (1) thermocouples are calibrated or replaced on annual basis. Maintenance Dept. keeps calibration / replacement records. Durr inspects RTO on an annual basis.

MI-ROP-B2767-2016, EU-UNIPRIME, VI.2: records/calculations

Production hours, coating usage, coating content, OSL & TE values, etc. records are kept. The calculations showing VOC limits (MI-ROP-B2767-2016, EU-UNIPRIME, I) compliance are performed in a timely manner and quarterly VOC reports are submitted.

MI-ROP-B2767-2016, EU-UNIPRIME, VI.3: bypass

There is a conveyor interlock system that stops the conveyor when RTO bypass occurs.

MI-ROP-B2767-2016, EU-UNIPRIME, VI.4: CAM O&M plan

E-coat RTO CAM plan was submitted with the ROP renewal application and implemented per Appendix 3.

MI-ROP-B2767-2016, EU-UNIPRIME, VII:

Semi-annual, annual certifications (ROP, MACT, CAM, MAERS) and quarterly (VOC) reports are submitted.

MI-ROP-B2767-2016, EU-UNIPRIME, IX:

FCA complies with NSPS MM via Auto Protocol calculations. According to CAM, FCA is required to notify AQD of excursions as defined in CAM.

Powder antichip coating (Exempt; not part of ROP)

The antichip powder coating process is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1287(d) and there is no applicable requirement as a condition of the exemption; hence the powder coating process is not a part of the RO Permit.

Entire car body is sprayed with powder antichip using 6 robots (2 nozzles on each robot) and 24 bells. While there are16 bells (8 on each side) for vertical surface, there are 8 bells for horizontal surface. Robots use 100%virgin powder. A car body is sprayed with a mixture of 20% virgin powder and 80% recycled / reclaimed powder. A hood is spray with 100% virgin powder. The collectors are present at the lower level to collect overspray particles. Humidity (< 65% RH) and temperature (< 65 deg F) are important factors and are controlled carefully using an AC system. 2-4 mil powder coat is deposited versus 1 mil e-coat application; 1 mil = 1/1,000 inch. While the particles are charged, a body is grounded. 2.2-3.2 mils of coating is applied to horizontal surface, 1.7-2.7 mils on vertical surface, 2-2.7 on rocker panel (where rocks hit). Two (East & West) ovens are used to bake the powder coating.

At the lower level, the elaborate reclamation operations are present to recycle / reuse the powder. Air is recycled as well; 20 percent of air is purged to control fines in the recycled powder, an equal amount of make-up air is added to maintain balance; effectively 80% of air is recycled. Both recycled air and make-up air are filtered using Torit Cartridge Filters.

Powder comes in totes or lately bags. Virgin powder is of Tyler #200 mesh size (0.074 mm = 0.0029 inches). Recycled powder is of Tyler #230 mesh size (0.06 mm = 0.0025 inches). There are three (3) mix tanks: 1. virgin, 2.mix (20 percent virgin plus 80 percent reclaim), 3. 100 % recycle mix tanks. The mix tanks are kept in a fluidized state to prevent cluster formation. There are two powder systems (A & B). The powder coating is baked in the 8-zone oven (6 radiant followed by 2 convection zones). Powder coat is baked for 30 minutes at 360-450 deg F.

While a horizontal surface is sprayed with 100 percent virgin powder, a vertical surface is sprayed with a mixture of 20 percent virgin powder and 80 percent recycle / reclaim powder.

With new paint lines (East and West), powder-coat will be replaced by liquid primer surfacer due to higher quality requirements and space constraints.

EU-Sludge-dryer (E-1.3, Permanently Shutdown; removed from 2011 ROP)

Before permanent shutdown in 2006, paint sludge was dried using the natural gas fired sludge dryer equipped with a cyclone to collect particulate matter and thermal oxidizer to destroy VOC. The sludge dryer has not operated since September 2006; it has been idled. In CY2008, many important components were removed and the sludge dryer never operated again. During FY2008 inspection, I asked Mr. Tom Thornton to send Rule 336.1215/1216 notice regarding this permanent shutdown status. The notices were never sent. However, the status change was incorporated into 2011 ROP.

By September 2009, all components of the sludge dryer were removed.

EU-SOLVENT-WIPE (FG-AUTOMACT)

Emissions from solvent wipes and body cleaners throughout the plant.

Solvent (85% isopropyl alcohol or IPA & 15% water, generally) wet wipes are used for cleaning throughout paint process. Apart from 85% (31.26 pounds per case) IPA wipes, 95% IPA (14.72 pounds per case), 75% IPA (75% IPA & 25% Methoxy Propanol, 45.63 pounds per case) wipes are used as well. Number of IPA wipe cases is counted for the purpose of record keeping.

About 2015, Chrysler implemented centrifugal recovery of solvents from rags. Mobile solvent recovery unit, periodically, comes to the site and operates a centrifuge to separate solvents from rags. Solvents are recovered and recycled. Rags are recycled.

MI-ROP-B2767-2016, EU-SOLVENT-WIPE, I:

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Actual emissions CY 2017	Actual emissions CY 2019
1. VOC	488.6[2 β] Pounds per hour	Hour	EU-SOLVENT-WIPE	332.39	**156.22**
2. VOC	1502.58[2] Tons per year	12-month rolling time period	EU-SOLVENT-WIPE	732.87	**555.74**

[β]Based upon monthly values using methods acceptable to AQD

All actual emissions are based upon CY 2017 & CY 2019 and 4Q2017 & 4Q2019 (or December 2017 & 2019) reports.

.FCA counts number of cases for the purpose of the calculations.

MI-ROP-B2767-2016, EU-SOLVENT-WIPE, VI:

Hours of operation, materials usage, VOC emission rates, and VOC content records are kept.

MI-ROP-B2767-2016, EU-SOLVENT-WIPE, VII:

Semi-annual, annual cert. and quarterly (VOC) reports are submitted.

EU-SEALERS&ADHESIVE (FG-AUTOMACT)

Application of sealers and adhesives and associated gelling oven.

Control device: Sealer and adhesive materials hardly contain VOC (<< 5%). Most sealers are baked in E-coat oven and hence, e-coat Durr RTO controls sealer VOC.

Sealer deck emissions are dried in gel oven (sealer) and hence not controlled by e-coat Durr RTO.

The emission unit consists of sealers and adhesive application throughout the plant. After powder antichip, the assembly line splits into two lines (70 jobs per hour or jph = 35 jph +35 jph). After sealers application, the cars / trucks are baked in two gen ovens (East and West). The ovens operate at 295 ºF but the truck body attains 140 ºF to dry off VOCs. The line can be split between Color1-Tu-tone and Color2; Color2 has nothing to do with Tu-tone. All sealers are applied after powered coating except ditch rail sealer. Color1 and Color2 lines are identical.

MI-ROP-B2767-2016, EU-SEALERS&ADHESIVE, I:

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Actual emissions CY 2017	Actual emissions CY 2019
1. VOC	151.2[2 β] Pounds per hour	Hour	EU-SEALERS&ADHESIVE	4.4	**3.3**
2. VOC	325.73[2] Tons per year	12-month rolling time period	EU-SEALERS&ADHESIVE	8.94	**7.39**
3. VOC	3.0[2 θ] Pounds per gallon of coating, minus water, as applied	Daily / Monthly (see SC VI.1)	EU-SEALERS&ADHESIVE	0.0006	**0.0006**

[θ]On monthly basis if and only if all coatings satisfy the limit.
[β]Based upon monthly values using methods acceptable to AQD.
All actual emissions are based upon CY 2017 and 4Q2017 (or December 2017) reports.

MI-ROP-B2767-2016, EU-SEALERS&ADHESIVE, V:

Cemedine Company (there are other suppliers also) supplies US EPA RM24 data for VOC content. The highest use sealer has VOC content of < 0.3 pound VOC per gallon.

MI-ROP-B2767-2016, EU-SEALERS&ADHESIVE, VI:

Production hours, material usage, materials VOC content, etc. records are kept. The calculations showing VOC limits compliance are performed in a timely manner and quarterly VOC reports are submitted.

MI-ROP-B2767-2016, EU-SEALERS&ADHESIVE, VII:

Quarterly VOC emissions reports are submitted.

The emissions data is based upon 4Q2017 VOC report.

Determination of sealer VOC destruction in E-coat bake oven (Dec 2012).

Personnel present:

Mr. Iranna Konanahalli (E-mail: konanahallii@michigan.gov)

Thomas Thornton (E-mail: tt158@chrysler.com)
Rohitkumar Patel (E-mail: rgp6@chrysler.com)

On November 30, 2012, Mr. Tom Maza of AQD-TPU approved the test protocol.

Chrysler used 2 inches * 4 inches metal panels to carry sealers through the assembly process. Three (3) sealers were used: one structural non-expandable sealer (like liquid nail or liquid weld, black) and two expandable sealers. Sealers (except black structural) expand upon baking in an oven so as to provide tight seal. Three sealers were applied to metal panels such that 9 sandwiches (3 sandwiches per sealer; i.e. 3 runs for each sealer) were made. Three control panels (not pairs) were used as blank.

On December 3, 2012, 9 pairs of panels and three control panels were weighed for tear weight; of course no sealers on them. Sealers (3 types) were applied on 9 pairs of metals so as to form sandwich of a sealer material between two metal plates (panels). 9 pairs (sandwiches) and 3 control panels were weighed again to obtain sealer weight.

Allowed panels and sealers to rest at room temperature for 16 hours and weighed, on December 4, 2012, again to determine weight loss due to evaporation. Because sealers are highly viscous (requiring 30,000 psi pressure to apply), weigh loss was practically zero.

The panels (9 pairs plus 3 controls) were baked for about 45 minutes by hanging them on the production vehicles / trucks; the panels were not spot-welded. The panels were allowed to cool to room temperature. The panels were weighed again.

Each sample panel was weighed seven times based up six sigma principles to obtain accurate weight. Mettler Toledo AG204 Balance, which was calibrated on July 12, 2012, was used. Each time between a set of weighing, the balance was checked using standard weights. All weighing occurred in a vibration-free area (Mr. Thornton's office at Warren Truck Assembly Plant). Each time the balance was allowed to reset to zero.

On February 14, 2013, AQD received the sealer test results as follows (% VOC delivered to E-coat oven):

1. 100.10 percent structural epoxy adhesive (0.0% volatile content)

2. 97.73 percent Henkel-Terostat SA-4510 MS-CD 470F (0.6% volatile content)

3. 99.39 percent Henkel-Terostat 4600 MS-CD-473H (3% volatile content)

The sealer coated body is baked in E-coat oven (338 ºF). The E-coat RTO destruction efficiency is 93.8% based upon November 2010 stack test.

Maximum volatile content of sealers is 3% and rest is solids. About 94 percent of VOC are destroyed in E-coat oven.

Sealer test conclusion: About 94 percent of VOC from sealers (maximum 3% volatile content) are destroyed by the thermal oxidizer via E-coat oven.

EU-BLACKOUT-BOOTH (FG-AUTOMACT)

Spray booth for applying blackout paint to vehicle bodies. The booth is on long-term idle. The booth is used as an inspection area.

The blackout application was done in a booth with a dry filter system. Blackout was done for Mitsubishi vehicles only. Blackout application is not used at this time because Mitsubishi vehicles are not manufactured at this time.

At this time Blackout Booth is used as an inspection area.

Continue

EU-TUTONE (FG-AUTOMACT)

Removed in January 2020. Idle in CY 2019.

The Tutone booth for applying topcoat on Tutoned vehicle bodies and associated curing oven.

Controls

1. A thermal oxidizer (TO) for VOC from the bake oven. Replaced December 2017. Set point = 1291 ºF
2. A down-draft waterwash system for paint overspray particulate control.

At tu-tone (EU-TUTONE), all painting is robotic: two (2 mobile) BC robots and four (4 stationary) CC robots. Tu-tone application is baked to tack (not fully baked but sufficiently dried). After this semi-bake, vehicles are masked at masking deck. No car painted at Color2 booth gets tu-tone color

The process consists of tu-tone booth for tu-toned vehicles with downdraft water wash for paint overspray, one thermal oxidizer (1 TO) to destroy the tu-tone oven VOC.

MI-ROP-B2767-2016, EU-TUTONE, I:

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Actual emissions	Idle in 2019
1. VOC	12.3[2 θ] Pounds per gallon (1.47 kg per liter) of applied coating solids	Calendar month	EU-TUTONE	10.83	
2. VOC	381.1[2 β] Pounds per hour	Hour	EU-TUTONE Spraybooth	4.61	
3. VOC	821[2] Tons per year	12-month rolling time period	EU-TUTONE Spraybooth	22.91	
4. VOC	9.51[2 β] Pounds per hour	Hour	EU-TUTONE Oven	0.12	
5. VOC	20.53[2] Tons per year	12-month rolling time period	EU-TUTONE Oven	0.59	

[θ]Per the EPA Protocol (VI(4) & (6))

[β]Based upon monthly values using methods acceptable to AQD.

All actual emissions are based upon CY 2017 and 4Q2017 (or December 2017) reports.

All emission calculations are based upon the Protocol default transfer efficiency (TE) of 55

All emission calculations are based upon the Protocol default transfer efficiency (TE) of 55% for Tu-tone.

October
October 2013 TE test.

For clearcoat (CC) TE value of 64.80 ≈ 65 is used based upon October 2013 tests.

MI-ROP-B2767-2016, EU-TUTONE, III:

1. Thermal oxidizer is installed and operating properly. In December 2017, new thermal oxidizer (TO) replaced existing TO for Tu-tone oven VOC emissions. February 14-15, 2018, stack test temperature of 1291 ºF (RWDI #1703283, April 11. 2018) is new temperature limit (Destruction Efficiency (DE) Based on Mass Rates = 96.8%). April 2015 stack test temperature limit was 1360 ºF for the previous tu-tone thermal oxidizer. Temperature charts are maintained on the computer. New limit is minimum 1291 ºF.

2. Water wash system is essential to operation of paint spray booths. MPS (Mike Frauges Services; no longer Abedengo) inspects water wash systems once per week and submits reports

MI-ROP-B2767-2016, EU-TUTONE, V.1: US EPA RM-24

VOC: VOC content records using RM-24 are kept. PPG, a paint supplier, sends US EPA RM-24 VOC content information with each tote of paint.

MI-ROP-B2767-2016, EU-TUTONE, V.2: Transfer Efficiency (TE) Test

TE: Transfer Efficiency (TE) Test is not done; however, the Protocol default value of 55% for Tu-tone TE is used in calculations except for CC (CC TE = 65 default value). The RO Permit allows use of default TE value in lieu of TE test. At any rate, the RO Permit allows use of default TE value in lieu of TE test. Tu-tone accounts for < 10 percent total production based upon 2013 calculations; current estimate is about 4%.

MI-ROP-B2767-2016, EU-TUTONE, V.3: Oven Solvent Loading (OSL) or Capture Efficiency (CE)

2011 OSL tests at Windsor

In 2011 OSL tests were conducted in Windsor, Canada. Mr. Maza approved off-site OSL testing according to Sec. 21 of the Auto Protocol. Chrysler was required to test a representative coating from each group based upon characteristics. The research center must simulate assembly plant conditions. At ARDC, OSL tests were conducted on August 1, 2011 using solvent-based basecoat coatings and clearcoat coatings. The Oven Solvent Loading (OSL) results at 100 percent transfer efficiency are summarized below. The OSL must be converted to actual TE conditions. Bright white coating: 18.59% and 1.728 lbs. / GACS; Bright silver coating: 29.74% and 2.544 lbs. / GACS; Deep Cherry Red coating: 19.27% and 1.659 lbs. / GACS; Clearcoat NCT10 coating: 61.33% and 6.731 lbs. / GACS Tu-tone was not part of the 2011 OSL test.

2013 transfer efficiency (TE) and oven solvent loading (OSL) tests.

On August 6, 2013, AQD received a transfer efficiency (TE) test and an oven solvent loading (OSL aka CE = capture efficiency) plans notification. On September 11, 2013, Mr. Tom Maza of MDEQ-AQD-TPU approved the test protocol. All tests and calculations were

done according to the Auto Protocol (EPA-453/r-8-002). TE tests are based upon solid basecoat, metallic basecoat and clearcoat coatings. OSL tests are based upon basecoat and clearcoat coatings. During October 08, 2012, meeting (Tom Maza, Iranna Konanahalli, Rohit Patel), it was decided as follows: OSL only (no TE) for Topcoat Reprocess and Tu-tone and both TE and OSL for Colore2 (Color 1 and Color2 lines are identical and Color2 was chosen as a representative line). While OSL / CE tests were conducted using test panels, TE tests were conducted using vehicle bodies. During CC TE tests, robot malfunction caused the process to operate under “degrade” mode”, which may lower TE values. AQD-TPU received the test report on December 12, 2013. Tom Maza of AQD-TPU completed the review of the OSL & TE test report on February 28, 2014.

Bureau Veritas North America, Inc. (Project Nos. 11013-000181.00 and 11013-000184.00) conducted both OSL and TE tests during October 2013.

AQD calculated values are generally in agreement with Bureau Veritas’ values with a margin of error.

OSL / CE values are summarized below:

Coating line	AQD lbs./GACS	Bureau Veritas lbs./GACS	AQD CE %	Bureau Veritas CE %
Line2 BC	1.26	1.25	9	8.8
Line2 CC	3.97	3.98	32.5	32.2
Reprocess BC	1.25	0.74	9.1	5.2
Reprocess CC	2.93	2.97	24.0	24.1
Tu-tone BC	1.34	1.31	9.7	9.2
Tu-tone CC	3.74	3.64	30.3	29.5

(Line2 = Color2, BC = Basecoat, CC = Clearcoat)

While AQD calculated Line2 (Color2) TE values are 71.2 % for Metallic BC, 64.7% for Solid BC and 63.4% for CC, Bureau Veritas are 71.2 % for Metallic BC, 64.6% for Solid BC white and 64% for CC.

MI-ROP-B2767-2016, EU-TUTONE, V.4: Destruction Efficiency (DE) tests

April 2018 DE

On September 29, 2017, AQD received Notification of Intent to Conduct Air Compliance Testing at FCA US LLC’s Warren Truck Assembly Plant (WTAP) (RWDI Reference No. 1703283) from Responsible Official Mr. Andrew Raglyi (Phone: 586-497-3955) via letter dated September 27, 2017. The notification pertains to destruction efficiencies of the thermal oxidizers (TO) for volatile organic compounds (VOC) for controlling the bake oven emissions from EU-TUTONE, EU-COLOR- ONE, EU-COLOR-TWO and EUREPROCESS Lines. WTAP replaced the existing Thermal Oxidizers (TOs) for EU-TUTONE (December 2017), EU-COLOR-ONE, (August 2017) EU-COLOR-TWO (December 2017) and EU-REPROCESS (July 2018). As stated above, FCA WTAP replaced, in 2008, e-coat thermal

oxidizers (2 TOs) with one Rotary Durr RTO (1 Durr RTO) for fuel efficiency. US EPA Reference Methods: 1, 2, 3, 4, 25A would be used. The DE test plan included Temperature Ladder Study. AQD (Mark Dziadosz of AQD-TPU) approved the VOC Destruction Efficiency (DE) Test Plan vial the letter dated October 17, 2017, to Mr. Andrew Ragalyi, Plant Manager. On April 13, 2018, AQD received DE test report for EU-COLOR-TWO and EU-TUTONE and AQD-TPU (Dziadosz) would only perform cursory review this report. RWDI AIR Inc. (Phone: 519-974-7384, RWDI #1703283, April 11. 2018) sampled, during February 13 thru February 15, 2018, concurrently at the inlets and outlets (three 1-hour tests) of corresponding thermal oxidizers and analyzed VOC using flame ionization analyzer as propane as described in USE PA Method 25A. The mass rate destruction efficiencies obtained are: EU-COLOR-TWO (February 13, 2018) = **99.0% at 1291 ºF** and EU-TUTONE (February 14-15, 2018) = **96.8% at 1291 ºF**. Testing for VOCs was accomplished simultaneously at the inlet and outlet using continuous emission monitors (CEM). VOC testing followed USEPA Method 25A "Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer". In order to compare inlet and outlet concentrations, the outlet concentrations of total VOCs were converted to parts per million (ppmv) as propane. The exhaust gas sample was withdrawn from a single point at the center of the duct or stack using a stainless-steel probe. The sample proceeded through a heated filter where particulate matter was removed. The sample was then transferred via a heated Teflon® line and introduced to the analyzer (hot/wet) for measurement.

MI-ROP-B2767-2016, EU-TUTONE, VI.1: thermal oxidizer temperature monitoring device

Thermocouples are calibrated or replaced once per year. Maintenance Dept. keeps calibration / replacement records.

MI-ROP-B2767-2016, EU-TUTONE, VI.2: weekly visual inspections of the waterwash system

MPS (Mike Frauges Services, no longer Abedengo) inspects water wash systems once per week and submits reports

MI-ROP-B2767-2016, EU-TUTONE, VI.3: The temperature monitor shall be placed in the firebox

Temperature monitor is placed in the fire-box.

MI-ROP-B2767-2016, EU-TUTONE, VI.4:

According the US EPA Auto Protocol (the Protocol or Auto Protocol), VOC records are kept. Transfer Efficiency (TE) Test is not done; however the **Protocol default value of 55 for TE** is used in calculations except for CC (CC TE = 65 or Round (64.800 default value). The RO Permit allows use of default TE value in lieu of TE test. DE, TE, OSL values are kept.

MI-ROP-B2767-2016, EU-TUTONE, VI.5: Plant production hours

Monthly production hours are kept.

MI-ROP-B2767-2016, EU-TUTONE, VI.6: Records of the VOC mass emission rates

VOC emissions rates to show compliance are calculated.

MI-ROP-B2767-2016, EU-TUTONE, VI.7: Records of water wash system inspection

MPS (Mike Frauges Services; no longer Abedengo) inspects water wash systems once per week and submits reports.

MI-ROP-B2767-2016, EU-TUTONE, VI.8: Bypass

Ovens depend on heat from thermal oxidizers and hence an interlock system stops the line. No bypass.

MI-ROP-B2767-2016, EU-TUTONE, VI.9-13: Operation and Maintenance (O&M) plan. Appendix 3 CAM.

CAM O&M plan submitted with ROP application and implemented. FCA complies with NSPS MM via Auto Protocol calculations. FCA has implemented CAM.

MI-ROP-B2767-2016, EU-TUTONE, VII.1-6:

Semi-annual deviations, annual certification, CAM, MAERS, MACT and quarterly VOC emissions reports are submitted.

EU-FLUID-FILL

Stations for filling fuel tanks (gasoline) and windshield washer solution, brake, power steering etc. reservoirs.

Control: Stage II vapor balance system or onboard Re-fueling Vapor Recovery systems for vehicles. All cars and trucks are designed with ORVRS as required by CAA Mobile Source regulations.

All trucks are filled with gasoline (7.4 gallons per car) or ultra-low sulfur diesel (ULSD 15 ppm S, 4 gallons per car), engine coolant, windshield washer, etc.

MI-ROP-B2767-2016, EU-FLUID-FILL, I.

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Actual emissions CY 2017	Actual emissions CY 2019
1. VOC	12.3[2 β] Pounds per hour	Hour	EU-FLUID-FILL	1.887	**2.52**
2. VOC	26.39[2] Tons per year	12-month rolling time period	EU-FLUID-FILL	6.23	**5.49**

[β]Based upon monthly values using methods acceptable to AQD.

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Actual emissions CY 2017	Actual emissions CY 2019
All actual emissions are based upon CY 2017 & 2019 and 4Q2017& & 4Q2019 (or December 2017) reports.					

MI-ROP-B2767-2016, EU-FLUID-FILL, III: Stage II vapor balance system or onboard Re-fueling Vapor Recovery systems for vehicles.

All cars and trucks are designed with ORVRS as required by CAA Mobile Source regulations.

The US EPA rule requires onboard refueling emissions controls for passenger cars and light trucks (e.g., pickups, mini-vans, and most delivery and utility vehicles). The EPA rule does not require onboard refueling emissions controls for heavy-duty vehicles and trucks (those over 8500 pounds gross vehicle weight rating (GVWR)). The rule covers 97 percent of new vehicles and 94 percent of refueling emissions.

Therefore, a vapor balance system is not required. The change was incorporated in to MI-ROP-B2767-2011. October 22, 2009 Violation Notice regarding Stage II vapor balance system is resolved. (MI-ROP-B2767-2003, E-01.8.V).

MI-ROP-B2767-2016, EU-FLUID-FILL, VI: production hours, materials used, Calculations

Production records are kept and the calculations are performed.

MI-ROP-B2767-2016, EU-FLUID-FILL, VII:

Semi-annual deviations, annual certification, MAERS and quarterly VOC emissions reports are submitted.

EU-FINAL-REPAIR (FG-AUTOMACT)

Removed in July 2020 and idle in 2019.

Final repair system, for low-bake, includes two spot repair stations with associated spovens (one spoven per booth) and sanding booths in Repair Dept. 9190 of Main Building. Prep booths or sanding booths are equipped with side-draft dry filters. The spovens (spot ovens) are equipped with IR Heat and are located inside the downdraft spray booths. The booths (2) are equipped with downdraft filters like collision shop booths. These booths should not be confused with Spot Repair Deck 1-12, with carbon adsorption system, located in paint shop.

Controls:

1. Down-draft filters for paint spray booths

2. Side-draft filters for sanding booths

While Spot Repair (12 stations with carbon control for VOC) is in paint shop, Final Repair (two downdraft filter system booths) is the main building. Both use low bake paints.

Before spot repair painting, spot sanding is done in two separate identical booths, which are equipped with exhaust filters on one side. The sanding booths (2) are also known as Prep Booths. Final Repair consists of two identical repair booths with downdraft filters for paint overspray control, two sanding booths with side-draft filters and a paint mix room, which is enclosed in a cage.

The collision shop style down-draft booths are equipped intake air filters to ensure finish quality. Two spovens (spot ovens) that use IR heat provide heat provide for enhanced drying. Spovens are located within the down-draft booths.

Adjacent to these booths, final repair area is present where only pens and spray cans are used (Rule 287(b)).

MI-ROP-B2767-2016, EU-FINAL-REPAIR, I:

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Actual emissions CY 2017	Not used in 2019
1. VOC	45.0[2 β] Pounds per hour	Hour	EU-FINAL-REPAIR	0.055	
2. VOC	52.1[2] Tons per year	12-month rolling time period	EU-FINAL-REPAIR	0.18	
3. VOC	4.8[2 θ] Pounds per gallon of coating minus water as applied	Daily / Monthly (see SC VI.2)	EU-FINAL-REPAIR	4.137	
[θ]On monthly basis if and only if all coatings satisfy the limit. [β]Based upon monthly values using methods acceptable to AQD.					
All actual emissions are based upon CY 2017 and 4Q2017 (or December 2017)					

MI-ROP-B2767-2016, EU-FINAL-REPAIR, III, VI: Filters

All exhaust filters are installed and operating properly. Tri-Dim performs monthly inspections all filters at the plant. One such inspection was performed on December 31, 2017.

MI-ROP-B2767-2016, EU-FINAL-REPAIR, VI: production hours, materials used, Calculations

Production records are kept and the calculations are performed.

MI-ROP-B2767-2016, EU-FINAL-REPAIR, VII:

Semi-annual deviations, annual certification, MAERS and quarterly VOC emissions reports are submitted.

EU-SPOT-REPAIR-DECK (FG-AUTOMACT)

1 through 12 spot repair painting stations with portable hose emissions capture system and associated IR (infra-red) curing ovens. The emissions are ducted to a common control system consisting of series of dry filters and carbon adsorption. Carbon is monitored for breakthrough using color change at sight glass.

Controls:

1. Dry filter system for particulate emissions

2. Carbon adsorption system for VOC

Note: Monroe Environmental makes dual (particulate filter plus carbon adsorption) control system.

Filters are equipped with two Photohelic pressure gauges for pressure drop across the filters. Carbon adsorption system is equipped with color indicator for carbon breakthrough detection. TriDim checks both on monthly basis.

MI-ROP-B2767-2016, EU-SPOT-REPAIR-DECK, I:

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Actual emissions	Removed
1. 1. VOC	146.4[2] Pounds per day	24-hour calendar day	EU-SPOT-REPAIR-DECK	0.845	
2. 2. VOC	22.0[2] Tons per year	12-month rolling time period	EU-SPOT-REPAIR-DECK	0.10	
3. 3. VOC	4.8[2 θ] Pounds per gallon, minus water, as applied	Daily / Monthly (see SC VI.2)	EU-SPOT-REPAIR-DECK	4.216	
[θ]On monthly basis if and only if all coatings satisfy the limit.					
All actual emissions are based upon CY 2017 and 4Q2017 (or December 2017)					

MI-ROP-B2767-2016, EU-SPOT-REPAIR-DECK, III:

Monroe Environmental System's particulate filters and carbon adsorption are installed and operating properly. Tri-Dim performs monthly inspections all filters at the plant. One such inspection was performed on December 31, 2017. Tri-Dim inspected carbon (indicator glass tube) as well. HVLP guns are used. However in 2019 the process remained idle.

MI-ROP-B2767-2016, EU-SPOT-REPAIR-DECK, VI: production hours, materials used, Calculations

Production records are kept and the calculations are performed.

MI-ROP-B2767-2016, EU-SPOT-REPAIR-DECK, VII:

Semi-annual deviations, annual certification, MAERS and quarterly VOC emissions reports are submitted.

The flexible units are:

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-TOPCOAT	Two topcoat lines (EU-COLOR-ONE & EU-COLOR-TWO) and one high bake-repair operation (EU-REPROCESS), which is a part of the topcoat system. Each topcoat line consists of spray booths for applying topcoat to vehicle bodies and oven for curing. Reprocess is high bake repair operation that consists of spray booths for topcoat application to repair vehicle bodies and oven for curing. While Color1 (36 JPH) and Color2 (36 JPH) lines are identical topcoat lines (72 JPH), reprocess line is shorter and slower.	EU-COLOR-ONE EU-COLOR-TWO EU-REPROCESS (high bake repair)
FG-TEMPBOILERS	Two natural gas fired boilers. These are trailer-mounted temporary boilers installed since 2009 and mostly used in non-heating season (summer). Although capable of being moved, the boilers have been located at the plant for at least two years (as of March 2016). AQD received both NSPS Dc (April 30, 2007) and Major Source Boiler MACT 5D (May 24, 2013) notifications.	EU-TEMPBOILER1 EU-TEMPBOILER2
FG-BOILERS	Four (4) natural gas fired boilers to produce steam and heat.	EU-BOILER3 EU-BOILER4 EU-BOILER5 EU-BOILER6
FG–GASOLINE-TANKS	Three unleaded gasoline storage tanks.	EU–UNLEADEDGAS1
FG-RULE-331	Wood saws, lathes, etc.	EU-CARPENTERSHOP
FG-PM-MISC	This group consists of various emission units that have the same particulate requirements.	EU-COLOR-ONE-SAND EU-POLISH-DECK EU-REPROCESS-SAND EU-REPRO-POLISH EU-UNIPRIME-SAND
FG-AUTOMACT	FG-AUTOMACT: Each new, reconstructed, or existing affected source as defined in Title 40 of the Code of Federal Regulations (CFR), Part 63.3082, that is located at a facility which applies topcoat to new automobile or new light duty truck bodies or	EU-UNIPRIME EU-SOLVENT-WIPE EU-SEALERS&ADHESIVE EU-BLACKOUT-BOOTH EU-FINAL-REPAIR

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
	body parts for new automobiles or new light duty trucks; AND/OR in which you choose to include, pursuant to 40 CFR 63.3082(c), any coating operations which apply coatings to new other motor vehicle bodies or body parts for new other motor vehicles; parts intended for use in new automobiles, new light duty trucks or new other motor vehicles; or aftermarket repair or replacement parts for automobiles, light duty trucks or other motor vehicles; and that is a major source, is located at a major source, or is part of a major source of emissions of hazardous air pollutants (HAPs) except as provided in 63.3081(c). This includes equipment covered by other permits, grandfathered equipment, and exempt equipment.	EU-SPOT-REPAIR-DECK EU-TUTONE EU-COLOR-ONE EU-COLOR-TWO EU-REPROCESS
FG-OLDMACT	The affected source is each new, reconstructed, or existing Organic Liquid Distribution (OLD) (non-gasoline) operation that is located at, or is part of a major source of hazardous air pollutant (HAP) emissions. The affected source is comprised of storage tanks, transfer racks, equipment leak components associated with storage tanks, transfer racks and pipelines, transport vehicles, and all containers while loading or unloading at transfer racks subject to this subpart. Equipment that is part of an affected source under another NESHAP is excluded from the affected source.	
FG-BOILER-MACT5D	Requirements for existing Gas 1, (Natural Gas only) for existing Boilers and Process Heaters at major sources of Hazardous Air Pollutants per 40 CFR Part 63, Subpart DDDDD. These existing boilers or process heaters must comply with this subpart no later than January 31, 2016, except as provided in 40 CFR 63.6(i).	EU-TEMPBOILER1 EU-TEMPBOILER2 EU-BOILER3 EU-BOILER4 EU-BOILER5 EU-BOILER6
FG-CI-RICE-MACT4Z<500HP	Existing CI Engines located at a Major Source < 500 HP, Emergency.	EU-ENG-FPH1
FG-CI-RICE-MACT4Z>500HP	Existing CI Engines located at a Major Source > 500 HP, Emergency.	EU-ENG-SMB1 EU-ENG-SMB2
FG-CI-RICE-NSPS4I<500	This flexible group includes new emergency compression ignition (CI) Diesel fired stationary reciprocating internal combustion engines (RICE) that have a maximum site rating of greater than or equal to 100 brake horsepower (HP), but less than 500 (HP) and subject to 40 CFR 60, Subpart IIII.	EU-ENG-FPH2 (305 HP, 01/01/2011, Fire Pump emergency engine)
FG-COLD-CLEANERS	Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278 and Rule 281(h) or Rule 285(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners	

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
	were placed into operation on or after July 1, 1979.	
FG-RULE-290	Any emission unit that emits air contaminants and is exempt from the requirements of Rule 201 pursuant to Rules 278 and 290.	
FG-RULE-287(c)	Any emission unit that emits air contaminants and is exempt from the requirements of Rule 201 pursuant to Rules 278 and 287(2)(c).	

FG-TOPCOAT (FG-AUTOMACT)

EUs: EU-COLOR-ONE, EU-COLOR-TWO, EU-REPROCESS)

All booths shutdown on June 25, 2020, for construction of new paint lines (East and West).

Two topcoat lines (EU-COLOR-ONE & EU-COLOR-TWO) and one high bake-repair operation (EU-REPROCESS), which is a part of the topcoat system. Each topcoat line consists of spray booths for applying topcoat to vehicle bodies and an oven for curing. Reprocess is high bake repair operation that consists of spray booths for topcoat application to repair vehicle bodies followed by an oven for curing. While Color1 (36 JPH) and Color2 (36 JPH) lines are identical topcoat lines (72 JPH), reprocess line is shorter and slower.

Controls:

1. Color1: Downdraft Water Wash System for the spray booths of EU-COLOR-ONE.
2. Color1: Thermal Oxidizer for bake oven of EU-COLOR-ONE. Replaced in August 2017. Setpoint = 1380 ºF.
1. Color2: Downdraft Water Wash System for the spray booths of EU-COLOR-TWO.
2. Color2: Thermal Oxidizer for bake oven of EU-COLOR-TWO. Replaced in December 2017. Setpoint = 1370 ºF.
3. Reprocess: Downdraft Water Wash System for the spray booths of EU-REPROCESS
4. Reprocess: Thermal Oxidizer for bake oven of EU-REPROCESS. Replaced in July 2018. Setpoint = 1360 ºF.

   Color1 (36 jobs per hour or JPH) and Color 2 (36 JPH) lines are identical(72 JPH total). Reprocess (high bake repair) line shorter and slower. About 4-6% trucks go through topcoat reprocess line based upon inspection and defects. Trucks needing substantial repairs go through reprocess line.

   All cars passing through Color1 booth used to (before 2006) go through tu-tuone booth; but all cars did not get tu-tone paint; only those tagged with bar code get tu-tone. No car painted at Color2 booth gets tu-tone color. Since 2006 there is an option to bypass tu-tone although this option is not always exercised.

The flexible group consists of two identical topcoat lines (Coler1 and Color2) and high-bake operation for repair; high-bake repair is also known as topcoat reprocess. Total design capacity is 72 jobs per hour (Coler1 = 36 and Color2 = 36). Usually Chrysler runs the topcoat lines at 66-68 jobs per hour; adjustments are made by shutting down the plant for a week based upon product inventory. For efficiency and union contract reasons, both Color1 and Color2 lines are run, almost always.

There are two identical topcoat lines (Color1 at second level and Color2 at second level) that split from one line after powder coating; tu-tone line was idled since CY 2005 until July 2008; trial operation started in May 2008; full operation started in 2009. There is no sound-deadener application but deadener mats are placed. There is a tack-off area where a body is wiped with IPA (75% IPA, 25 water) wipes, if necessary; before 2009 all cars were wiped. Hand sanded, if needed, and tacked off again. A bar code on the body determines a color to be coated. Air blow-off is present to remove particulate on the body.

3 robots (2 robots to paint and 1 robot to hold hood, etc.) paint VOC based basecoat for engine compartment. 6 side (3 on each side) 3 overhead (top) bells spray basecoat. Complex moves by bells are possible. In all, 6 (Color1 + Color2) robots are present for basecoat. Bells do majority (70%) of painting. Weighted average TE is used in the VOC calculations. Flash-off and observation zones are present. Manual painting can be done but not standardized.

Clearcoat is done with 5 robots (3 on one side; 2 on other side) 6 bells (3 on each side), 3 overhead bells, and manual application for cut-in areas; total 9 bells. Manual CC spray is done for inaccessible areas such as door jams. There is de-mask area for tu-tone trucks. There is 40-ft (5-10 minutes) flash-off zone. Tu-tone is painted first and then trucks are masked for other coating steps. At the end of topcoat including clearcoat, tu-toned trucks are de-masked. There is some overlapping of paints since there is no masking at tu-tone booth. Topcoat (BC & CC) is done on masked trucks when tu-tone is involved.

High-bake repair line is a part of topcoat. About 4% based upon major defects go through topcoat high-bake reprocess. The reprocess line is smaller than Color1 and Color2. Only tagged cars / trucks go through the topcoat reprocess. Mostly robotic painting is done in the reprocess line; some manual painting is also done. There are 4 color-coat robots and 6 clearcoat robots. Manual CC is also done. Reprocess line has its own oven and a thermal oxidizer.

Paint is baked for 45 minutes at 285-300 degrees Fahrenheit.

There are four thermal oxidizers (4 TOs) in all and one e-coat regenerative thermal oxidizer (1 e-coat Durr RTO):, 1 Durr RTO for Uniprime (E-coat), 1 TO for tu-tone (idled since CY 2005 but restarted in July 08), 1 TO for Color1, 1 TO for Color2 and 1 TO for topcoat high bake reprocess. When TO / RTO is down, interlock system stops the line. Heat from thermal oxidizers (but not e-coat RTO) is used in bake ovens, which are critical to the operation of paint process. Therefore, the paint lines cannot

be operated without operation of thermal oxidizers (TOs). Obviously, one Uni-prime (E-coat) RTO does not provide its heat to the e-coat oven.

In CY2008 one e-coat RTO replaced two e-coat thermal oxidizers (2 TO) as a part of energy savings program. In 2009, 2 E-coat TOs that an RTO replaced moved to Color1 and Tu-tone ovens because these were in better shape. Again, thermal oxidizers were replaced as the existing ones were too old: tu-tone TO in December 2017, Color 1 TO in August 2017, Color 2 TO in December 2017 and reprocess TO in July 2018. Subsequently, DE tests were performed.

All ovens (4) are identical. Each oven has five (5) heat exchangers (HE). Hot exhaust gases from a thermal oxidizer exchange heat with a bake oven air. Part of oven air (25%) is purged to maintain VOC below 25% LEL (Lower Explosion Limit) for safety and insurance reasons. The purged oven air, which is laden with VOC, is ducted to a thermal oxidizer to combust VOC to water and carbon dioxide. In order maintain normal pressure equilibrium an equal amount of make-up air is introduced. Make-up air is preheated using TO exhaust. Also, Color1 and Color2 ovens are equipped with gas fired heaters to augment TO heat. Neither tu-tone nor reprocess oven has additional heaters.

MI-ROP-B2767-2016, FG-TOPCOAT, I:

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Actual emissions CY 2017	Actual emissions CY 2019
1. VOC	1.47[2 θ] kg per liter of applied coating solids (12.3 lbs./GACS)	Calendar month average	FG-TOPCOAT	9.62	**8.29**
2. VOC	270.2[2 β] Pounds per hour	Per hour operated in a calendar month	Spray booths of each topcoat line (EU-COLOR-ONE, EU-COLOR-TWO)	163.49 163.49	**180.79** **180.79**
3. VOC	582.11[2] Tons per year	12-month rolling time period	Spray booths of each topcoat line (EU-COLOR-ONE, EU-COLOR-TWO)	566.29 566.29	**399.84** **399.84**
4. VOC	6.8[2 β] Pounds per hour	Per hour operated in a calendar month	Bake Ovens of each topcoat line (EU-COLOR-ONE, EU-COLOR-TWO)	1.36 1.36	**0.39** **0.39**
5. VOC	15.67[2] Tons per year	12-month rolling time period	Bake Ovens of each topcoat line (EU-COLOR-ONE, EU-COLOR-TWO)	4.73 4.73	**0.89** **0.89**
6. VOC	89.9[2 β] Pounds per hour	Per hour operated in a calendar month	High Bake Repair spray booths (EU-REPROCESS)	14.56	**15.03** **15.03**
7. VOC	193.74[2] Tons per year	12-month rolling time period	High Bake Repair spray booths (EU-REPROCESS)	50.49	**33.24**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Actual emissions CY 2017	Actual emissions CY 2019
8. VOC	2.3[2] [β] Pounds per hour	Per hour operated in a calendar month	High Bake Repair bake oven (EU-REPROCESS)	0.28	**0.15**
9. VOC	5.22[2] Tons per year	12-month rolling time period	High Bake Repair bake oven (EU-REPROCESS)	0.97	**0.34**

[θ]Per the EPA Protocol (VI(4) & (5))
[β]Based upon monthly values using methods acceptable to AQD.
GACS = Gallon of applied coating solids

All actual emissions are based upon CY 2017 & CY 2019 and 4Q2017 & 4Q2019 (or December 2017)
Bothe BC and CC coatings are solvent based.

MI-ROP-B2767-2016, FG-TOPCOAT, III.1: operate thermal oxidizers properly at minimum temperature of 1337 ºF (725 ºC) or the most recent stack test temperature.

Thermal oxidizers are operated at setpoints stated above. Below 1337 ºF the line shuts down. PLC and Data Acquisition System records the temperature charts on the computer.

MI-ROP-B2767-2016, FG-TOPCOAT, III.2: operate water wash systems properly

Downdraft water-wash system is present to control paint overspray. Ms. Laura Hill and a subcontractor from MPS (Mike Frauges, no longer Abendgo), conduct weekly inspection of the water-wash system. Proper functioning of the water wash system is critical to high quality paint finish.

MI-ROP-B2767-2016, FG-TOPCOAT, V.1: US EPA Reference Test Method 24

VOC: VOC content records using RM-24 are kept. PPG, a paint supplier, sends US EPA RM-24 VOC content information with each tote of paint.

MI-ROP-B2767-2016, FG-TOPCOAT, V.2: Transfer Efficiency (TE) tests

2013 TE tests

TE: On August 6, 2013, AQD received a transfer efficiency (TE) test and an oven solvent loading (OSL aka CE = capture efficiency) plans notification. According the test notice, the topcoat color booths was tested for transfer efficiency in October 5-18, 2013. Since the color booths (Color1 and Color2) are identical, Color2 booth would be used as a representative booth for the purpose of transfer efficiency (TE). The test results are good for Color1, Color2, and HiBake Reprocess topcoat lines. On September 11, 2013, Mr. Tom Maza of MDEQ-AQD-TPU approved the test protocol. All tests and calculations will be done according to the Auto Protocol (EPA-453/r-8-002). TE tests are based upon solid basecoat, metallic basecoat and clearcoat coatings. OSL tests are based upon basecoat and clearcoat coatings. See below (2013 OSL and TE) for results.

MI-ROP-B2767-2016, FG-TOPCOAT, V.3: Oven Exhaust Control Device VOC Loading

2018 Oven Solvent Loading (OSL)

RWDI #1803229 dated November 21, 2018

RWDI AIR Inc. (RWDI) of Rochester Hills, Michigan 48309, and JLB Industries, LLC (JLB) of Rochester Hills, Michigan 48309, performed Paint solids transfer efficiency (TE) & Volatile Organic Compound (VOC) capture efficiency (CE) tests during the week of September 24, 2018 on top coating lines (EU-COLOR-ONE & EU-COLOR-TWO) pursuant to "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations". Of the two lines, COLOR-TWO was chosen as a representative. Transfer Efficiency (TE) values were derived using the RAM 1500 model 4-door which accounts for the largest surface area of the RAM Truck models made at WTAP. RWDI/JLB Industries used highly accurate weighing systems to determine the vehicle and panel weights before and after coating application. Calibrated volumetric flow meters, located on each applicator, were used to measure paint usage. Material samples were collected from the paint circulation tanks directly after vehicle spray out. Determination of percent solids by weight and density was performed by Advanced Technologies of Materials laboratories, located in Waverly, Ohio.

2018 Transfer Efficiency (TE) values reported are:

1. Basecoat (White Solid Basecoat) = 75.2%
2. Basecoat (Black Metallic) = 70.1%
3. Clearcoat = 74.3%

2018 Capture Efficiency (CE) values reported are (Color2) at 100% TE:

1. Solid Basecoat (White) = 15.0%
2. Metallic Basecoat (Black) = 20.5%
3. Clearcoat = 48.0%

MI-ROP-B2767-2016, FG-TOPCOAT, V.4: Destruction Efficiency (DE) of the Thermal Oxidizers

November 2017 DE - EU-COLOR-ONE

See below for details (Feb 2018 DE).

AQD received DE test report for EU-COLOR-ONE from Responsible Official Mr. Andrew Raglyi (Phone: 586-497-3955) via letter dated December 19, 2017. RWDI AIR Inc. (Phone: 519-974-7384, RWDI #1703283, December 22. 2017) sampled, during November 01-02, 2018, concurrently at the inlets and outlets (three 1-hour tests) of corresponding thermal oxidizers and analyzed VOC using flame ionization analyzer as propane as described in

USE PA Method 25A. Sampling was done continuously via heated sample lines from both the inlet and outlet of the EUCOLOR-ONE Thermal Oxidizer (TO) simultaneously. The mass rate destruction efficiency obtained is: EU-COLOR-ONE (November 1-2, 2017) = **99.6%** (inlet = 233 & 14.7 and outlet = 0.9 & 0.06, ppmv & pounds per hour, respectively, as propane) **at 1370 ºF.** Velocity, temperature and flow rates were measured using US EPA Reference Methods 1 thru 4. Total VOC were determined using US EPA Reference Method 25A (CEM). VOC were calculated as propane.

February 2018 DE - EU-COLOR-TWO & EU-TUTONE

On September 29, 2017, AQD received Notification of Intent to Conduct Air Compliance Testing at FCA US LLC's Warren Truck Assembly Plant (WTAP) (RWDI Reference No. 1703283) from Responsible Official Mr. Andrew Raglyi (Phone: 586-497-3955) via letter dated September 27, 2017. The notification pertains to destruction efficiencies of the thermal oxidizers (TO) for volatile organic compounds (VOC) for controlling the bake oven emissions from EU-TUTONE, EU-COLOR- ONE, EU-COLOR-TWO and EUREPROCESS Lines. WTAP replaced the existing Thermal Oxidizers (TOs) for EU-TUTONE (December 2017), EU-COLOR-ONE, (August 2017) EU-COLOR-TWO (December 2017) and EU-REPROCESS (July 2018). As stated above, FCA WTAP replaced, in 2008, e-coat thermal oxidizers (2 TOs) with one Rotary Durr RTO (1 Durr RTO) for fuel efficiency. US EPA Reference Methods: 1, 2, 3, 4, 25A would be used. The DE test plan included Temperature Ladder Study. AQD (Mark Dziadosz of AQD-TPU) approved the VOC Destruction Efficiency (DE) Test Plan vial the letter dated October 17, 2017, to Mr. Andrew Ragalyi, Plant Manager. On April 13, 2018, AQD received DE test report for EU-COLOR-TWO and EU-TUTONE. AQD-TPU (Dziadosz) would only perform cursory review of this report. RWDI AIR Inc. (Phone: 519-974-7384, RWDI #1703283, April 11. 2018) sampled, during February 13 thru February 15, 2018, concurrently at the inlets and outlets (three 1-hour tests) of corresponding thermal oxidizers and analyzed VOC using flame ionization analyzer as propane as described in USE PA Method 25A. The mass rate destruction efficiencies obtained are: EU-COLOR-TWO (February 13, 2018) = **99.0% at 1291 ºF** and EU-TUTONE (February 14-15, 2018) = **96.8% at 1291 ºF**. Testing for VOCs was accomplished simultaneously at the inlet and outlet using continuous emission monitors (CEM). VOC testing followed USEPA Method 25A "Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer". In order to compare inlet and outlet concentrations, the outlet concentrations of total VOCs were converted to parts per million (ppmv) as propane. The exhaust gas sample was withdrawn from a single point at the center of the duct or stack using a stainless-steel probe. The sample proceeded through a heated filter where particulate matter was removed. The sample was then transferred via a heated Teflon® line and introduced to the analyzer (hot/wet) for measurement.

MI-ROP-B2767-2016, FG-TOPCOAT, VI.1-13: recording devices to monitor each thermal oxidizer temperature, coating usage and info, control systems values (TE, OSL/CE, DE), emission rates calculations, production info, etc. records.

Thermocouples are installed at firebox. USEPA Protocol calculations are performed and VOC records are kept.

Thermo-couples are calibrated or replaced on annual basis. Mr. Smith and a subcontractor from MPS (Mike Frauges, no longer Abendgo), conduct weekly inspection of the water-wash system. Proper functioning of the water wash system is critical to high quality paint finish. TE, OSL and DE values are kept. VOC emissions rates are calculated to show compliance in accordance with the Protocol. The lines cannot be operated without benefit of heat from thermal oxidizers (CAM).

MI-ROP-B2767-2016, FG-TOPCOAT, VII.

Semi-annual deviations, annual certification, CAM, MAERS, MACT and quarterly VOC emissions reports are submitted.

FG-TEMPBOILERS: Two natural gas fired boilers

Temp boilers have been removed.

These are trailer-mounted temporary boilers installed since 2009 and mostly used in non-heating season (summer). Although capable of being moved, the boilers have been located at the plant for at least two years (as of March 2016). AQD received both NSPS Dc (April 30, 2007) and Major Source Boiler MACT 5D (May 24, 2013) notifications.

1. EU-TEMPBOILER1: 25 million BTU per hour heat input natural gas only fired trailer-mounted temporary boiler.
2. EU-TEMPBOILER2: 29 million BTU per hour heat input natural gas only fired trailer-mounted temporary boiler.

Two temporary portable natural gas fired boilers of capacity 25.1 (TempBoiler1) and 29.3 (TempBoiler2) million BTU per hour heat input were brought on site when the powerhouse was shut down for maintenance. However, they were not used until CY2009. On April 30, 2007, AQD received NSPS Dc Notification (40 CRF, Part 60, Subpart Dc, 60.48c) regarding these two temporary boilers. In October 2008, Chrysler began operation of temporary boilers as a part of energy savings program.

Trailer mounted (wheeled) portable boilers are used during non-winter seasons. Portable boilers are located in only one place; i.e. they are not moved. The temp boilers are operating at the spot for several years.

MI-ROP-B2767-2016, FG-TEMPBOILERS, III: only pipeline quality sweet natural gas

1. EU-TEMPBOILER1: 0.2.55 million BTU per year in CY 2017.
1. EU-TEMPBOILER2: 0.60 million BTU per year in CY 2017.
2. Total Temp boilers (2): 2.55 million BTU per year in CY 2017.

MI-ROP-B2767-2016, FG-TEMPBOILERS, IX: NSPS Dc

Only requirement of NSPS Dc is natural gas usage recordkeeping. FCA keeps fuel usage records and submits MAERS. Hence, FCA is in compliance with NSPS Dc.

FG-BOILERS

Four (4) natural gas fired boilers to produce steam and heat.

Emission Units:

1. EU-BOILER3: 152 million BTU heat input per hour (Babcox & Wilcox Boiler3, installed 7/11/98) natural gas only boiler equipped with low NOx burners.

2. EU-BOILER4: 106 million BTU heat input per hour (Babcox & Wilcox Boiler4, installed 7/11/98) natural gas only boiler equipped with low NOx burners.

3. EU-BOILER5: 152 million BTU heat input per hour (Wickes Boiler5, installed 9/1/96) natural gas only boiler equipped with low NOx burners.

4. EU-BOILER6: 192 million BTU heat input per hour (Riley Stoker Boiler6, installed 10/29/84) natural gas only boiler equipped with oxygen trim system but not low NOx burners.

While Boiler Nos. 3, 4 and 5 are equipped with low NOx burners, Boiler No. 6 (with oxygen trim system) is a high efficiency boiler but not low NOx. As discovered during the FY 2018 inspection, all boilers are equipped with oxygen trim systems. Hence, Boiler No. 6 is used most of the time to save energy.

MI-ROP-B2767-2016, FG-BOILERS, I: NOx limit

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	CY2017 Actual emissions EUs in pounds per year and FG in tons per year	CY 2019
1. NOx	119[2] Tons per year	12-month rolling time period	FG-BOILERS	1. EU-BOILER3 = 996 2. EU-BOILER4 = 1,685. 3. EU-BOILER5 = 7,208	**1. EU-BOILER3 = 3,058** **2. EU-BOILER4 = 4,022.** **3. EU-BOILER5 = 5,231**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	CY2017 Actual emissions EUs in pounds per year and FG in tons per year	CY 2019
				4. EU-BOILER6 = 33,169 5. FG-BOILERS = 21.7	**4. EU-BOILER6 = 30,876** **5. FG-BOILERS = 21.59**

MI-ROP-B2767-2016, FG-BOILERS, II & VI.1: natural gas usage limit and usage records

Material	Limit	Time Period/ Operating Scenario	Equipment	CY 2017 Natural gas usage MM SCF per year	CY 2019
1. Natural Gas	1,305[2] Million (MM) standard cubic feet per year	12-month rolling time period	FG-BOILERS	407.68	**456.9**

MI-ROP-B2767-2016, FG-BOILERS, III: natural gas only

FCA WTAP burns only natural gas.

MI-ROP-B2767-2016, FG-BOILERS, V: NOx testing

January 26-27, 2016 NOx test

During January 26 thru 27, RWDI AIR Inc. (RWDI # 1600241, March 8, 2016), 4510 Rhodes Drive, Suite 530, Windsor, ON N8W5K5 (Phone: 519-974-7384, ext. 2428) performed sampling of Boilers 3-6 (EU-BOILER3, EU-BOILER4, EU-BOILER5 AND EU-BOILER6) for Nitrogen Oxides (NOx). The testing followed USEPA Reference Methods 3A, 7E and 19. Testing consisted of three (3) 60-minute test runs for nitrogen oxide emissions. Mr. Mark Dziadosz of AQD-TPU and Mr. Iranna Konanahalli of AQD-SEMI observed the sampling and the boilers. The NOx emission results are tabulated below:

3 1-hour average Nitrogen Oxide (NOx) emissions rates			
Boiler	Pounds per MM BTU	Pounds per hour	Remark
EU-BOILER3	0.0357	3.4	
EU-BOILER4	0.0624	4.5	
EU-BOILER5	0.0631	6.2	

EU-BOILER6	0.1451	13.6	
No NOx emission rate limit other than 119 tpy NOx limit			

However, there is no emission limit in the RO permit other than 119 tpy NOx.

Based upon heat input design capacity and installation dates, the boilers are not subject to NSPS Db. AQD conducted further investigation and determined that the boilers were installed before 1984 and coal fired boilers were converted to gas. See above under NSPS Db.

FG–GASOLINE-TANKS

Unleaded gasoline storage tanks.

EU–UNLEADEDGAS1 (TK1 25,000 gal) – above-ground storage tank with spill containment. This is a non-taxable production tank. There one additional 1,000-gallon taxable corporate fuel tank.

25,000-gallon TK1 gasoline tank is in a concrete containment. Mr. Doug Gregory, tank farm operator, observes vapor balance system during gasoline delivery. Submerged fill pipe is present. Stage I vapor balance system is installed and operating during the tank loading.

FCA maintains Tank Summary Sheet for all tanks on site.

FG-RULE-331

Wood saws, lathes, etc.

Baghouse for EU-CARPENTERSHOP

Small particulate units, with 0.1 pound of particulate matter per 1000 pounds of exhaust gases emission limits, are covered by this flexible group.

Plasma cutting operation was removed in 2007. Maintenance tool shop is removed in 2004. Carpenter shop, which has not been used since 2008, is equipped with a baghouse with pulse-jet cleaning.

Various grinders, cutters, saws have dedicated capture systems ducting one common manifold. The exhaust gases are delivered to one baghouse. Upon cleaning the gases are released to outside ambient air. The bags were replaced in 2017. TriDim inspects the baghouse. 4 55-gallon drums are present as hoppers for collected dust. Baghouse is equipped with Magnehelic pressure drop gauge.

FG-PM-MISC

This group consists of various emission units that have the same particulate requirements.

Emission units are:

1. EU-COLOR-ONE-SAND: Color1 paint line sanding operations.
2. EU-POLISH-DECK: Polish-deck polishing of minor surface defects.
3. EU-REPROCESS-SAND: Topcoat sanding operations on painted vehicles with enclosure to capture particulate emissions.
4. EU-REPRO-POLISH: Polishing of minor surface defects on painted vehicles.
5. EU-UNIPRIME-SAND: E-coat sanding operations with exhausted enclosure to capture particulate emissions. Powder sand booth. Powder prep deck.

TriDim inspects all filters and file an inspection report on a monthly basis. The filters are replaced if necessary.

FG-AUTOMACT

Each new, reconstructed, or existing affected source as defined in Title 40 of the Code of Federal Regulations (CFR), Part 63.3082, that is located at a facility which applies topcoat to new automobile or new light duty truck bodies or body parts for new automobiles or new light duty trucks; AND/OR in which you choose to include, pursuant to 40 CFR 63.3082(c), any coating operations which apply coatings to new other motor vehicle bodies or body parts for new other motor vehicles; parts intended for use in new automobiles, new light duty trucks or new other motor vehicles; or aftermarket repair or replacement parts for automobiles, light duty trucks or other motor vehicles; and that is a major source, is located at a major source, or is part of a major source of emissions of hazardous air pollutants (HAPs) except as provided in 63.3081(c). This includes equipment covered by other permits, grandfathered equipment, and exempt equipment.

Emission Units: EU-UNIPRIME, EU-SOLVENT-WIPE, EU-SEALERS&ADHESIVE, EU-BLACKOUT-BOOTH, EU-FINAL-REPAIR, EU-SPOT-REPAIR-DECK, EU-TUTONE, EU-COLOR-ONE, EU-COLOR-TWO, EU-REPROCESS,

FCA (Chrysler) WWAP owns or operates an existing NESHAP / MACT 4I source, as defined in § 63.3082, that is located at a facility which applies topcoat to new automobile or new light-duty truck bodies or body parts for new automobiles or new light-duty trucks, and that is a major source, is located at a major source, or is part of a major source of emissions of hazardous air pollutants (HAP). The regulations begin at 40 CFR, 63.3080 (§ 63.3080). According to § 63.3082(g), the plant is an existing source because it is not a new source (a new affected source if it commenced its construction after December 24, 2002); a reconstruction of the paint shop may make it new source (§ 63.3082(f)). As an existing NESHAP / MACT 4I source, Chrysler must comply with the standards by April 26, 2007 (§ 63.3083(b)).

On June 29, 2007, AQD received Initial Notification of Compliance Status [§63.3110(c)] dated June 28 (due June 30, 2007). Mr. Robert Byrnes of AQD is reviewed this INCS statement. FCA has chosen 0.60 pounds of HAP per gallon of coating solids deposited option [63.3091(a)] based upon coating formulation without using incinerator credits. Hence, Auto MACT monitoring of RTO and TOs is not done.

FCA claims that it has complied with the NESHAP / MACT IIII without a deviation during the reporting period (Jan-Dec, 2014-17 Cert.): 0.60 lbs. / gallon limit.

MI-ROP-B2767-2016, FG-AUTOMACT, I:

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Actual emissions	Underlying Applicable Requirements
1. Organic HAP	0.60 Pounds per GACS	Calendar month	**Existing –** FG-AUTOMACT WITH UNIPRIME	CY 2017 = 0.19 CY 2018 = 0.206 CY 2019 = 0.22	**40 CFR 63.3091 (a)**
2. Organic HAP*	1.10 Pounds per GACS	Calendar month	**Existing –** FG-AUTOMACT	NA	**40 CFR 63.3091 (b)**
3. Organic HAP	0.01 Pound per pound of coating	Calendar month	**Existing –** EU-SEALERS&ADHESIVE	Zero	**40 CFR 63.3090 (c) or 63.3091(c)**
4. Organic HAP	0.01 Pound per pound of coating	Calendar month	**Existing –** EU-DEADENERBOOTH	Not operating	**40 CFR 63.3090 (d) or 63.3091 (d)**

- **FG-AUTOMACT** includes Guidecoat, Topcoat, Final Repair, Glass Bonding Primer, and Glass Bonding Adhesive operations plus all coatings and thinners, except for deadener materials and adhesive and sealers not part of glass bonding systems.
- **FG-AUTOMACT WITH ECOAT** also includes Electrocoat operations in addition to all of the operations of

FG-AUTOMACT.

- **EU-SEALERS&ADHESIVE** include only adhesives and sealers that are not part of glass bonding systems.

*Permittee may choose to comply with this limit if the requirements of Condition No. I.5 is met.
GACS = Gallon of Applied Coating Solids or Gallon of Coating Solids Deposited.

Because FCA complies with the MACT via formulation only and it does not need VOC control equipment for compliance, only AutoMact work plan is sufficient. Work Plan dated November 20, 2006, is implemented.

FCA has developed and implemented a work practice plan (FG-AUTOMACT, III.1) to minimize organic HAP emissions from the storage, mixing, and conveying of coatings, thinners, and cleaning materials used in, and waste materials generated by, all coating operations for which emission limits are established under § 63.3090(a) through (d) or § 63.3091(a) through (d) (§ 63.3094).

I could not find the Initial Notification in the NESHAP Blue Folder. The notification was due 120 days after June 25, 2004. However, if Chrysler notified pursuant to CAA Sec. 112(j) concerning applicability of the Auto MACT, it is exempt from Initial Notification. Such CAA Sec. 112(j) notification was received by AQD on August 6, 2002, via letter dated July 30, 2002, from Mr. Fred Martino-DiCicco, Plant Manager, WTAP. Items checked in the 112(j) notification were: Automobile & Light Duty Truck Manufacturing; Misc. Metal Parts &

Coating; Industrial, Commercial & Institutional Boilers & Process Heater; Emergency Generators (CI RICE MACT).

In addition, AQD received PDF copy of Notification of Compliance Status dated June 28, 2007. Kenneth M. Brune submitted this notification.

MI-ROP-B2767-2016, FG-AUTOMACT, VII: Reporting.

Semi-annual deviations, annual certification, MAERS, MACT and quarterly VOC emissions reports are submitted.

FG-OLDMACT

The affected source is each new, reconstructed, or existing Organic Liquid Distribution (OLD) (non-gasoline) operation that is located at, or is part of a major source of hazardous air pollutant (HAP) emissions. The affected source is comprised of storage tanks, transfer racks, equipment leak components associated with storage tanks, transfer racks and pipelines, transport vehicles, and all containers while loading or unloading at transfer racks subject to this subpart. Equipment that is part of an affected source under another NESHAP is excluded from the affected source. **(40 CFR 63.2338(c))**

These conditions specifically cover existing (construction pre dates April 2, 2002) liquid storage tanks which hold more than 5,000 gallons but less than 50,000 gallons and/or new liquid storage tanks which hold more than 5,000 gallons but less than 10,000 gallons of methanol/windshield washer fill solvents that are dispensed to newly assembled vehicles.

Emission Unit: The permittee shall maintain an up-to-date list of emissions units subject to FG-OLDMACT.

AQD received a .PDF copy of OLD MACT compliance report dated June 07,2007. Mr. Kenneth A. Brune submitted this report. MDEQ received this report on July 30, 2007.

Two tanks are listed in this report:

1. 7,500-gallon windshield washer solvent containing methanol
2. 7,500-gallon ChemKleen 370 containing Diethylene Glycol Monobutyl Ether

On June 2, 2004, AQD received the OLD MACT initial notification dated May 27. The storage tanks store methanol-based windshield wiper solvent, a cleaner that contain diethylene glycol monobutyl ether.

OLD MACT Tank inventory is kept. Only in it is 7,500-gallon windshield washer tank.

FG-BOILER-MACT5D

Temp Boilers: removed. All boilers are equipped with oxygen trim systems.

Requirements for existing Gas 1, (Natural Gas only) for existing Boilers and Process Heaters at major sources of Hazardous Air Pollutants per 40 CFR Part 63, Subpart DDDDD. These existing boilers or process heaters must comply with this subpart no later than January 31, 2016, except as provided in 40 CFR 63.6(i).

Per ROP, while Boiler No. 6 has an oxygen trim system, Boiler Nos. 3, 4 & 5 only have O2 monitoring (FG-BOILERS). Based upon inspection all large boilers, except temp boilers, are equipped with the trim systems.

Oxygen trim system means a system of monitors that is used to maintain excess air at the desired level in a combustion device over its operating load range. A typical system consists of a flue gas oxygen and/or CO monitor that automatically provides a feedback signal to the combustion air controller or draft controller.

Emission Units: At the time of 2016 ROP permit renewal, the following boilers are present (all are greater than 10 MM BTU per hour natural gas only boilers):

The boilers are subject to: Major Source Boiler NESHAP / MACT 5D, 40 CFR Part 63, Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, Page 7138, Federal Register / Vol. 78, No. 21 / Thursday, January 31, 2013 / Rules and Regulations / Final rule; notice of final action on reconsideration.

The boilers are **existing units** as they commenced construction before **June 4, 2010**. The boilers do NOT burn any fuel other than pipeline quality sweet natural gas (NG); they do not burn solid fossil fuel, biomass, liquid fuel, etc. There is no emission limit for Gas1 that includes natural gas. For boilers over 10 million BTU per hour heat input, annual tune-up is required (no more than 13 months between tune-ups). Initial tune-up is due by January 31, 2016. Only boilers with emission limits are required to conduct performance tests (within 180 days of compliance date (January 31, 2016), July 29, 2016. Chrysler's boilers are not subject to emission limits as they fire only NG.

Boiler MACT Initial Notification is due by May 31, 2013. AQD received on May 24, 2013, Major Source Boiler MACT Initial Notification dated May 20, 2013. The notification covers Boiler Nos. 3-6 (4 boilers) and two Temp boilers.

FG-TEMPBOILERS (Removed)

1. EU-TEMPBOILER1: 25 million BTU per hour heat input natural gas only fired trailer-mounted temporary boilers.
2. EU-TEMPBOILER2: 29 million BTU per hour heat input natural gas only fired trailer-mounted temporary boilers.

FG-BOILERS

1. EU-BOILER3: 152 million BTU heat input per hour (Babcox & Wilcox Boiler3, installed 7/11/98) natural gas only boiler equipped with low NOx burners.
2. EU-BOILER4: 106 million BTU heat input per hour (Babcox & Wilcox Boiler4, installed 7/11/98)) natural gas only boiler equipped with low NOx burners.

3. EU-BOILER5: 152 million BTU heat input per hour (Wickes Boiler5, installed 9/1/96) natural gas only boiler equipped with low NOx burners.
4. EU-BOILER6: 192 million BTU heat input per hour (Riley Stoker Boiler6, installed 10/29/84)) natural gas only boiler equipped with oxygen trim system but not low NOx burners.

The boilers produce 150 psi steam. During FY 2018 inspection it was discovered that all boilers except temp boilers are equipped with Oxygen trim systems. FCA will install variable speed fans to move combustion air on all boilers. Boiler No. 3 was equipped with variable speed fan about February 2018. Upon completion of installation of variable speed fans on all boilers, FCA removed rental temp boilers (2).

MI-ROP-B2767-2016, FG-BOILER-MACT5D, II: **only** natural gas.

FCA burns in the boilers **only** pipeline quality sweet natural gas.

MI-ROP-B2767-2016, FG-BOILER-MACT5D, III: tune-up and Energy Assessment (EA)

FCA submitted Compliance Report to US EPA CEDRI stating that tune-ups and burner inspections were performed on boilers EU-TEMPBOILER1 & EU-TEMPBOILER2 on 05/23/2017 and 05/08/2018, respectively. In addition, Mr. Dan Omahen, Plant Manager, submitted, Notification of Compliance Status (NCS) dated March 31, 2016, for four (4) large (EU-BOILER3-6) and two (2) portable temp (EU-TEMPBOILER1-2). The March 31, 2016, NCS stated that all initial tune-ups were completed and ISO 50001 Energy Management program was implemented. ANAB issued ISO 50001 certificate US17/801826959.00 valid from July 04, 2017, thru July 04, 2020.

MI-ROP-B2767-2016, FG-BOILER-MACT5D, VI: monitoring

Copies of notifications and reports are kept.

MI-ROP-B2767-2016, FG-BOILER-MACT5D, VII: reporting

Semi-annual deviations, annual certification, Notification of Compliance Status (March 31, 2016), boiler tune-ups & inspections, etc. reports are submitted.

FG-CI-RICE-MACT4Z<500HP aka FG63-4Z-M/Ex/CI/Em/<500

Existing CI (Diesel) Engines located at a Major Source 266 HP < 500 HP, Emergency

1. Fire Pump House – East Pump: Caterpillar, 198 HP, Engine Model and Serial Nos: PA0067-85-3306D1 & 64Z04118, hours run based upon hours meter readings: 49 in 2016, 21.5 in 2017 and 19.9 in 2017YTDJuly. NSPS 4I = No. Peerless Midwest performs maintenance (change oil and filter, inspect air cleaner and hoses & belts, etc.).

FG-CI-RICE-MACT4Z>500HP

Existing CI Engines located at a Major Source > 500 HP, Emergency

1. SMB – Penthouse – NORTH: Cummins, 900 HP, 600 kW, Engine Model and Serial Nos: VT A28-65-2 & 37109467, Generator Model and Serial Nos: 680FDR7128JJ W & RB-19-51339-2/27-01, hours run based upon hours meter readings: 15 in 2016, 12 in 2017 and 17 in 2017YTDJuly. NSPS 4I = No. Peerless Midwest performs maintenance (change oil and filter, inspect air cleaner and hoses & belts, etc.).

2. SMB – Penthouse – SOUTH: Cummins, 900 HP, 600 kW, Engine Model and Serial Nos: VT A28-65-2 & 37109466, Generator Model and Serial Nos: 680FDR7128JJ W & RC-19-51351-3/7-02, hours run based upon hours meter readings: 55 in 2016, 0 in 2017 and 0 in 2017YTDJuly. NSPS 4I = No. Peerless Midwest performs maintenance (change oil and filter, inspect air cleaner and hoses & belts, etc.).

FG-CI-RICE-NSPS4I<500

This flexible group includes new emergency compression ignition (CI) Diesel fired stationary reciprocating internal combustion engines (RICE) that have a maximum site rating of greater than or equal to 100 brake horsepower (HP), but less than 500 (HP) and subject to 40 CFR 60, Subpart IIII.

Emission Unit: EU-ENG-FPH2 (305 HP, 1/1/2011) Fire Pump emergency engine

1. Fire Pump House – West Pump: John Deere, 305 HP, Engine Model and Serial Nos: JU6H-UFADX8 & PE6068L166893, hours run based upon hours meter readings: 42.6 in 2016, 49.1 in 2017 and 44.5 in 2017YTDJuly. NSPS 4I Certificate = Yes. Peerless Midwest performs maintenance (change oil and filter, inspect air cleaner and hoses & belts, etc.). US EPA Certificate No. CJDXL13.5103-020 Effective 10/0/7/2011 Expired 12/31/2012 for Engine Family CJDXL13.5103 (MI-ROP-B2767-2016, FG-CI-RICE-NSPS4I<500, I: certification demonstrates compliance with emission limits).

FG-COLD-CLEANERS

Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278 and Rule 281(h) or Rule 285(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.

Emission Unit: The permittee shall maintain an up-to-date list of cold-cleaners.

FCA keeps inventory of cold-cleaners:

1. Two (2) 1.18-square-feet 87020 Gun Cleaners. Model 87020 gun cleaner's in paint shop 5-gallon pails holds 5 gallons. Both Gun Cleaners use Chrysler Gun Wash and we leave the waste on site.

2. One 1.9-square-feet 34150 Solvent Parts Washer. Model 34150 solvent based machine holds 23 gallons.

3. One 5.25-square-feet 81150, Solvent Parts Washer. Model 81150 solvent based
4. machine holds 76 gallons

DEQ / EGLE work-practice procedures are posted and lids are kept closed when not in use.

FCA (Chrysler) does not use any of the halogenated solvents regulated by Maximum Achievable Control Technology(MACT) in the cold cleaners; therefore, the cold cleaners are not subject to the MACT standards for halogenated solvent cleaner (40 CFR 63 Subpart T).

SAFETY-KLEEN PREMIUM SOLVENT (VIRGIN AND RECYCLED)
Safety-Kleen Systems, Inc., Richardson, TX 75080 (1-800-669-5740)
Distillates (petroleum), hydrotreated light CAS # 64742-47-8

100% VOC solvent. Flash Point (FP) = 148 ºF TCC (Tag Closed Cup). Auto Ignition = NA ºF. Boiling Point (BP) = 350 ºF (initial) @ 760 mm Hg. Vapor Pressure (VP) = 0.2 mm Hg at 68 ºF. Specific Gravity (SG, Water = 1.0) = 0.0.77-0.82. Density (ρ) @ 68 ºF = 6.4-6.7 lbs / gallon (0.77-0.82 kg /L). Flammability range = 0.7 %v (LEL) – 5%v (UEL).

FG-RULE-290

This FG is not used at this time.

FG-RULE-287(c)

This FG is not used at this time.

CONCLUSION

FCA (Chrysler) appears to be in compliance with the ROP and Auto MACT. The boilers are not subject to NSPS Db. WTAP is shut down for construction / modification of paint lines. The permit modification is with AQD (13-19A ➔ 13-19B) for East and West paint lines.

NAME J Silkenwald DATE December 29, 2020 SUPERVISOR Joyce