



1/26/15

west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.wvdep.org

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: G65-C545 (Class I Emergency Generator)
Plant ID No.: 039-00477
Applicant: Mountaineer Gas Company (Mountaineer)
Facility Name: Corporate Office
Location: 501 56th Street, Charleston, Kanawha County, WV
Mailing Address: 2401 Sissonville Drive, Charleston WV 25387
SIC Code: 4924 - Natural Gas Distribution
NAICS Code: 221210 - Natural Gas Distribution
(Related to the installation of an emergency generator at the Corporate Office of a business dealing with natural gas distribution)
Application Type: Construction
Received Date: December 15, 2014
Assigned Date: December 19, 2014
Engineer Assigned: John Legg
Fee Amount: \$250.00
Date Fee Received: December 19, 2014
Complete Date: December 19, 2014
Due Date: February 2, 2015
UTM's: Easting: 450.08 km Northing: 4,240.80 km Zone: 17
Latitude: 38.313918 Longitude: -81.571057
Description: Construction/installation of a natural gas-fueled Generac SG350 (350kW/620 hp) emergency generator to be used to produce electrical power in the event of an electrical outage at the Mountaineer's new Corporate Office located in Charleston, WV. Generator/engine equipped with an air/fuel (A/F) ratio controller and a rich burn non-selective catalytic reduction (NSCR) air pollution control device (APCD). Note that this Class I General Permit required no public notice.

Reg.
Company
Facility
Initials
Region 7
JC Legg

NON-CONFIDENTIAL
ENTIRE DOCUMENT

**BACKGROUND INFORMATION**

On December 15, 2014, the Mountaineer submitted application G65-C545 for the construction of a natural gas-fired Generac SG350 (350kW/620hp) emergency generator. Mountaineer’s application fee (\$250.00) was received on December 19, 2014. The new emergency generator is to be constructed at Mountaineer’s corporate office located at 501 56<sup>th</sup> Street, SE, Charleston (Kanawha City), WV 25304.

**PROCESS DESCRIPTION**

The emergency generator will be operated in the event of a power failure or during maintenance/testing of the generator. Under the G65-C general registration, the generator/engine will be allowed to operation a maximum of 500 hours per year.

The following information is listed in the application’s process description (Attachment B):

1. The emergency generator engine is Source Identification Number 1 and will be fueled by a natural gas service line supplied by a Mountaineer Gas Company distribution pipeline that operates at a maximum pressure of 60 psig and a minimum pressure of 40 psig.
2. Upon demand by the emergency generator engine - Source Identification Number 1, natural gas will flow through a Roots B3 15C175 rotary meter then through a pressure regulator that will cut the natural gas pressure from 40 - 60 psig to 2 psig.
3. Natural gas will then flow from the pressure regulator to the Generac SG350 emergency generator engine mounted pressure regulator that will reduce the natural gas pressure from 2 psig to 15 - 20 inches of water column (W.C.). The natural gas fuel consumption rate of the generator at 100% load is 4.3 MSCFH. The Air Pollution Control Device (APCD) types are Air/Fuel Ration and Rich Burn Non-Selective Catalytic Reduction.

**Table 1: Information on Emergency Generator Set/Engine (1) to be Installed at Mountaineer’s Corporate Office Building located in Charleston, Kanawha County, WV.**

Emergency Generator Engine 1	
Source ID No.	1
Generator Manufacturer	Generac Industrial Power
Generator Model	SG350 (350kW)

G65-C545  
Mountaineer Gas Company  
501 56th Street (Corporate Office)  
Charleston, Kanawha County, WV

**Table 1: Information on Emergency Generator Set/Engine (1) to be Installed at Mountaineer's Corporate Office Building located in Charleston, Kanawha County, WV.**

Emergency Generator Engine 1	
Engine Manufacturer	Not Available
Engine Model	Not Available
Engine Manufactured Date	Not Yet Available (2014)
Manufacturer's Rated hp/rpm	620/1800
Installation Date	January 30, 2015 (estimated)
Is this a Certified Stationary Spark Ignition Engine according to 40 CFR 60 Subpart JJJJ?	Yes
Engine Type	RB4S (Rich Burn 4 Stroke)
APCD Type	Air to Fuel Ratio (A/F), Rich Burn & Non-Selective Catalytic Reduction (NSCR)
Fuel Type	Pipeline Quality Natural Gas (PQ)
H <sub>2</sub> S (gr/100 scf)	0.25
Operating Hours	≤ 500 hr/yr
BSFC (Btu/bhp-hr)	Not Available
Fuel Throughput	4,328 ft <sup>3</sup> /hr
	2.164 MM ft <sup>3</sup> /yr
EPA Certificate #	EGNXB21.92C1-042 (2014 EPA Tier 3)

## **SITE INSPECTION**

The site is located within walking distance of the DAQ's Charleston Office. The facility's location is available to DAQ Enforcement who may or may not choose to inspect the facility in the future.

According to the application (General Permit Registration Section, entry 14A, page 2 of 5) the site is located at:

From WV-61 (MacCorkle Avenue/Kanawha City) southbound lane turn right onto 56<sup>th</sup> Street. Go straight through intersection with Venable Avenue. Building is on right.

G65-C545  
 Mountaineer Gas Company  
 501 56th Street (Corporate Office)  
 Charleston, Kanawha County, WV

## ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Mountaineer used emissions factors (for NO<sub>x</sub>, CO and VOC) from USEPA's 2014 Model Year Certificate of Conformity with the Clean Air Act of 1990 issued to Generac Power Systems, Inc., Certificate Number EGNXB21.92C1-042, to calculate emissions from the generator set (see Table 2 below). NO<sub>x</sub> and CO emissions after controls (NSCR: Non-Selective Catalytic Reduction) are based on the generator manufacturer's data sheet.

Corrections to the application were based on information from Mountaineer/David Goad's email dated 1/21/15 to the writer (see Attachment 2 to this evaluation).

<b>Table 2: Emissions for the Mountaineer's Emergency Generator Engine to be Installed at Mountaineer's Corporate Office, Charleston, Kanawha County, WV.</b>					
Pollutant		Mountaineer's Calculations			
		Emission Factors (lb/MM Btu)	(g/kW-hr)	(lb/hr) <sup>(2)</sup>	(ton/500 hr)
NO <sub>x</sub>	Uncontrolled	2.7 <sup>(1)</sup>			2.08
	Controlled (After NSCR)	0.188 <sup>(3)</sup>	0.15		0.04
Carbon Monoxide (CO)	Uncontrolled	5.4 <sup>(1)</sup>	4.17		1.05
	Controlled (After NSCR)	1.1 <sup>(3)</sup>	0.85		0.22
Volatile Organic Compounds (VOC)		1.3 <sup>(1)</sup>	1.0		0.25
SO <sub>2</sub>		0.000588 <sup>(4)</sup>		0.0026	0.00065
PM <sub>10</sub> (Filterable + Condensable) (0.0095 + 0.00991) lb/MM Btu		0.01941 <sup>(4)</sup>		0.085	0.0214
Formaldehyde		0.0205 <sup>(4)</sup>		0.090	0.0226
Benzene		0.00158 <sup>(4)</sup>		0.007	0.0017
Toluene		0.000558 <sup>(4)</sup>		0.00246	0.00062
Xylene		0.000195 <sup>(4)</sup>		0.00086	0.00021
Ethyl Benzene		0.0000248 <sup>(4)</sup>		0.0001095	0.000027
<p>(1) From USEPA 2014 Model Year Certificate of Conformity with the Clean Air Act of 1990, certificate issued to Generac Power Systems, Inc., certificate number: EGNXB21.92C1-042.</p> <p>(2) lb/hr = g/kW-hr X 350 kW X 1lb/453.59 g; where the emergency generator engine is rated at 350 kW, or lb/hr = lb/MM Btu X 1020 Btu/ft<sup>3</sup> X 4328 ft<sup>3</sup>/hr; where the natural gas combustion rate is 4,328 ft<sup>3</sup>/hr.</p> <p>(3) From generator manufacturer: Generac Industrial Power. Controlled NO<sub>x</sub> and CO emissions are reduced by 93% and 80%, respectively.</p> <p>(4) From AP-42 Table 3.2-3 - "Uncontrolled Emission Factors for Four Stroke Rich Burn (4SRB) Engines."</p>					

G65-C545  
 Mountaineer Gas Company  
 501 56th Street (Corporate Office)  
 Charleston, Kanawha County, WV

## **GENERAL PERMIT ELIGIBILITY**

The construction and operation of the engine/generator set meets the applicability requirements as specified in the Class I General Permit G65-C (Section 2.3.1) issued May 21, 2009. Therefore the facility is subject to Sections 1, 2, 3, and 4 (of the Class I General Permit G65-C) and this is stated at the top of page 2 in the general permit registration for G65-C545.

The generator engine is considered to be a reciprocating Internal Combustion Engines (R.I.C.E.), i.e., Section 5 of the Class I General Permit (G65-C) applies and this box is checked at the top of the general permit registration for G65-C545.

The generator is fueled by natural gas delivered from a pipeline and therefore does not require a fuel storage tank. Because of this, Section 6 (Tanks) of the Class I General Permit (G65-C) does not apply and the box is not checked as the top of the general permit registration for G65-C545.

The generator engine is not subject to 40 CFR 60 Subpart IIII because the engine is not a compression ignition engine burning fuel oil, i.e., Section 7 of the Class I General Permit (G65-C) does not apply and the box is not checked at the top of page 2 in the general permit registration for G65-C545.

The generator engine is subject to 40 CFR 60 Subpart JJJJ because the engine is a spark ignition engine, i.e., the indicator box for Section 8 (40CFR60 Subpart JJJJ) is checked in the general registration G65-C545.

## **TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS**

Formaldehyde is emitted at very low levels from the combustion of natural gas:

Formaldehyde, a colorless, pungent-smelling gas, can cause watery eyes, burning sensations in the eyes and throat, nausea, and difficulty in breathing in some humans exposed at elevated levels (above 0.1 parts per million). High concentrations may trigger attacks in people with asthma. There is evidence that some people can develop a sensitivity to formaldehyde. It has also been shown to cause cancer in animals and may cause cancer in humans. Health effects include eye, nose, and throat irritation; wheezing and coughing; fatigue; skin rash; severe allergic reactions. May cause cancer. May also cause other effects listed under "organic gases."

Benzene, ethyl-benzene, and toluene are also emitted at very low levels from the combustion of natural gas.

G65-C545  
Mountaineer Gas Company  
501 56th Street (Corporate Office)  
Charleston, Kanawha County, WV

**RECOMMENDATION TO DIRECTOR**

Mountaineer's request for a permit for the installation and operation of a 350 kW emergency generator at their Corporate Office's located at 501 56<sup>th</sup> Street, Charleston, Kanawha County, WV meets the requirements of General Permit G65-C and all applicable rules, and therefore should be granted said General Permit Registration G65-C545.

  
\_\_\_\_\_  
John Legg, Permit Writer

January 26, 2015  
Date

G65-C545  
Mountaineer Gas Company  
501 56th Street (Corporate Office)  
Charleston, Kanawha County, WV

**Attachment 1**

**AP-42 Table 3.2-3**

**Uncontrolled Emission Factors for Four Stroke Rich Burn (4SRB) Engines**

Table 3.2-3. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE RICH-BURN ENGINES<sup>a</sup>  
(SCC 2-02-002-53)

Pollutant	Emission Factor (lb/MMBtu) <sup>b</sup> (fuel input)	Emission Factor Rating
<b>Criteria Pollutants and Greenhouse Gases</b>		
NO <sub>x</sub> <sup>c</sup> 90 - 105% Load	2.21 E+00	A
NO <sub>x</sub> <sup>c</sup> <90% Load	2.27 E+00	C
CO <sup>c</sup> 90 - 105% Load	3.72 E+00	A
CO <sup>c</sup> <90% Load	3.51 E+00	C
CO <sub>2</sub> <sup>d</sup>	1.10 E+02	A
SO <sub>2</sub> <sup>e</sup>	5.88 E-04	A
TOC <sup>f</sup>	3.58 E-01	C
Methane <sup>g</sup>	2.30 E-01	C
VOC <sup>h</sup>	2.96 E-02	C
PM10 (filterable) <sup>ij</sup>	9.50 E-03	E
PM2.5 (filterable) <sup>j</sup>	9.50 E-03	E
PM Condensable <sup>k</sup>	9.91 E-03	E
<b>Trace Organic Compounds</b>		
1,1,2,2-Tetrachloroethane <sup>l</sup>	2.53 E-05	C
1,1,2-Trichloroethane <sup>l</sup>	<1.53 E-05	E
1,1-Dichloroethane	<1.13 E-05	E
1,2-Dichloroethane	<1.13 E-05	E
1,2-Dichloropropane	<1.30 E-05	E
1,3-Butadiene <sup>l</sup>	6.63 E-04	D
1,3-Dichloropropene <sup>l</sup>	<1.27 E-05	E
Acetaldehyde <sup>l,m</sup>	2.79 E-03	C
Acrolein <sup>l,m</sup>	2.63 E-03	C
Benzene <sup>l</sup>	1.58 E-03	B
Butyr/isobutyraldehyde	4.86 E-05	D
Carbon Tetrachloride <sup>l</sup>	<1.77 E-05	E

Table 3.2-3. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE RICH-BURN ENGINES  
(Concluded)

Pollutant	Emission Factor (lb/MMBtu) <sup>b</sup> (fuel input)	Emission Factor Rating
Chlorobenzene <sup>1</sup>	<1.29 E-05	E
Chloroform <sup>1</sup>	<1.37 E-05	E
Ethane <sup>n</sup>	7.04 E-02	C
Ethylbenzene <sup>1</sup>	<2.48 E-05	E
Ethylene Dibromide <sup>1</sup>	<2.13 E-05	E
Formaldehyde <sup>l,m</sup>	2.05 E-02	A
Methanol <sup>1</sup>	3.06 E-03	D
Methylene Chloride <sup>1</sup>	4.12 E-05	C
Naphthalene <sup>1</sup>	<9.71 E-05	E
PAH <sup>1</sup>	1.41 E-04	D
Styrene <sup>1</sup>	<1.19 E-05	E
Toluene <sup>1</sup>	5.58 E-04	A
Vinyl Chloride <sup>1</sup>	<7.18 E-06	E
Xylene <sup>1</sup>	1.95 E-04	A

<sup>a</sup> Reference 7. Factors represent uncontrolled levels. For NO<sub>x</sub>, CO, and PM-10, "uncontrolled" means no combustion or add-on controls; however, the factor may include turbocharged units. For all other pollutants, "uncontrolled" means no oxidation control; the data set may include units with control techniques used for NO<sub>x</sub> control, such as PCC and SCR for lean burn engines, and PSC for rich burn engines. Factors are based on large population of engines. Factors are for engines at all loads, except as indicated. SCC = Source Classification Code. TOC = Total Organic Compounds. PM10 = Particulate Matter < 10 microns (μm) aerodynamic diameter. A "<" sign in front of a factor means that the corresponding emission factor is based on one-half of the method detection limit.

<sup>b</sup> Emission factors were calculated in units of (lb/MMBtu) based on procedures in EPA Method 19. To convert from (lb/MMBtu) to (lb/10<sup>6</sup> scf), multiply by the heat content of the fuel. If the heat content is not available, use 1020 Btu/scf. To convert from (lb/MMBtu) to (lb/hp-hr) use the following equation:

$$\text{lb/hp-hr} = (\text{lb/MMBtu}) (\text{heat input, MMBtu/hr}) (1/\text{operating HP, 1/hp})$$

<sup>c</sup> Emission tests with unreported load conditions were not included in the data set.

<sup>d</sup> Based on 99.5% conversion of the fuel carbon to CO<sub>2</sub>. CO<sub>2</sub> [lb/MMBtu] = (3.67)(%CON)(C)(D)(1/h), where %CON = percent conversion of fuel carbon to CO<sub>2</sub>,

- C = carbon content of fuel by weight (0.75), D = density of fuel,  $4.1 \text{ E}+04 \text{ lb}/10^6 \text{ scf}$ , and h = heating value of natural gas (assume 1020 Btu/scf at 60°F).
- <sup>e</sup> Based on 100% conversion of fuel sulfur to SO<sub>2</sub>. Assumes sulfur content in natural gas of 2,000 gr/10<sup>6</sup> scf.
- <sup>f</sup> Emission factor for TOC is based on measured emission levels from 6 source tests.
- <sup>g</sup> Emission factor for methane is determined by subtracting the VOC and ethane emission factors from the TOC emission factor.
- <sup>h</sup> VOC emission factor is based on the sum of the emission factors for all speciated organic compounds. Methane and ethane emissions were not measured for this engine category.
- <sup>i</sup> No data were available for uncontrolled engines. PM10 emissions are for engines equipped with a PCC.
- <sup>j</sup> Considered  $\leq 1 \mu\text{m}$  in aerodynamic diameter. Therefore, for filterable PM emissions, PM10(filterable) = PM2.5(filterable).
- <sup>k</sup> No data were available for condensable emissions. The presented emission factor reflects emissions from 4SLB engines.
- <sup>l</sup> Hazardous Air Pollutant as defined by Section 112(b) of the Clean Air Act.
- <sup>m</sup> For rich-burn engines, no interference is suspected in quantifying aldehyde emissions. The presented emission factors are based on FTIR and CARB 430 emissions data measurements.
- <sup>n</sup> Ethane emission factor is determined by subtracting the VOC emission factor from the NMHC emission factor.

**Attachment 2**

**Email (sent 1/21/15) from Mountaineer/David Goad**

**Correcting Permit Application G65-C546.**

**G65-C545  
Mountaineer Gas Company  
501 56th Street (Corporate Office)  
Charleston, Kanawha County, WV**

Legg, John C

**From:** Goad, David <davidgoad@mgcwv.com>  
**Sent:** Wednesday, January 21, 2015 2:04 PM  
**To:** Legg, John C  
**Subject:** RE: Question About G65-C545 General Permit Registration for Corporate Office Emergency Generator  
**Attachments:** EPA 350kW NG.pdf, Exhaust Emissions Data.pdf

John,

Based on the attached EPA certificate of conformity and manufacturer's exhaust emissions data sheet, pollutants will be reduced according to the table below:

Pollutant	Before NSCR (g/kW - hr from EPA certificate)	After NSCR (g/kW - hr from manufacturer's data sheet)
CO	5.4	1.1
NOx	2.7	0.188

In regards to other pollutant emissions reduced by the NSCR, data for THC (total hydrocarbons) is listed in the manufacturer's data sheet but not on the EPA certificate.

It looks like I made a mistake in copying the tons/year for NOx, SO<sub>2</sub>, and PM<sub>10</sub> from Emission Summary Sheet to the Emergency Generator Engine Data Sheet. The tons/year on the Emergency Generator Engine Data Sheet should be 0.52 for NOx, 0.0007 for SO<sub>2</sub>, and 0.021 for PM<sub>10</sub>. Sorry for the confusion on this. Please let me know if you need any additional information.

Thank you,

David Goad  
Engineer  
Mountaineer Gas Company  
2401 Sissonville Drive  
Charleston, WV  
25387-1336

(304) 340-4062

**From:** Legg, John C [<mailto:John.C.Legg@wv.gov>]  
**Sent:** Thursday, January 15, 2015 4:46 PM  
**To:** Goad, David  
**Subject:** Question About G65-C545 General Permit Registration for Corporate Office Emergency Generator

David,

I am the permit writer reviewing Mountaineer Gas's general permit (G65-C) registration application.

In the application, Mountaineer is installing a non-selective catalytic reduction (NSCR) air pollution control device (APCD).

Please send me an email listing what pollutants will be reduced and before and after emissions.

I noticed on page 14 of 19 that NOx is listed as being 2.08 lb/hr (uncontrolled) and 0.001042 ton/yr (Controlled?) instead of 0.52 ton/yr (uncontrolled) as calculated. I assume this reduction is from the NSCR APCD, but I'm not sure. Does the NSCR APCD reduce emissions of NOx by 98%? Are there other pollutant emissions that are reduced by the NSCR APCD? If so, please provide me with this information.

I would like to submit the finished registration for the Air Director's signature tomorrow evening, if possible.

Thank you,

John Legg  
Permit Writer  
Division of Air Quality (DAQ)  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304  
[John.c.legg@wv.gov](mailto:John.c.legg@wv.gov)  
(304) 926-0499 ext. 1257



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
2014 MODEL YEAR  
CERTIFICATE OF CONFORMITY  
WITH THE CLEAN AIR ACT OF 1990

OFFICE OF TRANSPORTATION  
AND AIR QUALITY  
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: **Generac Power Systems, Inc.**  
(U.S. Manufacturer or Importer)

Certificate Number: **EGNXB21.92C1-042**

Effective Date:  
**12/16/2013**

Expiration Date:  
**12/31/2014**

Issue Date:  
**12/16/2013**

Revision Date:  
**N/A**

  
**Byron J. Bunker, Division Director**  
Compliance Division

**Manufacturer:** Generac Power Systems, Inc.

**Engine Family:** EGNXB21.92C1

**Certificate Number:** EGNXB21.92C1-042

**Certification Type:** Stationary (Part 60)

**Fuel:** Natural Gas (CNG/LNG)

**Emission Standards:** CO (g/kW-hr) : 5.4

NOx (g/kW-hr) : 2.7

VOC (g/kW-hr) : 1.3

**Emergency Use Only : Y**

Pursuant to Section 213 of the Clean Air Act (42 U.S.C. section 7547) and 40 CFR Part 60, 1065, 1068, and 60 (stationary only and combined stationary and mobile) and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following nonroad engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new nonroad spark-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60. This certificate of conformity does not cover nonroad engines imported prior to the effective date of the certificate.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068.20 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

This certificate does not cover large nonroad engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

## EXHAUST EMISSIONS DATA

## STATEMENT OF EXHAUST EMISSIONS 2014 SPARK-IGNITED GENERATORS INDUSTRIAL SERIES - NON-CALIFORNIA

	Model	Engine	EPA Engine Family	Fuel	CAT Req'd	Comb Cat or Separate Cat	EPA Cert #	Grams/bhp-hr.			Rated RPM	BHP	Fuel Flow (lb/hr)
								THC	NOx	CO			
Small Spark Ignited Engines - SSIE (SORE)	QTA25	2.4	EGNXB02.42NN	NG	No	NR	EGNXB02.42NN-008	2.14	2.37	93.95	1800	38.39	16.52
	QTA25	2.4	EGNXB02.42NL	LPG	No	NR	EGNXB02.42NL-014	1.43	4.38	88.18	1800	43.29	17.59
	SG035	5.4	EGNXB05.42NN	NG	No	NR	EGNXB05.42NN-012	1.80	2.52	95.32	1800	82.10	36.91
	SG035	5.4	EGNXB05.42NL	LPG	No	NR	EGNXB05.42NL-013	1.24	3.45	112.01	1800	82.30	34.60
	SG040	5.4	EGNXB05.42NN	NG	No	NR	EGNXB05.42NN-012	1.80	2.52	95.32	1800	82.10	36.91
	SG040	5.4	EGNXB05.42NL	LPG	No	NR	EGNXB05.42NL-013	1.24	3.45	112.01	1800	82.30	34.60
	SG045	5.4	EGNXB05.42NN	NG	No	NR	EGNXB05.42NN-012	1.80	2.52	95.32	1800	82.10	36.91
	SG045	5.4	EGNXB05.42NL	LPG	No	NR	EGNXB05.42NL-013	1.24	3.45	112.01	1800	82.30	34.60
	SG050	5.4	EGNXB05.42NN	NG	No	NR	EGNXB05.42NN-012	1.80	2.52	95.32	1800	82.10	36.91
	SG050	5.4	EGNXB05.42NL	LPG	No	NR	EGNXB05.42NL-013	1.24	3.45	112.01	1800	82.30	34.60
	SG050	6.8	EGNXB06.82NN	NG	No	NR	EGNXB06.82NN-001	1.46	6.57	30.88	1800	84.80	37.17
	SG050	6.8	EGNXB06.82NL	LPG	No	NR	EGNXB06.82NL-002	1.86	2.67	172.30	1800	84.86	46.55
	SG060	6.8	EGNXB06.82NN	NG	No	NR	EGNXB06.82NN-001	1.47	2.94	75.88	1800	96.67	38.76
	SG060	6.8	EGNXB06.82NL	LPG	No	NR	EGNXB06.82NL-002	1.28	4.23	98.05	1800	96.60	41.20
	SG070	6.8	EGNXB06.82NN	NG	No	NR	EGNXB06.82NN-001	1.46	3.55	88.40	1800	108.72	42.37
	SG070	6.8	EGNXB06.82NL	LPG	No	NR	EGNXB06.82NL-002	1.26	3.28	111.49	1800	118.41	51.86
	SG080	8.0	EGNXB08.02NN	NG	No	NR	EGNXB08.02NN-049	1.16	2.86	49.60	1800	127.61	44.02
	SG080 (DF)	8.0	EGNXB08.02NN	NG/LPV	No	NR	EGNXB08.02NN-049	0.85	4.24	27.28	1800	128.08	42.50
	SG080 (DF)	8.0	EGNXB08.02NN	NG/LPL	No	NR	EGNXB08.02NN-049	1.23	4.09	37.08	1800	127.90	42.60
	SG080	8.0	EGNXB08.02NL	LPV	No	NR	EGNXB08.02NL-050	0.95	2.24	86.43	1800	127.48	50.13
	SG080	8.0	EGNXB08.02NL	LPL	No	NR	EGNXB08.02NL-050	1.00	2.77	71.36	1800	128.09	46.81
	SG080	9.0	EGNXB08.92NN	NG	No	NR	EGNXB08.92NN-003	0.94	3.91	41.13	1800	125.86	44.32
	SG080 (DF)	9.0	EGNXB08.92NN	NG/LPV	No	NR	EGNXB08.92NN-003	0.76	2.81	42.10	1800	124.83	46.19
	SG080 (DF)	9.0	EGNXB08.92NN	NG/LPL	No	NR	EGNXB08.92NN-003	0.89	2.89	30.46	1800	124.61	44.16
	SG080	9.0	EGNXB08.92NL	LPV	No	NR	EGNXB08.92NL-004	0.78	2.67	78.16	1800	128.21	49.55
	SG080	9.0	EGNXB08.92NL	LPL	No	NR	EGNXB08.92NL-004	1.11	4.02	67.70	1800	120.57	50.62
	SG080	9.0	EGNXB08.92NN	NG	No	NR	EGNXB08.92NN-003	0.84	3.91	41.13	1800	125.96	44.32
	SG080 (DF)	9.0	EGNXB08.92NN	NG/LPV	No	NR	EGNXB08.92NN-003	0.76	2.81	42.10	1800	124.83	46.19
	SG080 (DF)	9.0	EGNXB08.92NN	NG/LPL	No	NR	EGNXB08.92NN-003	0.89	2.89	30.46	1800	124.61	44.16
	SG080	9.0	EGNXB08.92NL	LPV	No	NR	EGNXB08.92NL-004	0.78	2.67	78.16	1800	128.21	49.55
SG080	9.0	EGNXB08.92NL	LPL	No	NR	EGNXB08.92NL-004	1.11	4.02	67.70	1800	120.57	50.62	
SG130	6.8	EGNXB06.82C3	NG	Yes	Cat Muff	EGNXB06.82C3-031	0.06	0.05	0.82	3000	193.49	72.31	
SG130	6.8	EGNXB06.82C4	LPG	Yes	Cat Muff	EGNXB06.82C4-032	0.03	0.21	1.06	3000	208.48	79.99	
SG130 (DF)	6.8	EGNXB06.82C3	NG & LP	Yes	Cat Muff	EGNXB06.82C3-031	0.06	0.05	0.92	3000	193.49	72.31	
SG150	6.8	EGNXB06.82C3	NG	Yes	Cat Muff	EGNXB06.82C3-031	0.18	0.14	1.54	3600	231.00	81.34	
SG150	6.8	EGNXB06.82C4	LPG	Yes	Cat Muff	EGNXB06.82C4-032	0.03	1.18	1.56	3600	230.13	88.41	
SG150 (DF)	6.8	EGNXB06.82C3	NG & LP	Yes	Cat Muff	EGNXB06.82C3-031	0.18	0.14	1.54	3600	231.00	81.34	
SG100	9.0	EGNXB08.92C1	NG	Yes	Cat Muff	EGNXB08.92C1-034	0.17	0.003	0.06	1800	148.90	46.86	
SG100 (DF)	9.0	EGNXB08.92C1	NG/LPV	Yes	Cat Muff	EGNXB08.92C1-034	0.30	0.400	0.79	1800	133.16	45.98	
SG100 (DF)	9.0	EGNXB08.92C1	NG/LPL	Yes	Cat Muff	EGNXB08.92C1-034	0.34	0.006	1.10	1800	135.75	45.47	
SG100	9.0	EGNXB08.92C2	LPG	Yes	Cat Muff	EGNXB08.92C2-035	0.03	0.08	0.13	1800	157.87	53.08	
SG100	9.0	EGNXB08.92C2	LPL	Yes	Cat Muff	EGNXB08.92C2-035	0.07	0.04	0.30	1800	156.15	54.47	
SG130,150	9.0	EGNXB08.92C3	NG	Yes	Cat Muff	EGNXB08.92C3-055	0.10	0.03	0.02	1800	230.30	71.87	
SG130,150 (DF)	9.0	EGNXB08.92C3	NG/LPV	Yes	Cat Muff	EGNXB08.92C3-055	0.10	0.03	0.02	1800	230.30	71.87	
SG130,150 (DF)	9.0	EGNXB08.92C3	NG/LPL	Yes	Cat Muff	EGNXB08.92C3-055	0.10	0.03	0.02	1800	230.30	71.87	
MG130,150	9.0	EGNXB08.92C3	NG	Yes	Cat Muff	EGNXB08.92C3-055	0.10	0.03	0.02	1800	230.30	71.87	
MG130,150 (DF)	9.0	EGNXB08.92C3	NG/LPV	Yes	Cat Muff	EGNXB08.92C3-055	0.10	0.03	0.02	1800	230.30	71.87	
MG130,150 (DF)	9.0	EGNXB08.92C3	NG/LPL	Yes	Cat Muff	EGNXB08.92C3-055	0.10	0.03	0.02	1800	230.30	71.87	
SG130, 150	9.0	EGNXB08.92C4	LPG	Yes	Cat Muff	EGNXB08.92C4-054	0.02	0.57	1.30	1800	230.30	75.43	
SG130, 150	9.0	EGNXB08.92C4	LPL	Yes	Cat Muff	EGNXB08.92C4-054	0.02	0.57	1.30	1800	230.30	75.43	
MG130,150	9.0	EGNXB08.92C4	LPG	Yes	Cat Muff	EGNXB08.92C4-054	0.02	0.57	1.30	1800	230.30	75.43	
MG130,150	9.0	EGNXB08.92C4	LPL	Yes	Cat Muff	EGNXB08.92C4-054	0.02	0.57	1.30	1800	230.30	75.43	
SG150	12.9	EGNXB12.92C2	NG	Yes	Cat Muff	EGNXB12.92C2-039	0.53	0.13	0.53	1800	307.87	107.99	
MG150	12.9	EGNXB12.92C2	NG	Yes	Cat Muff	EGNXB12.92C2-039	0.53	0.13	0.53	1800	307.87	107.99	
SG175	12.9	EGNXB12.92C2	NG	Yes	Cat Muff	EGNXB12.92C2-039	0.53	0.13	0.53	1800	307.87	107.99	
SG200	12.9	EGNXB12.92C2	NG	Yes	Cat Muff	EGNXB12.92C2-039	0.53	0.13	0.53	1800	307.87	107.99	
MG200	12.9	EGNXB12.92C2	NG	Yes	Cat Muff	EGNXB12.92C2-039	0.53	0.13	0.53	1800	307.87	107.99	
SG230	12.9	EGNXB12.92C2	NG	Yes	Cat Muff	EGNXB12.92C2-039	0.38	0.03	0.53	1800	378.10	125.30	
SG250	12.9	EGNXB12.92C2	NG	Yes	Cat Muff	EGNXB12.92C2-039	0.38	0.03	0.53	1800	378.10	125.30	
MG250	12.9	EGNXB12.92C2	NG	Yes	Cat Muff	EGNXB12.92C2-039	0.38	0.03	0.53	1800	378.10	125.30	
SG275	12.9	EGNXB12.92C3	NG	Yes	Cat Muff	EGNXB12.92C3-041	0.06	0.08	0.81	2150	477.00	164.20	
SG300	12.9	EGNXB12.92C3	NG	Yes	Cat Muff	EGNXB12.92C3-041	0.06	0.06	0.81	2150	477.00	164.20	
MG300	12.9	EGNXB12.92C3	NG	Yes	Cat Muff	EGNXB12.92C3-041	0.06	0.06	0.81	2150	477.00	164.20	
SG250	21.9	EGNXB21.92C1	LPG	Yes	Cat Muff	EGNXB21.92C1-042	0.18	0.14	0.82	1800	636.00	201.17	
MG350	21.9	EGNXB21.92C1	NG	Yes	Cat Muff	EGNXB21.92C1-042	0.18	0.14	0.82	1800	636.00	201.17	
SG400	21.9	EGNXB21.92C1	NG	Yes	Cat Muff	EGNXB21.92C1-042	0.18	0.14	0.82	1800	636.00	201.17	
MG400	21.9	EGNXB21.92C1	NG	Yes	Cat Muff	EGNXB21.92C1-042	0.18	0.14	0.82	1800	636.00	201.17	

NR: Not Required

DF: Dual Fuel

Refer to page 2 for definitions and advisory notes.

**EXHAUST EMISSIONS  
DATA****STATEMENT OF EXHAUST EMISSIONS  
2014 SPARK-IGNITED GENERATORS****2014 EPA SPARK-IGNITED EXHAUST EMISSIONS DATA**

Effective since 2009, the EPA has implemented exhaust emissions regulations on stationary spark-ignited (gaseous) engine generators for emergency applications. All Generac spark-ignited gensets, including SG, MG, QTA and QT series gensets, that are built with engines manufactured in 2009 and later meet the requirements of 40CFR part 60 subpart JJJJ and are EPA certified. These generator sets are labeled as EPA Certified with decals affixed to the engines' valve covers.

The attached documents summarize the general information relevant to EPA certification on these generator sets. This information can be used for submittal data and for permitting purposes, if required. These documents include the following information:

**EPA Engine Family**

The EPA Engine Family is assigned by the Manufacturer under EPA guidelines for certification purposes and appears on the EPA certificate.

**Catalyst Required**

Indicates whether an exhaust catalyst and Air/Fuel Ratio control system are required on the generator set to meet EPA certification requirements. Generally, units rated 80kW and smaller do not require a catalyst to meet EPA certification requirements. Please note that some units that do not require a catalyst to meet EPA requirements do need a catalyst if the California SCAQMD option is selected. Please see "California SCAQMD" below for additional information on this option.

**Combination Catalyst or Separate Catalyst**

SG and MG series generator sets typically utilize a single combination catalyst/silencer as part of meeting EPA certification requirements. Many QT and QTA series generator sets use the same engines as SG and MG series units, but have different exhaust configurations that require the use of conventional silencers with additional separate catalysts installed.

**EPA Certificate Number**

Upon certification by the EPA, a Certificate Number is assigned by the EPA.

**Emissions Actuals - Grams/bhp-hr**

Actual exhaust emission data for Total Hydrocarbons (THC), Nitrogen Oxides (NOx) and Carbon Monoxide (CO) that were submitted to EPA and are official data of record for certification. This data can be used for permitting if necessary. Values are expressed in grams per brake horsepower-hour; to convert to grams/kW-hr, multiply by 1.341. Please see advisory notes below for further information.

**California Units, SCAQMD CEP Number**

A separate low-emissions option is available on many Generac gaseous-fueled generator sets to comply with the more stringent South Coast Air Quality Management District requirements that are recognized in certain areas in California. Gensets that include this option are also EPA Certified.

**General Advisory Note to Dealers**

The information provided here is proprietary to Generac and its authorized dealers. This information may only be disseminated upon request, to regulatory governmental bodies for emissions permitting purposes or to specifying organizations as submittal data when expressly required by project specifications, and shall remain confidential and not open to public viewing. This information is not intended for compilation or sales purposes and may not be used as such, nor may it be reproduced without the expressed written permission of Generac Power Systems, Inc.

**Advisory Notes on Emissions Actuals**

- The stated values are actual exhaust emission test measurements obtained from units representative of the generator types and engines described.
- Values are official data of record as submitted to the EPA and SCAQMD for certification purposes. Testing was conducted in accordance with prevailing EPA protocols, which are typically accepted by SCAQMD and other regional authorities.
- No emission values provided are to be construed as guarantees of emissions levels for any given Generac generator unit.
- Generac Power Systems reserves the right to revise this information without prior notice.
- Consult state and local regulatory agencies for specific permitting requirements.
- The emissions performance data supplied by the equipment manufacturer is only one element required toward completion of the permitting and installation process. State and local regulations may vary on a case-by-case basis and must be consulted by the permit applicant/equipment owner prior to equipment purchase or installation. The data supplied herein by Generac Power Systems cannot be construed as a guarantee of installability of the generator set.
- The emission values provided are the result of multi-mode, weighted scale testing in accordance with EPA testing regulations, and may not be representative of any specific load point.
- The emission values provided are not to be construed as emission limits.