



west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone 304/926-0475

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

**GENERAL PERMIT REGISTRATION APPLICATION
ENGINEERING EVALUATION / FACT SHEET**

BACKGROUND INFORMATION

Registration No.: G60-C005C
Plant ID No.: 079-00072
Applicant: Toyota Motor Manufacturing West Virginia (TMMWV)
Facility Name: Buffalo
Location: Buffalo, Putnam County
SIC Code: 3714
Application Type: Class II Administrative
Received Date: June 12, 2015
Engineer Assigned: Thornton E. Martin Jr.
Fee Amount: \$1,300
Date Received: June 17, 2015
Complete Date: July 06, 2015
Applicant Ad Date: June 11, 2015
Newspaper: *The Hurricane Breeze*
UTM's: Easting: 413.518 km Northing: 4,272.153 km Zone: 17
Description: TMMWV is proposing to replace existing generator "GEN-IS" with a new generator. "GEN-IS" will be moved to a new location (same site) and its' source label will be changed to "GEN-SEC". The new generator will assume the source label "GEN-IS".

On May 8, 2008 Toyota Motor Manufacturing West Virginia (TMMWV) registered eight (8) emergency generators with the G60-B general permit (G60-B005). On May 21, 2009 the G60-C was issued that updated the general permit to include the applicable New Source Performance Standards (NSPS). On February 11, 2014, G60-C005A was issued to TMMWV for the addition of a new General Motors GM-5.7L 30REZG emergency generator and to update the emissions profile of the eight (8) existing emergency generators with the G60-C General Permit. On January 21, 2015, G60-C005B was issued to revise the emissions profile of the 49 horsepower (hp) General Motors GM-5.7L Model 30REZG emergency generator added under G60-C005A. One additional emergency generator - DG-5031 - is permitted under R13-2062K.

TYPE OF PROCESS/MODIFICATION

TMMWV operates a large engine and transmission manufacturing facility at Buffalo that requires a robust emergency power generation capability. To provide this capability, TMMWV currently utilizes ten(10) emergency generators of which nine are currently permitted under G60-C005B (one emergency generator - DG-5031 - is permitted under R13-2062K). TMMWV is proposing to replace existing generator "GEN-IS" (General Motors GM-4.3L 45RZG/2006) with a new generator (Doosan D14.6L/2014). "GEN-IS" will be moved to a new location (Security/same site) and its' source label will be changed to "GEN-SEC". The new generator will assume the source label "GEN-IS-2".

The following is a list of engines permitted under G60-C005C:

Table 1: G60-C005C Emergency Generators

| Emission Unit ID | Description | Design Capacity (bhp/rpm) | Model Year | Installation Year |
|-------------------------|-------------------------------|---------------------------|------------|-------------------|
| GEN-11E | Ford LRG-4251 20RZ | 41/1,800 | 2003 | 2004 |
| GEN-11W | Ford LRG-4251 20RZ | 41/1,800 | 2004 | 2005 |
| GEN-12 | Ford LRG-4251 20RZ | 41/1,800 | 2004 | 2005 |
| GEN-13 | Ford LRG-4251 20RZ | 41,1,800 | 2004 | 2005 |
| GEN-14 | General Motors GM-4.3L 45RZG | 68/1,800 | 2004 | 2005 |
| GEN-15 | General Motors GM-4.3L 45RZG | 68/1,800 | 2006 | 2006 |
| GEN-SEC ⁽²⁾ | General Motors GM-4.3L 45RZG | 68/1,800 | 2006 | 2006 |
| GEN-SBR | General Motors GM-5.7L 60RZG | 105/1,800 | 2006 | 2007 |
| GEN-Pharm | General Motors GM-5.7L 30REZG | 49/1,800 | 2014 | 2014 |
| GEN-IS-2 ⁽¹⁾ | Doosan D14.6L 250REZXB | 402/1,800 | 2014 | 2015 |

(1) Engine subject to this permitting action.

(2) Source Label changed from GEN-IS to GEN-SEC with this permitting action.

SITE INSPECTION

On June 19, 2014, the facility received a full on-site inspection by Mr. Eric Ray of the Compliance/Enforcement Section, who gave the site a status code of "30 - In Compliance." TMMWV performs self monitoring and is up to date (April 27, 2015) in reporting compliance for their annual Title V certification. A new site inspection was deemed unnecessary for this permitting action.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The maximum potential-to-emit (PTE) from TMMWV's nine (9) existing emergency generators are summarized in the table below. G60-C limits the facility to 500 hours per year of

operation. Particulate matter, SO₂, and Hazardous Air Pollutant (HAP) emissions are all considered nominal and not included. The following table lists the proposed and existing engines' PTE:

Table 2: G60-C005C Emergency Generators' PTE

| Source ID# | Nitrogen Oxides | | Carbon Monoxide | | Volatile Organic Compounds | |
|--------------|-----------------|-------------|-----------------|-------------|----------------------------|-------------|
| | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr |
| GEN-11E | 0.63 | 0.16 | 1.06 | 0.26 | 0.01 | 0.01 |
| GEN-11W | 0.63 | 0.16 | 1.06 | 0.26 | 0.01 | 0.01 |
| GEN-12 | 0.63 | 0.16 | 1.06 | 0.26 | 0.01 | 0.01 |
| GEN-13 | 0.63 | 0.16 | 1.06 | 0.26 | 0.01 | 0.01 |
| GEN-14 | 1.31 | 0.33 | 2.21 | 0.55 | 0.02 | 0.01 |
| GEN-15 | 1.31 | 0.33 | 2.21 | 0.55 | 0.02 | 0.01 |
| GEN-SEC | 1.31 | 0.33 | 2.21 | 0.55 | 0.02 | 0.01 |
| GEN-SBR | 1.78 | 0.45 | 3.00 | 0.75 | 0.02 | 0.01 |
| GEN-Pharm | 0.97 | 0.24 | 1.63 | 0.41 | 0.01 | 0.01 |
| GEN-IS-2 | 0.07 | 0.02 | 0.08 | 0.02 | 0.04 | 0.01 |
| | | | | | | |
| TOTAL | 9.27 | 2.34 | 15.58 | 3.87 | 0.17 | 0.10 |

Based on information taken from G60-C005C, the increase in emissions as a result from this permitting action is given in the following table:

Table 3: Change in Aggregate G60-C005C Emergency Generators' PTE

| Permit No. | Nitrogen Oxides | | Carbon Monoxide | | Volatile Organic Compounds | |
|---------------|-----------------|-------------|-----------------|-------------|----------------------------|-------------|
| | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr |
| G60-C005B | 9.20 | 2.32 | 15.50 | 3.85 | 0.13 | 0.09 |
| G60-C005C | 9.27 | 2.34 | 15.58 | 3.87 | 0.17 | 0.10 |
| | | | | | | |
| Change | 0.07 | 0.02 | 0.08 | 0.02 | 0.04 | 0.01 |

GENERAL PERMIT ELIGIBILITY

Section 2.3.1 of the G60-C General Permit Registration defines the eligibility requirements of for emergency generators. It states that:

All emergency generators installed for the purpose of allowing key systems to continue to operate without interruption during times of utility power outages, including emergency generators installed at Title V(major) facilities and other facilities having additional point sources of emissions, are eligible for Class II General Permit registration except for:

- a. Any emergency generator which is a major source as defined in 45CSR14, 45CSR19 or 45CSR30;

Promoting a healthy environment.

- b. Any emergency generator subject to the requirements of 45CSR14, 45CSR15, 45CSR19, 45CSR25, 45CSR27, 45CSR30, 45CSR34;
- c. Any emergency generator whose estimated hours of operation exceeds 500 hours per year;
- d. Any emergency generator located in or which may significantly impact an area which has been determined to be a nonattainment area. Unless otherwise approved by the Secretary.
- e. Any emergency generator which will require an individual air quality permit review process and/or individual permit provisions to address the emission of a regulated pollutant or to incorporate regulatory requirements other than those established by General Permit G60-C.

An evaluation of each of these eligibility requirements is given in the following:

- The emergency generators evaluated herein meet the requirements of the first paragraph and are each or in the aggregate not defined as a major source under 45CSR14, 45CSR19, or 45CSR30.
- The emergency generators are not subject to the rules listed under 2.3.1(b) - with the exception of 45CSR34 - the state rule that incorporates by reference the Federal Hazardous Air Pollutant (HAP) regulations. The engines are subject to the non-substantive (no emissions standards) to the area source provisions 40 CFR 63, Subpart ZZZZ. However, as these are the area source provisions and are considered non-substantive (no emission standards), this 45CSR34 applicability is not deemed sufficient to exclude these engines from registration under the G60-C. A note will be included in the cover letter concerning the engines applicability to Subpart ZZZZ.
- The emergency generators will not exceed an annual hours of operation of 500.
- The Toyota Facility is located in an area designated attainment for PM_{2.5} (or received a re-designation as in attainment on April 30, 2014).
- An individual air quality permit is deemed not necessary for these engines.

REGULATORY APPLICABILITY

45CSR13 Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation

The proposed addition of the GEN-IS-2 emergency generator will result in an increased PTE of a regulated pollutant (see Table 3 above). However, the increase in PTE is below six (6) lbs/hour and ten (10) TPY of any regulated pollutant that would, pursuant to §45-13-2.17, define the installation as a “modification” under 45CSR13. Therefore, pursuant to §45-13-4.2(b)(1), TMMWV is requesting a Class II Administrative Update to their General Permit Registration to make a [c]hange in a permit condition as necessary to allow changes in

Promoting a healthy environment.

operating parameters, emission points, control equipment or any other aspect of a source which results in an increase . . . of any existing regulated air pollutant . . .”

As required under §45-13-8.3 (“Notice Level A”), TMMWV placed a Class I legal advertisement in a “newspaper of general circulation in the area where the source is . . . located.” The ad ran on June 11, 2015 in *The Hurricane Breeze* and the affidavit of publication for this legal advertisement was submitted on June 17, 2015.

40 CFR 60 Subpart JJJJ Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (Non-Applicability)

Pursuant to §60.4230(a)(4)(iv), as each emergency generator, with the exception of GEN-Pharm and GEN-IS-2, was not manufactured after January 1, 2009 (see Table 1 above), these engines are not subject to Subpart JJJJ. However, as GEN-Pharm and GEN-IS-2 are a model year 2014 emergency generator of greater than 25 hp, these engines are subject to Subpart JJJJ. Pursuant to §60.4233(d) and (e), respectively, “[o]wners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP), “[o]wners and operators of stationary SI ICE with a maximum engine power greater than 75 KW (100 HP). . . must comply . . . with the emission standards in Table 1 to this subpart for their emergency stationary SI ICE.” For emergency generators between 25 hp and 130 hp manufactured after January 1, 2009, Table 1 to Subpart JJJJ sets a NO_x emission limit of 10 g/bhp-hr and a CO emission limit of 387 g/bhp-hr. The GEN-Pharm engine has a calculated NO_x emission rate of 8.98 g/bhp-hr and a calculated CO emission rate of 15.09 g/bhp-hr (each based on AP-42, Section 3.2 emission factors for 4SRB engines). For emergency generators greater than 130 hp manufactured after January 1, 2009, Table 1 to Subpart JJJJ sets a NO_x emission limit of 2 g/bhp-hr, a CO emission limit of 4 g/bhp-hr and a VOC emission limit of 1 g/bhp-hr. The GEN-IS-2 engine lists the NO_x emission rate of 0.075 g/bhp-hr, CO emission rate of 0.06 g/bhp-hr and VOC emission rate of 0.045 g/bhp-hr (each based on manufacturers data).

Pursuant to §60.4243(b), compliance with the standard under §60.4233(d) and (e) are shown by either (1) purchasing a “certified” engine or (2) performance testing. According to EPA Guidance, all emergency generators between 25 hp and 130 hp manufactured after January 1, 2009 must be certified by the manufacturer as compliant with the above emission limit. Therefore, TMMWV will show compliance through (1) above.

40 CFR 63 Subpart ZZZZ Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

On June 1, 2013 the DAQ took delegation of the area source provisions of 40 CFR 63, Subpart ZZZZ. As TMMWV’s Buffalo facility is defined as an area source of HAPs (see Attachment A), the facility is subject to applicable requirements of Subpart ZZZZ. Pursuant to §63.6590(c):

An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

Promoting a healthy environment.

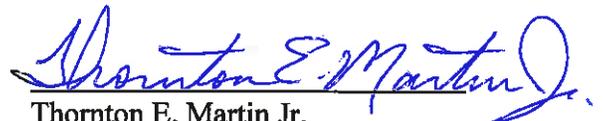
§63.6590(c)(1) specifies that “[a] new or reconstructed stationary RICE located at an area source” is defined as a RICE that shows compliance with the requirements of Subpart ZZZZ by “meeting the requirements of . . . 40 CFR part 60 subpart JJJJ, for spark ignition engines.” Pursuant to §63.6590(a)(2)(iii), a “stationary RICE located at an area source of HAP emissions is new if [the applicant] commenced construction of the stationary RICE on or after June 12, 2006.” The GEN-IS-2 engine is defined as a new stationary RICE (application states the engine is Model Year 2014) and, therefore, will show compliance with Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart JJJJ. Compliance with Subpart JJJJ is discussed above.

CHANGES TO G60-C005B

Replace existing generator “GEN-IS” (General Motors GM-4.3L 45RZG/2006) with a new generator (Doosan D14.6L/2014). “GEN-IS” will be moved to a new location (Security/same site) and its’ source label will be changed to “GEN-SEC”. The new generator will assume the source label “GEN-IS-2”.

RECOMMENDATION TO DIRECTOR

TMMWV’s request to add the GEN-IS-2 generator and to relocate an existing generator at the Buffalo, Putnam County, WV site meets the requirements of General Permit G60-C and all applicable rules. Therefore TMMWV, should be granted General Permit Registration G60-C005C to Modify through a Class II Administrative Update.



Thornton E. Martin Jr.
Permit Engineer

July 06, 2015

Date