



west virginia department of environmental protection

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

BACKGROUND INFORMATION

Registration No.: G60-C067
Plant ID No.: 073-00022
Applicant: Pleasants Energy, LLC
Facility Name: Waverly Facility
Location: Waverly, Pleasants County
SIC Code: 4911
Application Type: Construction
Received Date: October 6, 2014
Engineer Assigned: Steven R. Pursley, PE
Fee Amount: \$1,500
Date Received: October 7, 2014
Complete Date: October 14, 2014
Due Date: November 26, 2014
Applicant Ad Date: October 11, 2014
Newspaper: *Pleasants County Leader*
UTM's: Easting: 468.63 km Northing: 4,353.57 km Zone: 17
Latitude/Longitude: 39.3329,-81.3636
Description: Pleasants Energy is proposing to register five (5) diesel-fired Caterpillar Model C175-16, 4,376 brake-horsepower (bhp), 3 MW generator sets with the G60-C General Permit.

TYPE OF PROCESS/MODIFICATION

Pleasants Energy operates a simple cycle electric generating peaking facility near Waverly. In the event of a catastrophic blackout, the Pleasants facility can supply power to the grid which would provide the necessary power to allow other, larger, power plants to restart. To provide this capability, Pleasants Energy must be able to startup from "black start" conditions. The generators which subject to this permitting action would be used to provide the power to allow Pleasants Energy to start up when the grid is down due to emergency situations. Pleasants Energy is proposing to install five (5) diesel-fired Caterpillar Model C175-16 4,376 brake-horsepower (bhp) reciprocating internal combustion engine (RICE) paired with a 3 MW generator.

SITE INSPECTION

Due to the nature of the source and proposed construction, a site inspection was deemed not necessary for this permitting action. However, using internet mapping software, it is noted that this facility lies adjacent to the just across US Route 2 across from the Ohio River in a primarily rural area. To get to the facility take I 77 north to exit 179 and turn right on US Route 2 and go 6.6 miles and the facility is on the right.

AIR EMISSIONS AND CALCULATION METHODOLOGIES

The maximum potential-to-emit (PTE) from Pleasant Energy's proposed emergency generators is summarized in the table below. Emissions were based on the applicable NSPS limits, (NO_x, NMHC, CO and PM) and on factors obtained from AP-42, Section 3.4 (VOCs, SO₂ and HAPs). Fuel consumption was based on information provided by the vendor and a fuel heat content of 137,000 Btu/gal was used in the calculations. G60-C limits the facility to 500 hours per year of operation.

Table 1: Emergency Generator PTE (Per Engine)

Pollutant	Emission Factor	Source	Hourly (lb/hr)	Annual (ton/yr)
CO	2.61 g/bhp-hr	Subpart IIII	25.18	6.29
NO _x	0.50 g/bhp-hr	Subpart IIII	4.82	1.21
NMHC	0.3 g/bhp-hr	Subpart IIII	2.89	0.73
PM/PM ₁₀ /PM _{2.5}	0.07 g/bhp-hr	Subpart IIII	0.72	0.18
SO ₂ ¹	0.0000121 lb/hp-hr	AP-42, Table 3.4-1	0.05	0.02
VOCs	0.000642 lb/hp-hr	AP-42, Table 3.4-1	2.88	0.72
Total HAPs	0.0045 lb/mmbtu ⁽³⁾	AP-42, Table 3.4-3	0.13	0.04

(1) Based on 15 ppm sulfur

(2) Based on TOCs being 91% Non methane (see footnote f of table 3.4-1)

(3) Sum of all HAPs in AP-42 Tables 3.4-3 & 3.4-4

Table 2: Emergency Generator PTE (5 engines combined)

Pollutant	Hourly (lb/hr)	Annual (ton/yr)
CO	125.90	31.47
NO _x	24.10	6.03
NMHC	14.39	3.60
PM/PM ₁₀ /PM _{2.5}	3.60	0.90
SO ₂ ¹	0.27	0.07
VOCs	14.39	3.60
Total HAPs	0.04	0.17

Table 3: Tank Emissions

VOC emissions from the 2,500 gallon fuel oil tank were calculated using the EPA Tanks 4.0 program. The program estimated 1.37 pounds of VOCs per year or 0.00069 tpy of VOCs.

Table 4: Updated Facility Wide PTE

Adding the above mentioned annual emissions to the existing facilities PTE (based on Title V permit R30-07300022-2009) gives the following new facility wide PTE:

Pollutant	tons/yr
CO	147.47
NO _x	247.03
PM/PM ₁₀ /PM _{2.5}	75.90
SO ₂	53.07
VOCs	15.60
Total HAPs	12.00

REGULATORY APPLICABILITY

The proposed Pleasants Energy emergency generators are subject to substantive requirements in the following state and federal air quality rules and regulations: 45CSR13, 40 CFR 60 Subpart IIII, and 40 CFR 63, Subpart ZZZZ. Each applicable rule (and ones that have reasoned non-applicability), and Constellium's compliance therewith, will be discussed in detail below.

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 emergency generators have an uncontrolled (and without any restrictions on the annual hours of operation) potential-to-emit (PTE) in excess of six (6) lbs/hour and ten (10) TPY of three regulated pollutants (VOCs, CO and NO_x). Additionally, the emergency generator is subject to a “substantive requirement” of an emission control rule (See 40 CFR 60, Subpart IIII under the Regulatory Discussion below). Therefore, under §45-13-2.24(a) and (b), the generators would be defined as a “stationary source.” Pursuant to §45-13-5.1, “[n]o person shall cause, suffer, allow or permit the construction . . . and operation of any stationary source to be commenced without . . . obtaining a permit to construct.” As a result of this statutory language, Pleasants Energy is required to obtain a permit or register with an appropriate general permit under 45CSR13 for the construction and operation of the emergency generators.

As required under §45-13-8.3 (“Notice Level A”), Pleasants Energy placed a Class I legal advertisement in a “newspaper of general circulation in the area where the source is . . . located.” The ad ran on October 11, 2014 in The *Pleasants County Leader* and the affidavit of publication for this legal advertisement was submitted on October 14, 2014.

45CSR30: Requirements for Operating Permits

The facility is an existing Title V major source with an issued Title V permit (R30-07300022-2009). Pleasants Energy must update their Title V permit in accordance with 45CSR30.

40 CFR 60, Subpart IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Subpart IIII of 40 CFR 60 is the NSPS for stationary compression ignition internal combustion engines (diesel fired engines). Section §60.4200 states that “provisions of [Subpart IIII] are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE).” Specifically, §60.4200(a)(2) states that Subpart IIII applies to “[o]wners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are:

- (i) Manufactured after April 1, 2006, and are not fire pump engines, or
- (ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

Pleasants Energy has proposed the construction of five (5) new CI ICE emergency generators (manufactured in 2014) that are subject to Subpart IIII. Based on the standards for owner/operators of CI ICE’s under §60.4201(c), the following table details the emission standards for the engine:

Table 2: Subpart IIII Standards

Size (hp)	Displacement (L/cyl)	Source	Emission Standards (g/kw-hr)			
			NO _x	CO	NMHC	PM
4,376	<10	§1039.102, Table 7	0.67	3.5	0.40	0.10

Compliance with these standards are met primarily by purchasing an engine certified to the emission standards. Pleasants Energy has provided an EPA Certificate of Conformity showing this engine family is certified as in compliance with Subpart IIII.

40 CFR 63, Subpart ZZZZ: National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

According to Pleasant Energy's existing Title V permit, the facility is a minor source of HAPs and, therefore, the emergency generator is subject to the area source provisions of the MACT. In order to comply with the area source provisions of Subpart ZZZZ Pleasants Energy has to comply with 40 CFR 60 Subpart IIII.

GENERAL PERMIT G60-C 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 generator evaluated herein meets the requirements of the first paragraph and is not defined as a major source under 45CSR14, 45CSR19, or 45CSR30.
- The emergency generator is 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 under 40 CFR 61, 63, and 65. The engine is subject to the non-substantive (no emissions standards) provisions of 40 CFR 63, Subpart ZZZZ. However, as these provisions are considered non-substantive (no emission standards), this 45CSR34 applicability is not deemed sufficient to exclude this engine from registration under the G60-C.

- The emergency generators will not exceed 500 hours of operation per year each.
- The Waverly Facility is located in an area designated as in attainment for all pollutants.
- An individual air quality permit is deemed not necessary for this engine.

Additionally, siting requirements are given under 3.1.1: “No person shall construct, locate or relocate any affected facility or emission unit within three hundred (300) feet of any occupied dwelling, business, public building, school, church, community, institutional building or public park. An owner of an occupied dwelling or business may elect to waive the three hundred (300) feet siting criteria.” A 300 foot radius from the generators barely passes the plant fence line and does not reach any of the listed structures or areas.

RECOMMENDATION TO DIRECTOR

Pleasants Energy, LLC’s request to operate five (5) emergency generators at the Waverly Facility located near Waverly, Pleasants County, WV site meets the requirements of General Permit G60-C and all applicable rules and, therefore, Pleasants Energy, LLC should be granted a General Permit Registration to operate the said generator.



Steven R. Pursley, P.E.
Engineer

12-9-14

Date