



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.wvdep.org

GENERAL PERMIT REGISTRATION APPLICATION ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Registration No.: G60-C005B
Plant ID No.: 079-00072
Applicant: Toyota Motor Manufacturing West Virginia
Facility Name: Buffalo
Location: Buffalo, Putnam County
SIC Code: 3714
NAICS Code: 33635
Application Type: Class II Administrative Update
Received Date: December 16, 2014
Engineer Assigned: Joe Kessler
Fee Amount: \$300
Date Received: December 19, 2014
Complete Date: January 7, 2015
Due Date: February 21, 2015
Applicant Ad Date: December 18, 2014
Newspaper: *The Hurricane Breeze*
UTM's: Easting: 413.518 km Northing: 4,272.153 km Zone: 17
Latitude/Longitude: 38.59760/-81.99382
Description: TMMWV is proposing to revise the emissions profile of the 49 horsepower (hp) General Motors GM-5.7L Model 30REZG emergency generator added under G60-C005A.

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. 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 nine (9) emergency generators of which eight are currently permitted under G60-C005A (one emergency generator - DG-5031 - is permitted under R13-2062K). TMMWV is proposing to revise the emissions profile of the existing (GEN-Pharm) 49 hp General Motors GM-5.7L Model 30REZG 4-stroke rich burn (4SRB) natural gas fired reciprocating internal combustion engine (RICE) that is used to provide emergency power for the Team Member Building.

The following is a list of engines permitted under G60-C005B:

Table 1: G60-C005B 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-IS	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 ⁽¹⁾	General Motors GM-5.7L 30REZG	49/1,800	2014	2014

(1) Engine subject to this permitting action.

SITE INSPECTION

The writer has conducted many previous site inspections of the Buffalo facility. A new site inspection was deemed unnecessary for this permitting action. 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."

AIR EMISSIONS AND CALCULATION METHODOLOGIES

The maximum potential-to-emit (PTE) from TMMWV's nine (9) existing emergency generators (including the revised PTE of GEN-Pharm) are summarized in the table below (and a new post-modification facility-wide PTE is included as Attachment A). G60-C limits the facility to 500 hours per year of operation. Revised emissions from GEN-Pharm were based on factors obtained from AP-42, Section 3.2, Table 3.2-3 (AP-42 is a database of emission factors maintained by USEPA). The Maximum Design Heat Input (MDHI) of the engine (0.44 mmBtu/hr) was calculated to from a full-load fuel consumption rate of 430 scf/hr (provided from the vendor) and a natural gas

heat content of 1,020 Btu/scf. 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-C005B 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-IS	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
TOTAL	9.20	2.32	15.50	3.85	0.13	0.09

Based on information taken from G60-C005B, the increase in emissions as a result from this permitting action is given in the following table:

Table 3: Change in Aggregate G60-C005B 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-C005A	8.30	2.10	13.99	3.47	0.13	0.09
G60-C005B	9.20	2.32	15.50	3.85	0.13	0.09
Change	0.90	0.22	1.51	0.38	~0.00	~0.00

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;
- 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} (are 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 revisions of the GEN-Pharm emergency generator emissions will increase the 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 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 December 18, 2014 in *The Hurricane Breeze* and the affidavit of publication for this legal advertisement was submitted on January 7, 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, was not manufactured after January 1, 2009 (see Table 1 above), these engines are not subject to Subpart JJJJ. However, as GEN-Pharm was a model year 2014 emergency generator of greater than 25 hp, this engine is subject to Subpart JJJJ. Pursuant to §60.4233(d), “[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). . . 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 engine has a calculated NO_x emission rate of 9.07 g/bhp-hr and a calculated CO emission rate of 14.97 g/bhp-hr (each based on AP-42, Section 3.2 emission factors for 4SRB engines).

Pursuant to §60.4243(b), compliance with the standard under §60.4233(d) is 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 manufactures 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.

§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-Pharm engine is defined as a new stationary RICE (application states engines 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-B005A

The only substantive changes to G60-C005A was the revision of the GEN-Pharm emission limits and the selection of the Subpart JJJJ box (which was incorrectly not checked).

RECOMMENDATION TO DIRECTOR

TMMWV's request to revise the GEN-Pharm emissions at the Buffalo, Putnam County, WV site meets the requirements of General Permit G60-C and all applicable rules and therefore TMMWV should be granted a Class II administrative Update to General Permit Registration G60-C005A to continue to operate the unit.



Joe Kessler, P.E.
Engineer



Date

