

West Virginia Department of Environmental Protection

Austin Caperton
Cabinet Secretary

Title V Operating Permit Revision



For Minor Modification Permitting Action Under 45CSR30 and Title V of the Clean Air Act

Permit Action Number: MM01 SIC: 3714
Name of Permittee: Toyota Motor Manufacturing West Virginia
Facility Name/Location: Buffalo Plant
County: Putnam
Facility Address: 1 Sugar Maple Lane, P.O. Box 600, Buffalo, WV 25033

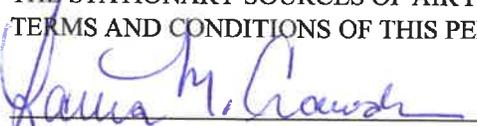
Description of Permit Revision: This modification is to install equipment for one (1) additional line to accomplish laser clad copper coating of certain engine heads. The new block machining line includes a new solvent washer (SW-3) and two (2) new laser cladding machines (LC-5 and LC-6). The proposed modification will allow an increase in the maximum hourly laser cladding rate from 100 heads/hour to 150 heads/hour. The annual rate will remain at 32,400 heads/year. These changes were approved under R13-2062N.

Title V Permit Information:

Permit Number: R30-07900072-2019
Issued Date: January 15, 2019
Effective Date: January 29, 2019
Expiration Date: January 15, 2024

Directions To Facility: The facility lies directly east of WV State Route 62 approximately one (1.0) mile south of Buffalo, WV.

THIS PERMIT REVISION IS ISSUED IN ACCORDANCE WITH THE WEST VIRGINIA AIR POLLUTION CONTROL ACT (W.VA. CODE §§ 22-5-1 ET SEQ.) AND 45CSR30 - "REQUIREMENTS FOR OPERATING PERMITS." THE PERMITTEE IDENTIFIED AT THE FACILITY ABOVE IS AUTHORIZED TO OPERATE THE STATIONARY SOURCES OF AIR POLLUTANTS IDENTIFIED HEREIN IN ACCORDANCE WITH ALL TERMS AND CONDITIONS OF THIS PERMIT.


Laura M. Crowder
Director, Division of Air Quality

October 9, 2019
Date Issued

Authorized Emergency Generators Permitted under G60-D005E

Source ID	Source Description	Date Constructed	Design Brake Horsepower	Area	Fuel
GEN-11E	Ford LRG-4251 20RZ	1-11-2005	41	Emergency Lighting	PNG
GEN-11W	Ford LRG-4251 20RZ	1-11-2005	41	Emergency Lighting	PNG
GEN-12	Ford LRG-4251 20RZ	1-11-2005	41	Emergency Lighting	PNG
GEN-13	Ford LRG-4251 20RZ	9-1-2004	41	Emergency Lighting	PNG
GEN-14	GM-4.3L 45RZG	8-14-2006	68	Emergency Lighting	PNG
GEN-15	GM-4.3L 45RZG	8-14-2006	68	Emergency Lighting	PNG
GEN-SEC	GM-4.3L 45RZG	10-23-2005	68	Security	PNG
GEN-SBR	GM-5.7L 60RZG	2-18-2007	105	Wastewater	PNG
GEN-Pharm	General Motors GM-5.7L 30REZG	2-27-2014	49	Emergency Lighting	PNG
GEN-IS-2	Doosan D14.6L 250REZXB	7-21-2015	402	Computer Data Center	PNG
GEN-Cafe	General Motors GM-5.7L 60REZGB	2018	105	Cafeteria	PNG

Notes: PNG = Pipeline Natural Gas

Other Engines

Source ID	Source Description	Date Constructed	Design Brake Horsepower	Area	Fuel
2 Fire Pumps	Detroit Diesel	May, 1998	368 each	Fire Pump	Diesel

Engine Head Copper Coating

Emission Unit	Emission Point	Emission Unit Description	Year Installed	Design Capacity	Control Device
LC-1	-	Laser Cleaning Machine	2017	324,000 units/yr	LC-C1 to LC-C4 LC-C6
LC-2	-	Laser Cleaning Machine	2017	324,000 units/yr	
LC-3	-	Laser Clad Machine	2017	324,000 units/yr	
LC-4	-	Laser Clad Machine	2017	324,000 units/yr	
LC-5	-	Laser Clad Machine	2019	324,000 units/yr	
LC-6	-	Laser Clad Machine	2019	324,000 units/yr	
SW-1	SW-E1	Solvent Washer	2017	324,000 units/yr	SW-C1
SW-2	SW-E1	Solvent Washer	2017	324,000 units/yr	
SW-3	SW-E2	Solvent Washer	2019	324,000 units/yr	

Authorized Test/Firing Benches

Emission Unit	Emission Point	Emission Unit Description	Design Capacity	Control Device
QE1S	QCE1	Engine Test Cell #1	8,760 Hours	Catalytic Converter (TC-1)
QE2S	QCE2	Engine Test Cell #2	8,760 Hours	Catalytic Converter (TC-2)
QE3S	QCE3	Engine Test Cell #3	8,760 Hours	Catalytic Converter (TC-3)

Emission Unit	Emission Point	Emission Unit Description	Design Capacity	Control Device
QE4S	QCE4	Engine Test Cell #4	8,760 Hours	Catalytic Converter (TC-4)
QE5S	QCE5	Engine Test Cell #5	8,760 Hours	Catalytic Converter (TC-5)
QE6S	QCE6	Engine Test Cell #6	8,760 Hours	Catalytic Converter (TC-6)
QE7S	QCE7	Engine Test Cell #7	8,760 Hours	Catalytic Converter (TC-7)
QA3S	QCA3	Transmission Test Cell #3	8,760 Hours	Catalytic Converter (TC-AT1)
QA4S	QCA4	Transmission Test Cell #4	8,760 Hours	Catalytic Converter (TC-AT4)
E1S	ZZFB	4 cyl Firing Bench	8,760 Hours	None
E2S	MZFB	6 cyl Firing Bench	8,760 Hours	None
E3S	FB-3	4 cyl Firing Bench	8,760 Hours	None

1.2. Active R13, R14, and R19 Permits

The underlying authority for any conditions from R13, R14, and/or R19 permits contained in this operating permit is cited using the original permit number (e.g. R13-1234). The current applicable version of such permit(s) is listed below.

Permit Number	Date of Issuance
R13-2062NM	October 12, 2017 June 27, 2019
G60-D005E	October 5, 2018

Project Activity #	Project Description	PM Emission Limits ⁽²⁾		PM HAP Emission Limits ⁽³⁾	
		Pound/Hr	Tons/Year	Pound/Hr	Tons/Year
19	Automatic transmission assembly	0.12	0.53	0.00	0.00
-	Exhaust Fans	8.02	35.13	0.00	0.00

NOTES: (1) PM/PM-HAP emission limits are on a per Project Activity basis.

(2) For the purposes of this permit, total PM limits are also limits for PM₁₀ and PM_{2.5}.

(3) PM-HAPs that count against emission limits are those compounds listed under Section 112(b) of the CAA.

[Permit no. R13-2062 – Specific Requirement A.1.c.]

4.1.4. Pursuant to 45CSR7, Section 3, the permittee shall not cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any operation permitted under Section 4.1.1 or 4.1.21, which is greater than twenty (20) percent opacity, except smoke and/or particulate matter emitted from any operation permitted under Section 4.1.1 or 4.1.21, which is less than forty (40) percent opacity for any period or periods aggregating no more than five (5) minutes in any sixty (60) minute period.

[Permit no. R13-2062 – Specific Requirement A.1.e, B.5; 45CSR§§7-3.1&3.2]

4.1.5. No surface coating shall be applied that has VOC content in excess of those limits as listed in West Virginia Legislative Rule 45CSR21, Section 19.3. Definitions of the types of surface coatings listed in Section 19.3 shall be those as given to them in 45CSR21.

[Permit no. R13-2062 – Specific Requirement A.3.a; 45CSR§21-19.3]

4.1.6. For the purposes of this permit, emissions from surface coating operations are counted against the limits permitted under Condition 4.1.2, and should be recorded under requirement 4.4.1.

[Permit no. R13-2062 – Specific Requirement A.3.b.]

4.1.7. Pursuant to 45CSR21, Section 40.3(a)(1), the permittee shall utilize mist collectors, ~~the~~ RTOs, and reductions in VOC content so as to achieve, at a minimum, a facility-wide 90 percent reduction in VOC emissions below the total (aggregate) maximum theoretical VOC emissions. “Maximum theoretical emissions” shall have the definition given to it under 45CSR21, Section 2.44. Pursuant to 45CSR21, Section 40.3(b), the permittee may comply with Sections 4.1.7 and 4.1.8 through the submission and approval of an “alternative emissions reduction plan.”

[Permit no. R13-2062 – Specific Requirement A.5.a; 45CSR§§21-40.3(a)(1)&(b); State Enforceable Only]

4.1.8. The permittee shall use dust and mist collectors on the emission sources as specified in Permit Applications R13-2062 through R13-2062NM and R13-2273, and any amendments or revisions thereto. Said collectors shall be installed, maintained, and operated so as to each achieve the minimum control efficiency listed.

[Permit no. R13-2062 – Specific Requirement A.5.b.]

4.1.9. No person shall cause, suffer, allow or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter. To minimize means such system shall be installed, maintained and operated to ensure the lowest fugitive particulate matter emissions reasonably achievable.

[Permit no. R13-2062 – Other Requirements B.5; 45CSR§7-5.1]

- 4.1.21. The laser clad copper coating of engine heads shall be in accordance with the following requirements:
- a. The solvent washers, identified as SW-1, ~~and~~ SW-2, ~~and~~ SW-3, shall be designed, maintained, and operated so as to evacuate all VOC/HAP emissions from the units to a regenerative thermal oxidizers (RTOs), identified as SW-C1 ~~and~~ SW-C2;
 - b. All emissions from laser cleaning in the cladding process shall be evacuated to ~~facility~~ mist collectors;
 - c. The laser cladding machines, identified as LC-1 through LC-~~64~~, shall be designed, maintained, and operated so that 100% of copper overspray shall be contained within the machine or captured and sent to particulate matter filters (LC-C1 through LC-C~~64~~). The laser cladding machines shall be designed, maintained, and operated so that a maximum of 10.5% of total copper powder used is sent to the particulate matter filters for control;
 - d. Aggregate VOC and HAP emissions from all the solvent washers, as emitted after control by the RTOs, shall not exceed:

Solvent Washers Aggregate VOC/HAP Emission Limits

Pollutant	lb/hr	TPY
VOC	0.88 <u>1.32</u>	1.43
HAPs	0.04 <u>0.06</u>	0.06

- e. Particulate Matter and HAP emissions from the laser cladding machines, as emitted after control by the particulate matter filters, shall not exceed 0.01 TPY and 5 lbs/year, respectively.

[Permit no. R13-2062 – Specific Requirement A.1.d.]

- 4.1.22. The RTOs (SW-C1 ~~and~~ SW-C2) used to control VOC/HAP emissions from the solvent washers used in the laser clad copper coating operations shall be designed, maintained, and operated so as to each achieve a minimum hydrocarbon destruction and removal efficiency (DRE) of 95%. ~~The Each~~ RTO shall be designed to not exceed an MDHI of 0.51 mmBtu/hr and combustion exhaust emissions (does not include uncombusted VOC/HAP pass-through emissions from the solvent washers) from ~~the each~~ unit shall not exceed the following limits:

Per-RTO Combustion Exhaust Emission Limits⁽¹⁾

Pollutant	lb/hr	TPY
CO	0.09	0.40
NO _x	0.11	0.48

⁽¹⁾ As the annual emissions are based on 8,760 hours of operation, there are no annual limits on hours of operation or waste gas combusted.

[Permit no. R13-2062 – Specific Requirement A.5.d.]

- 4.1.23. The particulate matter filters (LC-C1 through LC-C~~64~~) used in the laser copper cladding operations shall be designed, maintained, and operated so as to achieve a minimum design collection efficiency of 99.9%. The particulate matter filters shall be cleaned/replaced per manufacturer’s recommendations so as to guarantee the minimum collection efficiency.

[Permit no. R13-2062 – Specific Requirement A.5.e.]

4.1.24. The RTOs (SW-C1 and SW-C2) are is subject to §§6. The requirements of 45CSR6 include but are not limited to the following:

- a. The permittee shall not cause, suffer, allow or permit particulate matter to be discharged from the flares into the open air in excess of the quantity determined by use of the following formula:

$$\text{Emissions (lb/hr)} = F \times \text{Incinerator Capacity (tons/hr)}$$

Where, the factor, F, is as indicated in Table I below:

Table I: Factor, F, for Determining Maximum Allowable Particulate Emissions

Incinerator Capacity	Factor F
A. Less than 15,000 lbs/hr	5.43
B. 15,000 lbs/hr or greater	2.72

[45CSR§6-4.1]

- b. No person shall cause, suffer, allow or permit emission of smoke into the atmosphere from any incinerator which is twenty (20%) percent opacity or greater.
[45CSR§6-4.3.]
- c. The provisions of 4.1.24.b shall not apply to smoke which is less than forty (40%) percent opacity, for a period or periods aggregating no more than eight (8) minutes per start-up.
[45CSR§6-4.4]
- d. No person shall cause or allow the emission of particles of unburned or partially burned refuse or ash from any incinerator which are large enough to be individually distinguished in the open air.
[45CSR§6-4.5]
- e. Incinerators, including all associated equipment and grounds, shall be designed, operated and maintained so as to prevent the emission of objectionable odors.
[45CSR§6-4.6]
- f. Due to unavoidable malfunction of equipment, emissions exceeding those provided for in this rule may be permitted by the Director for periods not to exceed five (5) days upon specific application to the Director. Such application shall be made within twenty-four (24) hours of the malfunction. In cases of major equipment failure, additional time periods may be granted by the Director provided a corrective program has been submitted by the owner or operator and approved by the Director.
[45CSR§6-8.2]

[Permit no. R13-2062 – Other Requirements B.4.]

4.2. Monitoring Requirements

- 4.2.1. The permittee shall develop, or continue the application of, a compliance monitoring plan with respect to the operation of the control devices. This plan will identify the following:

- 4.4.7. For the purposes of determining on-going compliance with the limits set forth in 4.1.21.d, the permittee shall maintain records of the actual (as calculated) VOC/HAP uncontrolled emissions generated in the solvent washing operations using the calculation methodologies as specified under 4.4.1. Actual controlled VOC/HAP emissions may then be calculated using the minimum control efficiency of the RTOs as specified under 4.1.22.

[Permit no. R13-2062 – Specific Requirement A.8.i.1.]

- 4.4.8. For the purposes of determining on-going compliance with the limits set forth in 4.1.21.e, the permittee shall maintain records of the actual (as calculated) particulate matter/HAP emissions generated in the laser cladding machines using the calculation methodology as used in Attachment N of Permit Application R13-2062M and R13-2062N. Actual powder usages and the associated MSDS shall be used in the calculations. These records shall be prepared and maintained according to the same schedule as given under 4.4.1.

[Permit no. R13-2062 – Specific Requirement A.8.i.2.]

4.5. Reporting Requirements

- 4.5.1. Upon startup of a new coating line or operation, or upon changing the method of compliance for an existing subject coating line or operation from the use of complying coatings or control devices to daily-weighted averaging, the owner or operator of the subject coating line or operation shall certify to the Director that the coating line or operation is or will be in compliance with 45CSR§21-4.4 on and after the initial startup date. Such certification shall include:

- a. The name and location of the facility;
- b. The address and telephone number of the person responsible for the facility;
- c. Identification of subject sources;
- d. The name and identification number of each coating line or operation which will comply by means of daily weighted averaging;
- e. The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating (minus water and exempt compounds), as applied, used each day on each coating line or operation;
- f. The method by which the owner or operator will create and maintain records each day as required in Section 45CSR§21-4.4.b;
- g. An example of the format in which the records required in section 45CSR§21-4.4.b will be kept;
- h. Calculation of the daily-weighted average, using the procedure in 45CSR§21-43.1, for a day representative of current or projected maximum production levels; and
- i. The time at which the facility's "day" begins if a time other than midnight local time is used to define a "day".

[Permit no. R13-2062 – Other Requirements B.8; 45CSR§21-4.4(a)]

5.0 Combustion Operations, Testing and Heat Treatment

5.1 Limitations and Standards

- 5.1.1. Excluding the emergency generators permitted in Section 7 of this Permit, the facility-wide maximum design heat input of all natural gas combustion units (excluding the RTOs) shall not exceed 172.03 mmBtu/hr and the facility-wide combustion of natural gas shall not exceed, on a twelve (12) month rolling total basis, 1,005 million standard cubic feet. Excluding the emergency generators permitted in Section 7 of this Permit, the natural gas combustion sources authorized at the facility are HVAC units and the following sources in the Heat Treatment Operations: Dry Furnaces, Carburizing Furnaces, and RX Gas Generators.
[Permit no. R13-2062 – Specific Requirement A.2.a.]
- 5.1.2. The maximum design heat input of propane combustion in the heat treatment process shall not exceed 1.33 mmBtu/hr and, on a twelve (12) month rolling total basis, the use of propane shall not exceed 127,546 gallons.
[Permit no R13-2062 – Specific Requirement A.2.b.]
- 5.1.3. The use of the diesel-electric generator (DG-5031) shall be in accordance with the following:
- a. The maximum design heat input shall not exceed 9.92 mmBtu/hr.
 - b. The combustion of Number 2 Fuel Oil shall not exceed, on a twelve (12) month rolling total basis, 141,715 gallons.
 - c. The maximum weight percent of sulfur in the Number 2 Fuel Oil shall not exceed 0.3%.
- [Permit no. R13-2062 – Specific Requirement A.2.c.]**
- 5.1.4. Pursuant to 45CSR2, Section 3.1, the permittee shall not cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any indirect heat exchanger which is greater than ten (10) percent opacity based on a six minute block average. Pursuant to 45CSR2, Section 9.1, the visible emission standards set forth in Section 5.1.4 shall apply at all times except in periods of start-ups, shutdowns and malfunctions. Where the Director believes that start-ups and shutdowns are excessive in duration and/or frequency, the Director may require an owner or operator to provide a written report demonstrating that such frequent start-ups and shutdowns are necessary.
[Permit no. R13-2062– Specific Requirement A.2.h, B.2, 45CSR§§2-3.1 and 9.1]
- 5.1.5. The use of engine test cells and firing benches shall be in accordance with the following:
- a. The test cells/firing benches authorized at the facility are given in the Section 1.1 Emissions Units: Authorized Test/Firing Benches table. The test cells/firing benches shall be installed, maintained, and operated so as to minimize any fugitive escape of pollutants and the equipment/processes shall use, where applicable, the specified control devices.
 - b. The nine (9) test cells identified under Condition 5.1.5.a shall not operate, in the aggregate, more than 22,500 hours on a 12-month rolling yearly total basis.
 - c. The three (3) firing benches identified under Condition 5.1.5.a shall not combust, in the aggregate, more than 3,750 gallons of gasoline on a 12-month rolling yearly total basis.
- [Permit no. R13-2062– Specific Requirement A.2.d]**