

Tracy
G60-C074
039-00076



**APPLICATION FOR
GENERAL PERMIT G60-C REGISTRATION**

CAMC CANCER CENTER

Charleston, Kanawha County, West Virginia

Submitted to:
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street
Charleston, West Virginia 25304

Prepared for:
Charleston Area Medical Center
3200 MacCorkle Ave, SE
Charleston, West Virginia 25304

Prepared by:
Triad Engineering, Inc.
10541 Teays Valley Road
Scott Depot, West Virginia 25560

March 2015



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WEST VIRGINIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 DIVISION OF AIR QUALITY
 601 57th Street, SE
 Charleston, WV 25304
 Phone: (304) 926-0475 • www.dep.wv.gov/daq

APPLICATION FOR GENERAL PERMIT REGISTRATION
 CONSTRUCT, MODIFY, RELOCATE OR ADMINISTRATIVELY UPDATE
 A STATIONARY SOURCE OF AIR POLLUTANTS

CONSTRUCTION MODIFICATION RELOCATION CLASS I ADMINISTRATIVE UPDATE
 CLASS II ADMINISTRATIVE UPDATE

CHECK WHICH TYPE OF GENERAL PERMIT REGISTRATION YOU ARE APPLYING FOR:

- | | |
|--|---|
| <input type="checkbox"/> G10-D – Coal Preparation and Handling
<input type="checkbox"/> G20-B – Hot Mix Asphalt
<input type="checkbox"/> G30-D – Natural Gas Compressor Stations
<input type="checkbox"/> G33-A – Spark Ignition Internal Combustion Engines
<input type="checkbox"/> G35-A – Natural Gas Compressor Stations (Flare/Glycol Dehydration Unit) | <input type="checkbox"/> G40-C – Nonmetallic Minerals Processing
<input type="checkbox"/> G50-B – Concrete Batch
<input checked="" type="checkbox"/> G60-C – Class II Emergency Generator
<input type="checkbox"/> G65-C – Class I Emergency Generator
<input type="checkbox"/> G70-A – Class II Oil and Natural Gas Production Facility |
|--|---|

SECTION I. GENERAL INFORMATION

1. Name of applicant (as registered with the WV Secretary of State's Office): Charleston Area Medical Center		2. Federal Employer ID No. (FEIN): 550526150	
3. Applicant's mailing address: 3200 MacCorkle Avenue, SE Charleston, WV 25304		4. Applicant's physical address: 3200 MacCorkle Avenue, SE Charleston, WV 25304	
5. If applicant is a subsidiary corporation, please provide the name of parent corporation: Not Applicable			
6. WV BUSINESS REGISTRATION. Is the applicant a resident of the State of West Virginia? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO – IF YES , provide a copy of the Certificate of Incorporation/ Organization / Limited Partnership (one page) including any name change amendments or other Business Registration Certificate as Attachment A. – IF NO , provide a copy of the Certificate of Authority / Authority of LLC / Registration (one page) including any name change amendments or other Business Certificate as Attachment A.			

SECTION II. FACILITY INFORMATION

7. Type of plant or facility (stationary source) to be constructed, modified, relocated or administratively updated (e.g., coal preparation plant, primary crusher, etc.): Installation of an emergency generator at the new CAMC Cancer Center facility.		8a. Standard Industrial Classification Classification (SIC) code: 8062	AND	8b. North American Industry System (NAICS) code: 62211
9. DAQ Plant ID No. (for existing facilities only): Not Applicable		10. List all current 45CSR13 and other General Permit numbers associated with this process (for existing facilities only): Not Applicable		

A: PRIMARY OPERATING SITE INFORMATION

11A. Facility name of primary operating site: CAMC Cancer Center		12A. Address of primary operating site: Mailing: 3415 MacCorkle Avenue Physical: Same Charleston, WV 25304	
13A. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? - IF YES, please explain: The applicant owns the proposed site. - IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.		X YES <input type="checkbox"/> NO	
14A. - For Modifications or Administrative Updates at an existing facility, please provide directions to the present location of the facility from the nearest state road; - For Construction or Relocation permits, please provide directions to the proposed new site location from the nearest state road. Include a MAP as Attachment F. The facility is located on a state road, State Road 61 (MacCorkle Avenue).			
15A. Nearest city or town: Charleston	16A. County: Kanawha	17A. UTM Coordinates: Northing (KM): 4242.351 Easting (KM): 447.304 Zone: 17	
18A. Briefly describe the proposed new operation or change (s) to the facility: CAMC is constructing a new facility (CAMC Cancer Center) that includes the installation of a new emergency generator (Generator #1).		19A. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits): Latitude: 38.32750 Longitude: 81.59983	

B: 1ST ALTERNATE OPERATING SITE INFORMATION (only available for G20, G40, & G50 General Permits)

11B. Name of 1 st alternate operating site: _____		12B. Address of 1 st alternate operating site: Mailing: _____ Physical: _____	
13B. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? - IF YES, please explain: _____ - IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.		<input type="checkbox"/> YES <input type="checkbox"/> NO	
14B. - For Modifications or Administrative Updates at an existing facility, please provide directions to the present location of the facility from the nearest state road; - For Construction or Relocation permits, please provide directions to the proposed new site location from the nearest state road. Include a MAP as Attachment F. _____ _____ _____			

15B. Nearest city or town:	16B. County:	17B. UTM Coordinates: Northing (KM): _____ Easting (KM): _____ Zone: _____
18B. Briefly describe the proposed new operation or change (s) to the facility:		19B. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits): Latitude: _____ Longitude: _____

C: 2ND ALTERNATE OPERATING SITE INFORMATION (only available for G20, G40, & G50 General Permits):

11C. Name of 2 nd alternate operating site:	12C. Address of 2 nd alternate operating site: Mailing: _____ Physical: _____
--	---

13C. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? YES NO

– IF YES, please explain: _____

– IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.

14C. – For **Modifications or Administrative Updates** at an existing facility, please provide directions to the present location of the facility from the nearest state road;

– For **Construction or Relocation** permits, please provide directions to the proposed new site location from the nearest state road. Include a **MAP as Attachment F**.

15C. Nearest city or town:	16C. County:	17C. UTM Coordinates: Northing (KM): _____ Easting (KM): _____ Zone: _____
18C. Briefly describe the proposed new operation or change (s) to the facility:		19C. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits): Latitude: _____ Longitude: _____

20. Provide the date of anticipated installation or change: ____/____/____ <input type="checkbox"/> If this is an After-The-Fact permit application, provide the date upon which the proposed change did happen: : ____/____/____	21. Date of anticipated Start-up if registration is granted: ____/____/____
---	--

22. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application if other than 8760 hours/year. (Note: anything other than 24/7/52 may result in a restriction to the facility's operation).

Hours per day _____ Days per week _____ Weeks per year _____ Percentage of operation _____

SECTION III. ATTACHMENTS AND SUPPORTING DOCUMENTS

23. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

24. Include a **Table of Contents** as the first page of your application package.

All of the required forms and additional information can be found under the Permitting Section (General Permits) of DAQ's website, or requested by phone.

25. Please check all attachments included with this permit application. Please refer to the appropriate reference document for an explanation of the attachments listed below.

- X ATTACHMENT A : CURRENT BUSINESS CERTIFICATE
- X ATTACHMENT B: PROCESS DESCRIPTION
- ATTACHMENT C: DESCRIPTION OF FUGITIVE EMISSIONS
- X ATTACHMENT D: PROCESS FLOW DIAGRAM
- X ATTACHMENT E: PLOT PLAN
- X ATTACHMENT F: AREA MAP
- X ATTACHMENT G: EQUIPMENT DATA SHEETS AND REGISTRATION SECTION APPLICABILITY FORM
- ATTACHMENT H: AIR POLLUTION CONTROL DEVICE SHEETS
- X ATTACHMENT I: EMISSIONS CALCULATIONS
- X ATTACHMENT J: CLASS I LEGAL ADVERTISEMENT
- X ATTACHMENT K: ELECTRONIC SUBMITTAL
- X ATTACHMENT L: GENERAL PERMIT REGISTRATION APPLICATION FEE
- ATTACHMENT M: SITING CRITERIA WAIVER
- X ATTACHMENT N: MATERIAL SAFETY DATA SHEETS (MSDS)
- X ATTACHMENT O: EMISSIONS SUMMARY SHEETS
- X OTHER SUPPORTING DOCUMENTATION NOT DESCRIBED ABOVE (Equipment Drawings, Aggregation Discussion, etc.)

Please mail an original and two copies of the complete General Permit Registration Application with the signature(s) to the DAQ Permitting Section, at the address shown on the front page of this application. Please DO NOT fax permit applications. For questions regarding applications or West Virginia Air Pollution Rules and Regulations, please refer to the website shown on the front page of the application or call the phone number also provided on the front page of the application.

SECTION IV. CERTIFICATION OF INFORMATION

This General Permit Registration Application shall be signed below by a Responsible Official. A Responsible Official is a President, Vice President, Secretary, Treasurer, General Partner, General Manager, a member of a Board of Directors, or Owner, depending on business structure. A business may certify an Authorized Representative who shall have authority to bind the Corporation, Partnership, Limited Liability Company, Association, Joint Venture or Sole Proprietorship. Required records of daily throughput, hours of operation and maintenance, general correspondence, Emission Inventory, Certified Emission Statement, compliance certifications and all required notifications must be signed by a Responsible Official or an Authorized Representative. If a business wishes to certify an Authorized Representative, the official agreement below shall be checked off and the appropriate names and signatures entered. Any administratively incomplete or improperly signed or unsigned Registration Application will be returned to the applicant.

FOR A CORPORATION (domestic or foreign)

X I certify that I am a President, Vice President, Secretary, Treasurer or in charge of a principal business function of the corporation

FOR A PARTNERSHIP

□ I certify that I am a General Partner

FOR A LIMITED LIABILITY COMPANY

□ I certify that I am a General Partner or General Manager

FOR AN ASSOCIATION

□ I certify that I am the President or a member of the Board of Directors

FOR A JOINT VENTURE

□ I certify that I am the President, General Partner or General Manager

FOR A SOLE PROPRIETORSHIP

□ I certify that I am the Owner and Proprietor

I hereby certify that (please print or type) Dr. Glenn Crotty, Jr., MD is an Authorized Representative and in that capacity shall represent the interest of the business (e.g., Corporation, Partnership, Limited Liability Company, Association Joint Venture or Sole Proprietorship) and may obligate and legally bind the business. If the business changes its Authorized Representative, a Responsible Official shall notify the Director of the Office of Air Quality immediately, and/or,

I hereby certify that all information contained in this General Permit Registration Application and any supporting documents appended hereto is, to the best of my knowledge, true, accurate and complete, and that all reasonable efforts have been made to provide the most comprehensive information possible

Signature

Glenn Crotty Jr

3/13/15

(please use blue ink)

Responsible Official

Date

Name & Title Dr. Glenn Crotty, Jr., MD – Executive Vice President & COO

(please print or type)

Signature Not Applicable

(please use blue ink)

Authorized Representative (if applicable)

Date

Applicant's Name Nanci Keenan

Phone & Fax

304.388.8208

304.388.8891

Phone

Fax

Email nanci.keenan@cmcg.org

Attachment A

Current Business Certificate

**WEST VIRGINIA
STATE TAX DEPARTMENT
BUSINESS REGISTRATION
CERTIFICATE**

ISSUED TO:
CHARLESTON AREA MEDICAL CENTER INC
DBA CHARLESTON AREA MEDICAL CENTER
PO BOX 1547
CHARLESTON, WV 25326-1547

BUSINESS REGISTRATION ACCOUNT NUMBER: 1035-7157

This certificate is issued on: **08/11/2010**

*This certificate is issued by
the West Virginia State Tax Commissioner
in accordance with Chapter 11, Article 12, of the West Virginia Code*

*The person or organization identified on this certificate is registered
to conduct business in the State of West Virginia at the location above.*

This certificate is not transferrable and must be displayed at the location for which issued.

This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them.
CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.

Attachment B

Process Description

Attachment C

Description of Fugitive Emissions
(Not Applicable, therefore not included)

Attachment D

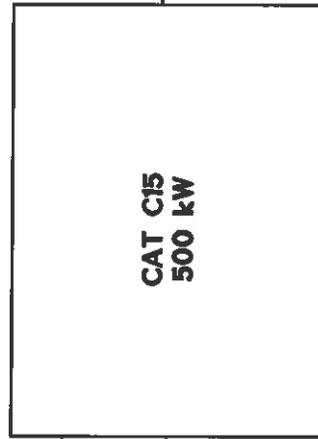
Process Flow Diagram

Plotted by: lcombs
 Y:\sw_sa_04\2015_0_104-15-0060 camc cancer center g65-c general permit\cadd\attach d & f.dwg

GS#1



NEW GENERATOR



DEFINITIONS:
 GS=GENERATOR STACK
 KW=KILOWATT

NOTES:
 SEE EMISSION SUMMARY
 SHEET (ATTACHMENT O) FOR
 ADDITIONAL INFORMATION
 ON THE NEW GENERATOR.

CADD FILE: ATTACH D & F.dwg	
DRAWN BY: CLC	CHECKED BY: HM
DATE: 3/2/2015	SCALE: 1" = 20'

CAMC CANCER CENTER
 CLASS II GENERAL PERMIT G60-C
 CHARLESTON, WEST VIRGINIA
PROCESS FLOW DIAGRAM

PROJECT No.: 04-15-0060 ATTACHMENT: D



www.triadeng.com

10541 TEAYS VALLEY ROAD
 SCOTT DEPOT, WV 25560

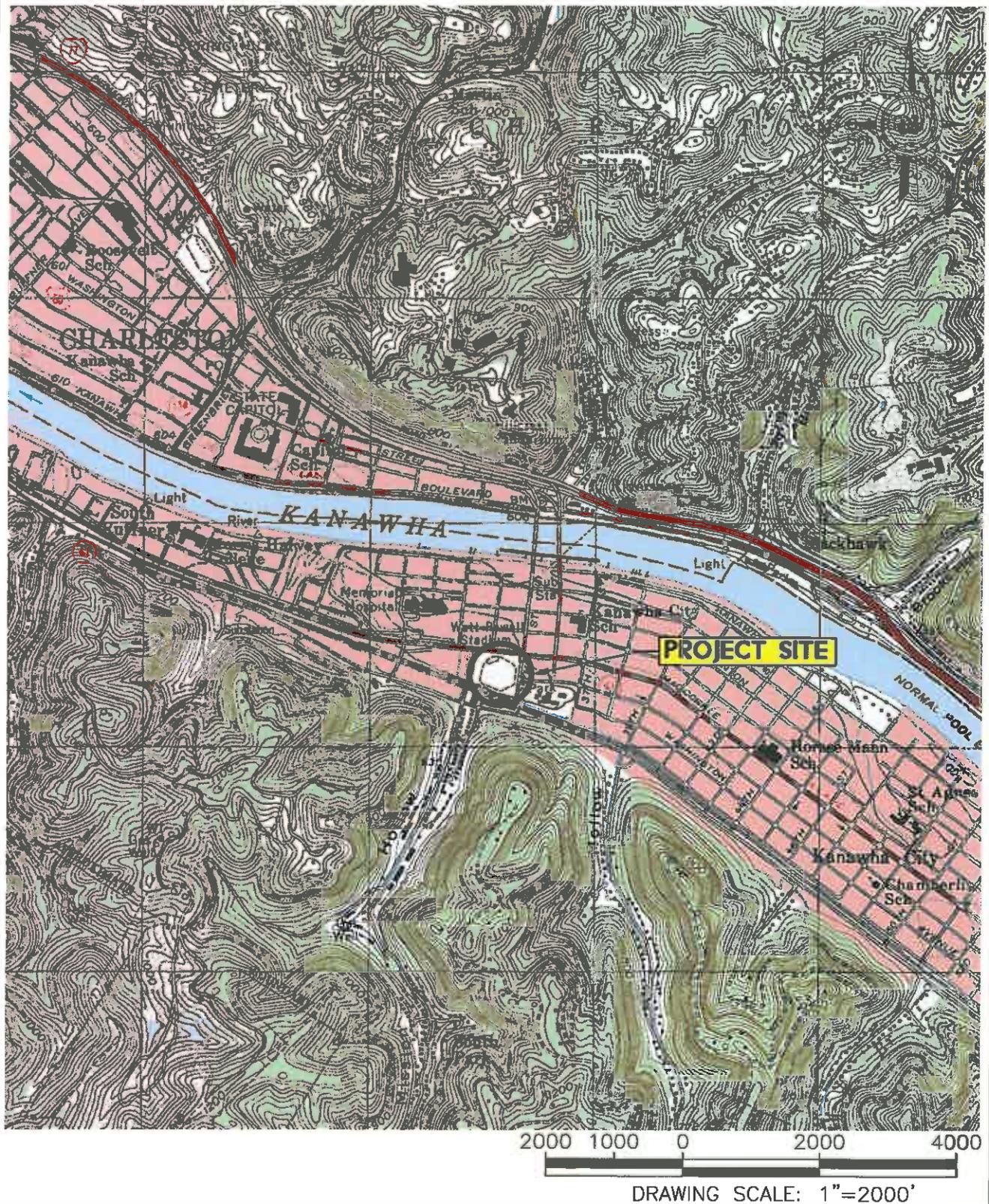
Attachment E

Plot Plan

Attachment F

Area Map

Plotted by: lcorns
 y:\sw_sa_04\2015\0_104-15-0060 camc cancer center g65-c general permit\cadd\attach d & f.dwg



CADD FILE:	
ATTACH D & F.dwg	
DRAWN BY:	CHECKED BY:
CLC	HM
DATE:	SCALE:
3/2/2015	1" = 2000'

CAMC CANCER CENTER
CLASS I GENERAL PERMIT G60-C
CHARLESTON, WEST VIRGINIA
AREA MAP

PROJECT No.: 04-15-0060 ATTACHMENT: F


TRIAD ENGINEERING, INC.
www.triadeng.com
 10541 TEAYS VALLEY ROAD
 SCOTT DEPOT, WV 25560

Attachment G

Equipment Data Sheets & Registration Section Applicability Form

General Permit G60-C Registration Section Applicability Form

General Permit G60-C was developed to allow qualified registrants to seek registration for emergency generator(s).

General Permit G60-C allows the registrant to choose which sections of the permit that they wish to seek registration under. Therefore, please mark which sections that you are applying for registration under. Please keep in mind, that if this registration is approved, the issued registration will state which sections will apply to your affected facility.

- | | | |
|-----------|---|-------------------------------------|
| Section 5 | Reciprocating Internal Combustion Engines (R.I.C.E.)* | <input checked="" type="checkbox"/> |
| Section 6 | Tanks | <input checked="" type="checkbox"/> |
| Section 7 | Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (40CFR60 Subpart IIII) | <input checked="" type="checkbox"/> |
| Section 8 | Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (40CFR60 Subpart JJJJ) | <input type="checkbox"/> |

* Affected facilities that are subject to Section 5 may also be subject to Sections 7 or 8. Therefore, if the applicant is seeking registration under both sections, please select both.

EMERGENCY GENERATOR ENGINE DATA SHEET

Source Identification Number ¹		EG-1					
Engine Manufacturer and Model		CAT C15					
Manufacturer's Rated bhp/rpm		762/1800					
Source Status ²		NS					
Date Installed/Modified/Removed ³		2014					
Engine Manufactured/Reconstruction Date ⁴		10/21/2013					
Is this a Certified Stationary Spark Ignition Engine according to 40CFR60 Subpart IIII? (Yes or No) ⁵		Yes					
Is this a Certified Stationary Spark Ignition Engine according to 40CFR60 Subpart JJJJ? (Yes or No) ⁶		No					
Engine, Fuel and Combustion Data	Engine Type ⁷	LB4S					
	APCD Type ⁸	N/A					
	Fuel Type ⁹	2FO					
	H ₂ S (gr/100 scf)	Unknown					
	Operating bhp/rpm	762/1800					
	BSFC (Btu/bhp-hr)	6,142.26					
	Fuel throughput (ft ³ /hr)	4.8526					
	Fuel throughput (MMft ³ /yr)	2.42E-03					
	Operation (hrs/yr)	500					
Reference ¹⁰	Potential Emissions ¹¹	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
MD	NO _x	10.26	2.57				
MD	CO	1.25	0.31				
AP-42	VOC	0.47	0.12				
AP-42	SO ₂	0.01	2.03E-03				
MD	PM ₁₀	0.06	0.02				
AP-42	Formaldehyde	3.92E-04	9.81E-05				
OT	CO ₂	4.63E+01	2.03E+02				
OT	CH ₄	1.90E-03	8.32E-03				
OT	N ₂ O	3.79E-04	1.66E-03				
OT	CO ₂ e	4.66E+01	2.04E+02				

1. Enter the appropriate Source Identification Number for each emergency generator. Generator engines should be designated EG-1, EG-2, EG-3 etc. If more than three (3) engines exist, please use additional sheets.
2. Enter the Source Status using the following codes:

NS	Construction of New Source (installation)	ES	Existing Source
MS	Modification of Existing Source	RS	Removal of Source

3. Enter the date (or anticipated date) of the engine's installation (construction of source), modification or removal.
4. Enter the date that the engine was manufactured, modified or reconstructed.
5. Is the engine a certified stationary spark ignition internal combustion engine according to 40CFR60 Subpart IIII. If so, the engine and control device must be operated and maintained in accordance with the manufacturer's emission-related written instructions. You must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required. If the certified engine is not operated and maintained in accordance with the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine and you must demonstrate compliance according to 40CFR§60.4210 as appropriate.

Provide a manufacturer's data sheet for all engines being registered.

6. Is the engine a certified stationary spark ignition internal combustion engine according to 40CFR60 Subpart JJJJ. If so, the engine and control device must be operated and maintained in accordance with the manufacturer's emission-related written instructions. You must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required. If the certified engine is not operated and maintained in accordance with the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine and you must demonstrate compliance according to 40CFR§60.4243a(2)(i) through (iii), as appropriate.

Provide a manufacturer's data sheet for all engines being registered.

7. Enter the Engine Type designation(s) using the following codes:

LB2S	Lean Burn Two Stroke	RB4S	Rich Burn Four Stroke
LB4S	Lean Burn Four Stroke		

8. Enter the Air Pollution Control Device (APCD) type designation(s) using the following codes:

A/F	Air/Fuel Ratio	IR	Ignition Retard
HEIS	High Energy Ignition System	SIPC	Screw-in Precombustion Chambers
PSC	Prestratified Charge	LEC	Low Emission Combustion
NSCR	Rich Burn & Non-Selective Catalytic Reduction	SCR	Lean Burn & Selective Catalytic Reduction

9. Enter the Fuel Type using the following codes:

PQ	Pipeline Quality Natural Gas	RG	Raw Natural Gas
2FO	#2 Fuel Oil	LPG	Liquid Propane Gas

10. Enter the Potential Emissions Data Reference designation using the following codes. Attach all referenced data to this *Compressor/Generator Data Sheet(s)*.

MD	Manufacturer's Data	AP	AP-42	
GR	GRI-HAPCalc™	OT	Other _____	(please list)

11. Enter each engine's Potential to Emit (PTE) for the listed regulated pollutants in pounds per hour and tons per year. PTE shall be calculated at manufacturer's rated brake horsepower and may reflect reduction efficiencies of listed Air Pollution Control Devices. Emergency generator engines may use 500 hours of operation when calculating PTE. PTE data from this data sheet shall be incorporated in the *Emissions Summary Sheet*.

Attachment H

Air Pollution Control Device Sheet
(Not applicable, therefore not included)

Attachment I

Emissions Calculations

CAMC - Cancer Center
General Permit G60-C Application
Attachment I - Emission Calculations

Criteria Pollutant Emission Factors

Equipment	Combustion Material	Power Rating	EF Units	Criteria Pollutant				
				CO	NO _x	PM ₁₀	SO _x	VOCs
Generator ^{1,2}	Diesel Fuel	>600 hp	lb/hp-hr	-	-	-	1.21E-05	7.05E-04
			lb/MMBtu	-	-	-	1.52E-03	9.00E-02
			lb/hr	1.25	10.26	0.06	-	-

Definitions:

- CO carbon monoxide
- EF emission factor
- hp horsepower
- hr hour
- lb pound
- MMBtu million British thermal units
- NO_x nitrogen oxides
- PM particulate matter
- SO_x sulfur oxides
- VOCs volatile organic compounds

Notes:

- 1 - CO, NO_x, and PM₁₀ EFs for diesel fuel combustion were supplied by the manufacturer.
- 2 - SO_x and VOC EF for diesel fuel combustion in large generators, from AP-42, Chapter 3, Section 4, Table 3.4-1. Sulfur content in combusted fuel will be 15ppm (0.0015 wt%) according to the MSDS (attached).

CAMC - Cancer Center
 General Permit G60-C Application
 Attachment I - Emission Calculations

Maximum Facility Emissions

STACK	EQUIPMENT	FUEL	RATING (KW)	RATING (hp)	HOURS (per year)	EMISSIONS (pph)			EMISSIONS (tpy)						
						CO	NO _x	PM ₁₀	SO ₂	VOC	CO	NO _x	PM ₁₀	SO ₂	VOC
GS #1	Generator #1	Fuel Oil	500	670.5	500	1.25	10.26	0.06	0.01	0.47	0.31	2.57	0.02	2.03E-03	0.12
SUBTOTAL						1.25	10.26	0.06	0.01	0.47	0.31	2.57	0.02	2.03E-03	0.12
ST #1	Storage Tank #1	Fuel Oil	18,150		NA	--	--	--	--	--	--	--	--	--	0.13
SUBTOTAL						--	--	--	--	--	--	--	--	--	0.13
TOTAL FACILITY EMISSIONS						1.25	10.26	0.06	0.01	0.47	0.31	2.57	0.02	2.03E-03	0.25

Throughput (gallons)

- Definitions:
- CO - carbon monoxide
 - EF - emission factor
 - Hp - horsepower
 - hr - hour
 - lb - pound
 - MMBtu - million British thermal units
 - MMscf - million standard cubic feet
 - NO_x - nitrogen oxides
 - PM - particulate matter
 - SO_x - sulfur oxides
 - VOCs - volatile organic compounds

CAMC - Cancer Center
 General Permit G60-C Application
 Attachment I - Emission Calculations

Speciated VOC Emissions

Fuel Consumption:	36.3	gal/hr
Fuel Density:	7.1	lb/gal
Heating Value:	19,300	Btu/hr
Operating Hours:	500	hr

Pollutant Emission Factors (lb/MMBtu)

	Fuel Type: Diesel
Benzene	7.76E-04
Toluene	2.81E-04
Xylenes	1.93E-04
Propylene	2.79E-03
Formaldehyde	7.89E-05
Acetaldehyde	2.52E-05
Acrolein	7.88E-06

Pollutant Emission Estimates (lb/hr and tons/year)

	Fuel Type: Diesel	
	pph	tpy
Benzene	3.86E-03	9.65E-04
Toluene	1.40E-03	3.49E-04
Xylenes	9.60E-04	2.40E-04
Propylene	1.39E-02	3.47E-03
Formaldehyde	3.92E-04	9.81E-05
Acetaldehyde	1.25E-04	3.13E-05
Acrolein	3.92E-05	9.80E-06

Definitions:

- Btu - British thermal units
- gal - gallon
- hr - hour
- lb - pound
- MMBtu - million British thermal units
- pph - pounds per hour
- tpy - tons per year
- VOC - volatile organic compounds

Notes:

- 1 - Emission factors were obtained from EPA's Compilation of Air Pollutant Emission Factors (AP-42) for Large Stationary Diesel and All Stationary Dual-Fuel Engines, Volume I: Stationary, Area, and Point Sources, Section 3.4, Tables 3.4-3. Available at <http://www.epa.gov/ttnchie1/ap42/>.

CAMC - Cancer Center
General Permit G60-C Application
Attachment I - Emission Calculations

GENERATOR GREENHOUSE GAS EMISSIONS

Source ID #1 500 kW
Fuel Consumption 18,150 gal/yr

Pollutant	Emissions
	TPY
CO ₂	2.03E+02
CH ₄	8.32E-03
N ₂ O	1.66E-03
CO₂e	2.04E+02

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification:	T011
City:	Charleston
State:	West Virginia
Company:	Charleston Area Medical Center
Type of Tank:	Horizontal Tank
Description:	CAMC Cancer Center Class II General Permit G60-C

Tank Dimensions

Shell Length (ft):	19.00
Diameter (ft):	4.00
Volume (gallons):	660.00
Turnovers:	27.50
Net Throughput(gal/yr):	18,150.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Medium
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meteorological Data used in Emissions Calculations: Charleston, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

T011 - Horizontal Tank
Charleston, West Virginia

Mixture/Component	Month			Liquid Bulk Temp (deg F)	Daily Liquid Surf. Temperature (deg F)			Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
	Avg.	Min.	Max.		Avg.	Min.	Max.	Avg.	Min.	Max.					
Crude oil (RVP 5)	All	63.43	53.60	73.25	58.06	3.0767	2.5338	3.7084	50.0000				207.00	Option 4: RVP=5	

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

T011 - Horizontal Tank
Charleston, West Virginia

Annual Emission Calculations	
Standing Losses (lb):	200.7189
Vapor Space Volume (cu ft):	152.0771
Vapor Density (lb/cu ft):	0.0274
Vapor Space Expansion Factor:	0.1750
Vented Vapor Saturation Factor:	0.7541
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	152.0771
Tank Diameter (ft):	4.0000
Effective Diameter (ft):	9.8395
Vapor Space Outage (ft):	2.0000
Tank Shell Length (ft):	19.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0274
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.0767
Daily Avg. Liquid Surface Temp. (deg. R):	523.0962
Daily Average Ambient Temp. (deg. F):	54.9833
Ideal Gas Constant R (psia cuft / (lb-mol-deg R):	10.731
Liquid Bulk Temperature (deg. R):	517.7333
Tank Paint Solar Absorptance (Shell):	0.6800
Daily Total Solar Insulation Factor (Btu/sqft day):	1,250.5726
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.1750
Daily Vapor Temperature Range (deg. R):	39.3149
Daily Vapor Pressure Range (psia):	1.1756
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.0767
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.5338
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	3.7094
Daily Avg. Liquid Surface Temp. (deg R):	523.0962
Daily Min. Liquid Surface Temp. (deg R):	513.2675
Daily Max. Liquid Surface Temp. (deg R):	532.9249
Daily Ambient Temp. Range (deg. R):	21.5333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.7541
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.0767
Vapor Space Outage (ft):	2.0000
Working Losses (lb):	49.8597
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.0767
Annual Net Throughput (gal/yr.):	18,150.0000
Annual Turnovers:	27.5000
Turnover Factor:	1.0000
Tank Diameter (ft):	4.0000
Working Loss Product Factor:	0.7500
Total Losses (lb):	250.5786

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

T011 - Horizontal Tank
Charleston, West Virginia

Components	Losses(lbs)		Total Emissions
	Working Loss	Breathing Loss	
Crude oil (RVP 5)	49.86	200.72	250.58

Attachment J

Class I Legal Advertisement

AIR QUALITY PERMIT NOTICE

Notice of Application

Notice is given that Charleston Area Medical Center (CAMC) – Cancer Center has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a General Permit Registration for an emergency generator located at 3415 MacCorkle Avenue, in Charleston, Kanawha County, West Virginia. The latitude and longitude coordinates are: 38.32750 N and 81.59983 W.

The applicant estimates the potential to discharge the following Regulated Air Pollutants will be:

Oxides of Nitrogen	2.57	TPY
Carbon Monoxide	0.31	TPY
Volatile Organic Compounds	0.25	TPY
Sulfur Dioxide	0.002	TPY
Particulate Matter (smaller than 10 microns)	0.02	TPY
Hazardous Air Pollutants (Formaldehyde)	0.0001	TPY

Startup of operation is planned to begin on or about the 1st day of May, 2015. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1227, during normal business hours.

Dated this the 12th day of March, 2015.

By: Charleston Area Medical Center
Dr. Glenn Crotty, Jr., MD
Executive Vice President & COO
501 Morris Street
Charleston, West Virginia 25304

Attachment K

Electronic Submittal Diskette

Attachment L

General Permit Registration Application Fee

Attachment M

Siting Criteria Waiver
(Not Applicable, therefore not included)

Attachment N

Material Safety Data Sheets (MSDS)



Material Safety Data Sheet

MSDS ID NO.: 0291MAR019
Revision date: 02/10/2007

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product name: Marathon No. 2 Ultra Low Sulfur Diesel Dyed 15 ppm Sulfur Max
Synonym: Ultra Low Sulfur Diesel No. 2 Dyed 15 ppm Sulfur Max; No. 2 Diesel, Tax Exempt-Motor Vehicle Use, Dyed; ULSD No. 2 Diesel Dyed 15 ppm Sulfur Max; No. 2 MV 15 Diesel Dyed.
Chemical Family: Petroleum Hydrocarbon
Formula: Mixture
Manufacturer: Marathon Petroleum Company LLC
539 South Main Street Findlay OH 45840

Other information: 419-421-3070
Emergency telephone number: 877-627-5463

2. COMPOSITION/INFORMATION ON INGREDIENTS

No. 2 Ultra Low Sulfur Diesel is a complex mixture of paraffins, cycloparaffins, olefins and aromatic hydrocarbon chain lengths predominantly in the range of C9-C16. Can contain small amounts of red dye and additives (<0.15%) which are not considered hazardous at the concentrations used.

Product information:

Name	CAS Number	Weight %	ACGIH Exposure Limits:	OSHA - Vacated PELs - Time Weighted Ave	Other:
Marathon No. 2 Ultra Low Sulfur Diesel	68476-30-2	100	Skin - potential significant contribution to overall exposure by the cutaneous route = 100 mg/m ³ TWA		

Component Information:

Name	CAS Number	Weight %	ACGIH Exposure Limits:	OSHA - Vacated PELs - Time Weighted Ave	Other:
Saturated Hydrocarbons	Mixture	70-80			
Aromatic Hydrocarbons	Mixture	17-25			
Unsaturated Hydrocarbons	Mixture	3-6			
Naphthalene	91-20-3	0.01-0.5	Skin - potential significant contribution to overall exposure by the cutaneous route = 10 ppm TWA = 15 ppm STEL	= 10 ppm TWA = 50 mg/m ³ TWA = 15 ppm STEL = 75 mg/m ³ STEL	

Notes:

The manufacturer has voluntarily elected to reflect exposure limits contained in OSHA's 1989 air contaminants standard in its MSDS's, even though certain of those exposure limits were vacated in 1992.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

NO. 2 DIESEL IS A RED COLORED LIQUID. THIS PRODUCT IS CONSIDERED TO BE A COMBUSTIBLE LIQUID PER THE OSHA HAZARD COMMUNICATION STANDARD AND SHOULD BE KEPT AWAY FROM HEAT, FLAME AND SOURCES OF IGNITION. NEVER SIPHON THIS PRODUCT BY MOUTH. IF SWALLOWED, THIS PRODUCT MAY GET SUCKED INTO THE LUNGS (ASPIRATED) AND CAUSE LUNG DAMAGE OR EVEN DEATH. PROLONGED OR REPEATED SKIN CONTACT CAN CAUSE DEFATTING AND DRYING OF THE SKIN WHICH MAY PRODUCE SEVERE IRRITATION OR DERMATITIS.

OSHA WARNING LABEL:

**WARNING.
COMBUSTIBLE LIQUID.**

**ASPIRATION (INADVERTENT SUCTION) OF LIQUID INTO THE LUNGS CAN PRODUCE CHEMICAL PNEUMONIA OR EVEN DEATH.
PRODUCES SKIN IRRITATION UPON PROLONGED OR REPEATED CONTACT.**

CONSUMER WARNING LABEL:

A CONSUMER WARNING LABEL IS NOT APPLICABLE FOR THIS PRODUCT.

- Inhalation:** Exposure to high vapor concentrations may produce headache, giddiness, vertigo, and anesthetic stupor.
- Ingestion:** Ingestion may result in nausea, vomiting, diarrhea and restlessness. Aspiration (inadvertent suction) of liquid into the lungs must be avoided as even small quantities in the lungs can produce chemical pneumonitis, pulmonary edema/hemorrhage and even death.
- Skin contact:** Prolonged and repeated liquid contact can cause defatting and drying of the skin and can lead to irritation and/or dermatitis.
- Eye contact:** Produces little or no irritation on direct contact with the eye.

Carcinogenic Evaluation:

Product information:

Name	IARC Carcinogens:	NTP Carcinogens:	ACGIH - Carcinogens:	OSHA - Select Carcinogens:
Marathon No. 2 Ultra Low Sulfur Diesel 68476-30-2	NE		A3 - Confirmed animal carcinogen with unknown relevance to humans (as total hydrocarbons)	

Notes: The International Agency for Research on Cancer (IARC) has determined that there is inadequate evidence for the carcinogenicity of diesel fuel/fuel oil in humans. IARC determined that there was limited evidence for the carcinogenicity of marine diesel fuel in animals. Distillate (light) diesel fuels were not classifiable as to their carcinogenicity to humans (Group 3A).

IARC has determined that there is sufficient evidence for the carcinogenicity in experimental animals of diesel engine exhaust and extracts of diesel engine exhaust particles. IARC determined that there is only limited evidence for the carcinogenicity in humans of diesel engine exhaust. However, IARC's overall evaluation has resulted in the IARC designation of diesel engine exhaust as probably carcinogenic to humans (Group 2A) because of the presence of certain engine exhaust components.

Component Information:

Name	IARC Carcinogens:	NTP Carcinogens:	ACGIH - Carcinogens:	OSHA - Select Carcinogens:
Naphthalene 91-20-3	Monograph 82, 2002	Reasonably Anticipated To Be A Carcinogen Listed	A4 - Not Classifiable as a Human Carcinogen	Present

Notes: The International Agency for Research on Cancer (IARC) and the Environmental Protection Agency (EPA) have determined that naphthalene could be a possible human carcinogen.

4. FIRST AID MEASURES

Inhalation: If affected, move person to fresh air. If breathing is difficult, administer oxygen. If not breathing or if no heartbeat, give artificial respiration or cardiopulmonary resuscitation (CPR). Immediately call a physician. If symptoms or irritation occur with any exposure, call a physician.

Skin contact: Wash with soap and large amounts of water. Remove contaminated clothing. If symptoms or irritation occur, call a physician.

Ingestion: If swallowed, do not induce vomiting and do not give liquids. Immediately call a physician.

Eye contact: Flush eyes with large amounts of tepid water for at least 15 minutes. If symptoms or irritation occur, call a physician.

Medical conditions aggravated by exposure: Pre-existing skin conditions and respiratory disorders may be aggravated by exposures to components of this product.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media: For small fires, Class B fire extinguishing media such as CO₂, dry chemical, foam (AFFF/ATC) or water spray can be used. For large fires, water spray, fog or foam (AFFF/ATC) can be used. Fire fighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

Specific hazards: This product has been determined to be a combustible liquid per the OSHA Hazard Communication Standard and should be handled accordingly. For additional fire related information, see NFPA 30 or the North American Emergency Response Guide 128.

Special protective equipment for firefighters: Avoid using straight water streams. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Avoid excessive water spray application. Keep surrounding area cool with water spray from a distance and prevent further ignition of combustible material. Keep run-off water out of sewers and water sources.

Flash point: 120-190 F
Autoignition temperature: 489 F
Flammable limits in air - lower (%): 0.7
Flammable limits in air - upper (%): 5.0

NFPA rating:
Health: 1
Flammability: 2

HMS classification:
Health: 1
Flammability: 2

Reactivity: 1
Other: -

Reactivity: 1
Special: *See Section 8 for guidance in selection of personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep public away. Isolate and evacuate area. Shut off source if safe to do so. Eliminate all ignition sources. Advise authorities and National Response Center (800-424-8802) if substance has entered a watercourse or sewer. Notify local health and pollution control agencies, if appropriate. Contain liquid with sand or soil. Recover and return free product to proper containers. Use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids.

7. HANDLING AND STORAGE

Handling:

Comply with all applicable EPA, OSHA, NFPA and consistent state and local requirements. Use appropriate grounding and bonding practices. Store in properly closed containers that are appropriately labeled and in a cool well-ventilated area. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. Do not cut, drill, grind or weld on empty containers since they may contain explosive residues.

Avoid repeated and prolonged skin contact. Never siphon this product by mouth. Exercise good personal hygiene including removal of soiled clothing and prompt washing with soap and water.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT

Engineering measures: Local or general exhaust required when using at elevated temperatures that generate vapors or mists.

Respiratory protection: Use approved organic vapor chemical cartridge or supplied air respirators when material produces vapors that exceed permissible limits or excessive vapors are generated. Observe respirator protection factor criteria cited in ANSI Z88.2. Self-contained breathing apparatus should be used for fire fighting.

Skin and body protection: Neoprene, nitrile, polyvinyl alcohol (PVA), polyvinyl chloride and polyurethane gloves to prevent skin contact.

Eye protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields.

Hygiene measures: No special protective clothing is normally required. Select protective clothing depending on industrial operations. Use mechanical ventilation equipment that is explosion-proof.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance:	Red Liquid
Physical state (Solid/Liquid/Gas):	Liquid
Substance type (Pure/Mixture):	Mixture
Color:	Red
Odor:	Not applicable.
Molecular weight:	180
pH:	Neutral
Boiling point/range (5-95%):	360-550 F
Melting point/range:	Not determined.

MSDS ID NO.: 0291MAR019

Product name: Marathon No. 2 Ultra Low Sulfur Diesel Dyed 15 ppm Sulfur Max

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Decomposition temperature: Not applicable.
Specific gravity: C.A. 0.8
Density: 6.76 lbs/gal
Bulk density: No data available.
Vapor density: 4-5
Vapor pressure: 1-10 mm Hg @ 100 F
Evaporation rate: No data available.
Solubility: Negligible
Solubility in other solvents: No data available.
Partition coefficient (n-octanol/water): No data available.
VOC content(%): 10%
Viscosity: 1.3-2.1 @ 50 C

10. STABILITY AND REACTIVITY

Stability: The material is stable at 70 F, 760 mm pressure.
Polymerization: Will not occur.
Hazardous decomposition products: Combustion produces carbon monoxide, aldehydes, aromatic and other hydrocarbons.
Materials to avoid: Strong oxidizers such as nitrates, perchlorates, chlorine, fluorine.
Conditions to avoid: Excessive heat, sources of ignition and open flames.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:

Product information:

Name	CAS Number	Inhalation:	Dermal:	Oral:
Marathon No. 2 Ultra Low Sulfur Diesel	68476-30-2	No data available	No data available	No data available

Lifetime skin painting studies in animals with similar distillate fuels have produced weak to moderate carcinogenic activity following prolonged and repeated exposure. Similar middle distillates, when tested at nonirritating dose levels, did not show any significant carcinogenic activity indicating that this tumorigenic response is likely related to chronic irritation and not to dose. Repeated dermal application has produced severe irritation and systemic toxicity in subacute toxicity studies. Some components of this product, have been shown to produce a species specific, sex hormonal dependent kidney lesion in male rats from repeated oral or inhalation exposure. Subsequent research has shown that the kidney damage develops via the formation of a alpha-2μ-globulin, a mechanism unique to the male rat. Humans do not form alpha-2μ-globulin, therefore, the kidney effects resulting from this mechanism are not relevant in humans. Some components of this product were found to be positive in a few mutagenicity tests while negative in the majority of others. The exact relationship between these results and human health is not known.

Summary of health effect data on distillate fuel components:

This product may contain >0.1% naphthalene. Exposure to naphthalene at 30 ppm for two years caused lung tumors in female mice. Male mice with the same exposure did not develop tumors. Exposure to 10-60 ppm naphthalene for 2 years caused tumors in the tissue lining of the nose and respiratory tract in male and female rats. Oral administration of 133-267 mg/kg/day of naphthalene in mice for up to 90 days did not produce mortality, systemic toxicity, adversely affect organ or body weight or produce changes in blood. Repeated oral administration of naphthalene produced an anemia in dogs. Repeated intraperitoneal doses of naphthalene produced lung damage in mice. Repeated high doses of naphthalene has caused the formation of cataracts and retinotoxicity in the eyes of rats and rabbits due to accumulation of 1,2-naphthoquinone, a toxic metabolite. Effects in human eyes is uncertain and not well documented. Pregnant rats administered intraperitoneal doses of naphthalene during gestation gave birth to offspring that had delayed heart and bone development. Pregnant mice given near lethal doses of naphthalene showed no significant maternal toxicity and a reduction in the number of pups per litter, but no gross abnormalities in offspring. Suppressed spermatogenesis and progeny development have been reported in mice, rats and guinea pigs after exposure to high concentrations of naphthalene in their drinking water. Certain groups or individuals, i.e., infants, Semites, Arabs, Asians and Blacks, with a certain blood enzyme deficiency (glucose-6-phosphate dehydrogenase) are particularly susceptible to hemolytic agents and can rapidly develop hemolytic anemia and systemic poisoning from ingestion or inhalation of naphthalene.

Summary of health effect information on diesel engine exhaust:

Chronic inhalation studies of whole diesel engine exhaust in mice and rats produced a significant increase in lung tumors. Combustion of kerosine and/or diesel fuels produces gases and particulates which include carbon monoxide, carbon dioxide, oxides of nitrogen and/or sulfur and hydrocarbons. Significant exposure to carbon monoxide vapors decreases the oxygen carrying capacity of the blood and may cause tissue hypoxia via formation of carboxyhemoglobin.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects:

Product can cause fouling of shoreline and may be harmful to aquatic life in low concentrations. The 96 hour LL50 values for an accommodated fraction (WAF) of fuel oil ranged from 3.2 to 65 mg/l in fish and 2-210 mg/l in invertebrates. EL50 values for inhibition of algal growth ranged from 1.8 to 2.9 mg/l for No. 2 fuel oil and from 10 to 78 mg/l for diesel fuel. This product does not concentrate or accumulate in the food chain. If released to soil and water, this product is expected to biodegrade under both aerobic and anaerobic conditions.

13. DISPOSAL CONSIDERATIONS

Cleanup Considerations:

This product as produced is not specifically listed as an EPA RCRA hazardous waste according to federal regulations (40 CFR 261). However, when discarded or disposed of, it may meet the criteria of an "characteristic" hazardous waste. This material could become a hazardous waste if mixed or contaminated with a hazardous waste or other substance(s). It is the responsibility of the user to determine if disposal material is hazardous according to federal, state and local regulations.

14. TRANSPORT INFORMATION

49 CFR 172.101:

DOT:

Transport Information: This material when transported via US commerce would be regulated by DOT Regulations.

Proper shipping name: Fuel Oil, No. 2
UN/Identification No: NA 1993
Hazard Class: 3
Packing group: III
DOT reportable quantity (lbs): Not applicable.

TDG (Canada):

Proper shipping name: Fuel Oil, No. 2
UN/Identification No: NA 1993
Hazard Class: 3
Packing group: III
Regulated substances: Not applicable.

15. REGULATORY INFORMATION

Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b): This product and/or its components are listed on the TSCA Chemical Inventory.

OSHA Hazard Communication Standard: This product has been evaluated and determined to be hazardous as defined in OSHA's Hazard Communication Standard.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302: This product contains the following component(s) that have been listed on EPA's Extremely Hazardous Substance (EHS) List:

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
Saturated Hydrocarbons	NA
Aromatic Hydrocarbons	NA
Unsaturated Hydrocarbons	NA
Naphthalene	NA

SARA Section 304: This product contains the following component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	CERCLA/SARA - Hazardous Substances and their Reportable Quantities
Saturated Hydrocarbons	NA
Aromatic Hydrocarbons	NA
Unsaturated Hydrocarbons	NA
Naphthalene	= 0.454 kg final RQ = 1 lb final RQ = 100 lb final RQ = 45.4 kg final RQ

SARA Section 311/312: The following EPA hazard categories apply to this product:

- Acute Health Hazard
- Fire Hazard
- Chronic Health Hazard

SARA Section 313: This product contains the following component(s) that may be subject to reporting on the Toxic Release Inventory (TRI) From R:

Name	CERCLA/SARA 313 Emission reporting:
Saturated Hydrocarbons	None
Aromatic Hydrocarbons	None
Unsaturated Hydrocarbons	None
Naphthalene	= 0.1 % de minimis concentration

State and Community Right-To-Know Regulations:

The following component(s) of this material are identified on the regulatory lists below:

Saturated Hydrocarbons

- Louisiana Right-To-Know: Not Listed
- California Proposition 65: Not Listed
- New Jersey Right-To-Know: Not Listed.
- Pennsylvania Right-To-Know: Not Listed.
- Massachusetts Right-To Know: Not Listed.
- Florida substance List: Not Listed.
- Rhode Island Right-To-Know: Not Listed
- Michigan critical materials register list: Not Listed.
- Massachusetts Extraordinarily Hazardous Substances: Not Listed
- California - Regulated Carcinogens: Not Listed
- Pennsylvania RTK - Special Hazardous Substances: Not Listed
- New Jersey - Special Hazardous Substances: Not Listed
- New Jersey - Environmental Hazardous Substances List: Not Listed
- Illinois - Toxic Air Contaminants: Not Listed
- New York - Reporting of Releases Part 597 - List of Hazardous Substances: Not Listed

Aromatic Hydrocarbons

- Louisiana Right-To-Know: Not Listed
- California Proposition 65: Not Listed
- New Jersey Right-To-Know: Not Listed.
- Pennsylvania Right-To-Know: Not Listed.
- Massachusetts Right-To Know: Not Listed.
- Florida substance List: Not Listed.
- Rhode Island Right-To-Know: Not Listed
- Michigan critical materials register list: Not Listed.
- Massachusetts Extraordinarily Hazardous Substances: Not Listed
- California - Regulated Carcinogens: Not Listed
- Pennsylvania RTK - Special Hazardous Substances: Not Listed
- New Jersey - Special Hazardous Substances: Not Listed
- New Jersey - Environmental Hazardous Substances List: Not Listed
- Illinois - Toxic Air Contaminants: Not Listed
- New York - Reporting of Releases Part 597 - List of Hazardous Substances: Not Listed

Unsaturated Hydrocarbons

MSDS ID NO.: 0291MAR019

Product name: Marathon No. 2 Ultra Low Sulfur Diesel Dyed 15 ppm Sulfur Max

Louisiana Right-To-Know: Not Listed
 California Proposition 65: Not Listed
 New Jersey Right-To-Know: Not Listed.
 Pennsylvania Right-To-Know: Not Listed.
 Massachusetts Right-To Know: Not Listed.
 Florida substance List: Not Listed.
 Rhode Island Right-To-Know: Not Listed
 Michigan critical materials register list: Not Listed.
 Massachusetts Extraordinarily Hazardous Substances: Not Listed
 California - Regulated Carcinogens: Not Listed
 Pennsylvania RTK - Special Hazardous Substances: Not Listed
 New Jersey - Special Hazardous Substances: Not Listed
 New Jersey - Environmental Hazardous Substances List: Not Listed
 Illinois - Toxic Air Contaminants Not Listed
 New York - Reporting of Releases Part 597 - List of Hazardous Substances: Not Listed

Naphthalene

Louisiana Right-To-Know: Not Listed
 California Proposition 65: Listed
 New Jersey Right-To-Know: Listed
 Pennsylvania Right-To-Know: Listed
 Massachusetts Right-To Know: Listed
 Florida substance List: Not Listed.
 Rhode Island Right-To-Know: Listed
 Michigan critical materials register list: Not Listed.
 Massachusetts Extraordinarily Hazardous Substances: Not Listed
 California - Regulated Carcinogens: Not Listed
 Pennsylvania RTK - Special Hazardous Substances: Not Listed
 New Jersey - Special Hazardous Substances: Not Listed
 New Jersey - Environmental Hazardous Substances List: Listed
 Illinois - Toxic Air Contaminants Listed
 New York - Reporting of Releases Part 597 - List of Hazardous Substances: Listed

Canadian Regulatory Information:

Canada DSL/NDL Inventory: This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

Name	Canada - WHMIS: Classifications of Substances:	Canada - WHMIS: Ingredient Disclosure:
Naphthalene	B4, D2A	1 %

16. OTHER INFORMATION

Additional Information: No data available.

Prepared by: Craig M. Parker Manager, Toxicology and Product Safety

The information and recommendations contained herein are based upon tests believed to be reliable. However, Marathon Petroleum Company LLC (MPC) does not guarantee their accuracy or completeness nor shall any of this information constitute a warranty, whether expressed or implied, as to the safety of the goods, the merchantability of the goods, or the fitness of the goods for a particular purpose. Adjustment to conform to actual conditions of usage maybe required. MPC assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied.

End of Safety Data Sheet

Attachment O

Emissions Summary Sheets

EMERGENCY GENERATOR EMISSION SUMMARY SHEET FOR CRITERIA POLLUTANTS

Emergency Generator Location: CAMC Cancer Center		Registration Number (Agency Use) <u>G60-C</u>													
Source ID No.	Potential Emissions (lbs/hr)										Potential Emissions (tons/yr)				
	NOx	CO	VOC	SO ₂	PM ₁₀	NOx	CO	VOC	SO ₂	PM ₁₀	NOx	CO	VOC	SO ₂	PM ₁₀
EG-1	10.26	1.25	0.47	0.01	0.06	2.57	0.31	0.12	2.03E-03	0.02					
T01	N/A	N/A	0.03	N/A	N/A	N/A	N/A	0.13	N/A	N/A					
Total	10.26	1.25	0.50	0.01	0.06	2.57	0.31	0.25	2.03E-03	0.02					

**EMERGENCY GENERATOR EMISSION SUMMARY SHEET FOR HAZARDOUS/TOXIC
POLLUTANTS**

Emergency Generator Location: CAMC Cancer Center		Registration Number (Agency Use) G60-C													
Source ID No.	Potential Emissions (lbs/hr)										Potential Emissions (tons/yr)				
	Benzene	Ethyl-benzene	Toluene	Xylenes	n-Hexane	Formaldehyde	Benzene	Ethyl-benzene	Toluene	Xylenes	n-Hexane	Formaldehyde			
EG-1	3.86E-03	N/A	1.40E-03	9.60E-04	N/A	3.92E-04	9.65E-04	N/A	3.49E-04	2.40E-04	N/A	9.81E-05			
T01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Total	3.86E-03	N/A	1.40E-03	9.60E-04	N/A	3.92E-04	9.65E-04	N/A	3.49E-04	2.40E-04	N/A	9.81E-05			

Other Supporting Documentation

Engine Emissions Data

For Emissions feedback and questions submit [request form](#)

This emission data is Caterpillar's best estimate for this rating. If actual emissions are required then an emission test needs to be run on your engine.

Serial Number (Machine)	
Serial Number (Engine)	FTE01582
Sales Model	C15
Build Date	2013-10-21
Interlock Code Progression	No Interlock Code Progression
As Shipped Data	
Engine Arrangement Number	2864924
Certification Arrangement	
Test Spec Number	0K6281
Regulatory Status	EPA Emergency Stationary @ Constant Speed
Labeled Model Year	2013
Family Code	DCPXL15.2NZS
Flash File	4199355
Flash File Progression	4199355
CORR FL Power at RPM	787 HP (587.0 KW) at 1800 RPM
Advertised Power	762HP 1,800RPM
Total Displacement	15.2

This is not an official emission certificate. This is for emission data information only.

[Need emission replacement label? Click here!](#)

Caterpillar Confidential: Green
Content Owner: Commercial Processes Division
Web Master(s): [PSG Web Based Systems Support](#)
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PERFORMANCE DATA[DM8155]

December 18, 2014

Performance Number: DM8155

Change Level: 03

SALES MODEL:	C16	COMBUSTION:	DI
ENGINE POWER (BHP):	762	ENGINE SPEED (RPM):	1,800
GEN POWER W/O FAN (EKW):	516.0	HERTZ:	60
GEN POWER WITH FAN (EKW):	500.0	FAN POWER (HP):	33.7
COMPRESSION RATIO:	16.1	ASPIRATION:	TA
RATING LEVEL:	STANDBY	AFTERCOOLER TYPE:	ATAAC
PUMP QUANTITY:	1	AFTERCOOLER CIRCUIT TYPE:	JW-OC, ATAAC
FUEL TYPE:	DIESEL	INLET MANIFOLD AIR TEMP (F):	120
MANIFOLD TYPE:	DRY	JACKET WATER TEMP (F):	192.2
GOVERNOR TYPE:	ELEC	TURBO CONFIGURATION:	SINGLE
CAMSHAFT TYPE:	STANDARD	TURBO QUANTITY:	1
IGNITION TYPE:	CI	TURBOCHARGER MODEL:	GTA5518BS-56T-1.58
INJECTOR TYPE:	EUI	CERTIFICATION YEAR:	2006
REF EXH STACK DIAMETER (IN):	6	PISTON SPD @ RATED ENG SPD (FT/MIN):	2,025.0
MAX OPERATING ALTITUDE (FT):	3,281		

INDUSTRY	SUBINDUSTRY	APPLICATION
ELECTRIC POWER	STANDARD	PACKAGED GENSET
OIL AND GAS	LAND PRODUCTION	PACKAGED GENSET

General Performance Data

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP
EKW	%	BHP	PSI	LB/BHP-HR	GAL/HR	IN-HG	DEG F	DEG F	IN-HG	DEG F
500.0	100	762	361	0.334	36.3	68.4	118.7	1,245.9	48.8	940.5
450.0	90	683	324	0.336	32.7	60.3	115.0	1,203.9	42.0	917.3
400.0	80	607	288	0.337	29.3	52.8	114.6	1,172.0	35.8	909.2
375.0	75	570	271	0.343	26.0	51.0	113.8	1,160.3	34.1	902.2
350.0	70	534	253	0.354	27.0	50.6	112.5	1,150.8	34.1	892.9
300.0	60	462	219	0.382	25.2	50.6	109.0	1,131.8	34.7	873.5
250.0	50	392	186	0.414	23.2	48.9	104.6	1,106.7	34.4	853.0
200.0	40	323	153	0.426	19.6	37.7	98.4	1,067.3	27.0	832.3
150.0	30	253	120	0.435	15.7	25.3	92.2	1,008.3	18.8	810.6
125.0	25	218	103	0.442	13.7	19.3	89.5	971.2	14.9	799.4
100.0	20	182	86	0.455	11.8	14.2	87.2	921.1	11.7	774.3
50.0	10	109	52	0.530	8.3	6.8	84.2	766.7	7.7	657.7

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	IN-HG	DEG F	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
500.0	100	762	72	398.1	1,393.5	3,800.7	6,079.3	6,333.3	1,334.6	1,209.8
450.0	90	683	64	367.8	1,289.3	3,450.2	5,606.3	5,835.1	1,231.9	1,118.9
400.0	80	607	55	337.6	1,182.1	3,126.2	5,117.7	5,322.3	1,122.9	1,021.3
375.0	75	570	53	330.7	1,163.4	3,046.9	5,031.8	5,227.4	1,100.0	1,002.5
350.0	70	534	53	330.6	1,168.1	3,031.7	5,051.6	5,240.4	1,102.1	1,007.1
300.0	60	462	54	332.7	1,188.3	3,031.5	5,143.1	5,319.5	1,118.0	1,027.9
250.0	50	392	52	326.5	1,178.6	2,961.3	5,104.5	5,267.0	1,109.2	1,025.1
200.0	40	323	40	278.3	1,008.6	2,509.3	4,352.9	4,490.4	955.0	882.1
150.0	30	253	27	222.8	815.2	1,989.2	3,499.6	3,609.9	768.9	711.3
125.0	25	218	20	195.4	721.8	1,728.3	3,088.6	3,185.0	675.3	624.6
100.0	20	182	15	171.3	643.7	1,498.0	2,746.9	2,829.9	596.9	553.5
50.0	10	109	8	133.2	532.6	1,117.2	2,266.7	2,324.6	491.6	460.2

Heat Rejection Data

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
500.0	100	762	10,619	4,880	28,467	15,987	4,154	6,801	32,301	77,990	83,078
450.0	90	683	9,863	4,850	25,472	14,112	3,741	5,675	28,958	70,234	74,817
400.0	80	607	9,041	4,609	22,839	12,671	3,345	4,569	25,750	62,810	66,909
375.0	75	570	8,692	4,420	22,234	12,270	3,195	4,370	24,187	59,989	63,903
350.0	70	534	8,428	4,273	21,896	12,066	3,083	4,412	22,642	57,875	61,651
300.0	60	462	7,957	4,041	21,408	11,759	2,881	4,607	19,611	54,085	57,625
250.0	50	392	7,483	3,990	20,431	11,144	2,654	4,537	16,833	49,823	53,074
200.0	40	323	6,780	4,301	16,988	9,104	2,245	3,137	13,687	42,142	44,892
150.0	30	253	6,009	4,101	13,295	6,979	1,798	1,830	10,732	33,764	35,968
125.0	25	218	5,578	3,764	11,543	5,997	1,572	1,310	9,239	29,508	31,433
100.0	20	182	5,092	3,466	9,876	5,013	1,354	925	7,727	25,428	27,088
50.0	10	108	4,033	3,079	6,702	2,947	944	445	4,629	17,732	18,889

Emissions Data

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN	EKW	500.0	375.0	250.0	125.0	50.0
PERCENT LOAD	%	100	75	50	25	10
ENGINE POWER	BHP	762	570	392	218	109
TOTAL NOX (AS NO2)	G/HR	4,654	3,245	880	673	479
TOTAL CO	G/HR	567	622	1,886	968	615
TOTAL HC	G/HR	12	22	94	47	69
PART MATTER	G/HR	26.1	36.0	45.6	102.5	69.9
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	3,012.5	2,702.6	905.9	1,214.3	1,346.5
TOTAL CO	(CORR 5% O2) MG/NM3	366.0	536.6	1,895.6	1,600.3	1,789.7
TOTAL HC	(CORR 5% O2) MG/NM3	6.8	16.9	80.6	61.7	187.7
PART MATTER	(CORR 5% O2) MG/NM3	14.7	25.2	40.0	155.2	161.9
TOTAL NOX (AS NO2)	(CORR 5% O2) PPM	1,467	1,316	441	591	656
TOTAL CO	(CORR 5% O2) PPM	293	429	1,516	1,280	1,440
TOTAL HC	(CORR 5% O2) PPM	13	32	151	115	350
TOTAL NOX (AS NO2)	G/HP-HR	6.19	5.74	2.26	3.10	4.41
TOTAL CO	G/HP-HR	0.75	1.10	4.84	4.46	5.66
TOTAL HC	G/HP-HR	0.02	0.04	0.24	0.22	0.63
PART MATTER	G/HP-HR	0.03	0.05	0.12	0.47	0.64
TOTAL NOX (AS NO2)	LB/HR	10.26	7.15	1.94	1.48	1.06
TOTAL CO	LB/HR	1.25	1.37	4.16	2.13	1.36
TOTAL HC	LB/HR	0.03	0.05	0.21	0.10	0.15
PART MATTER	LB/HR	0.06	0.08	0.10	0.23	0.15

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN	EKW	500.0	375.0	250.0	125.0	50.0
PERCENT LOAD	%	100	75	50	25	10
ENGINE POWER	BHP	762	570	392	218	109
TOTAL NOX (AS NO2)	G/HR	4,309	3,005	815	623	444
TOTAL CO	G/HR	303	332	1,009	518	329
TOTAL HC	G/HR	6	12	49	25	36
TOTAL CO2	KG/HR	356	276	228	134	79
PART MATTER	G/HR	13.4	18.5	23.4	52.5	35.8
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	2,789.3	2,502.4	838.8	1,124.4	1,246.7
TOTAL CO	(CORR 5% O2) MG/NM3	195.7	287.0	1,013.7	855.8	962.4
TOTAL HC	(CORR 5% O2) MG/NM3	3.6	9.0	42.7	32.6	99.3
PART MATTER	(CORR 5% O2) MG/NM3	7.5	12.9	20.5	79.6	83.0
TOTAL NOX (AS NO2)	(CORR 5% O2) PPM	1,359	1,219	409	548	607
TOTAL CO	(CORR 5% O2) PPM	157	230	811	685	770
TOTAL HC	(CORR 5% O2) PPM	7	17	80	61	185
TOTAL NOX (AS NO2)	G/HP-HR	5.73	5.31	2.09	2.87	4.08
TOTAL CO	G/HP-HR	0.40	0.59	2.59	2.39	3.03
TOTAL HC	G/HP-HR	0.01	0.02	0.13	0.11	0.33
PART MATTER	G/HP-HR	0.02	0.03	0.06	0.24	0.33
TOTAL NOX (AS NO2)	LB/HR	9.50	6.62	1.80	1.37	0.88
TOTAL CO	LB/HR	0.67	0.73	2.22	1.14	0.73
TOTAL HC	LB/HR	0.01	0.03	0.11	0.05	0.08
TOTAL CO2	LB/HR	790	610	503	295	175
PART MATTER	LB/HR	0.03	0.04	0.05	0.12	0.08
OXYGEN IN EXH	%	8.7	9.6	11.7	11.9	13.7
DRY SMOKE OPACITY	%	0.5	0.7	0.8	3.0	2.4
BOSCH SMOKE NUMBER		0.19	0.40	0.53	1.74	1.50

Regulatory Information

EPA TIER 2		2006 - 2010		
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 89 SUBPART D AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.				
Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	NON-ROAD	TIER 2	CO: 3.5 NOx + HC: 6.4 PM: 0.20

EPA EMERGENCY STATIONARY		2011 - —		
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 60 SUBPART IIII AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE EMERGENCY STATIONARY REGULATIONS.				
Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	STATIONARY	EMERGENCY STATIONARY	CO: 3.5 NOx + HC: 4.0 PM: 0.20

Altitude Derate Data

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	30	40	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)													
0	762	762	762	762	762	762	762	762	762	762	762	762	762
1,000	762	762	762	762	762	762	762	762	762	762	757	744	762
2,000	762	762	762	762	762	762	762	762	754	741	728	718	762
3,000	762	762	762	762	762	762	752	739	726	713	701	689	762
4,000	762	762	762	762	751	737	724	711	698	688	674	663	759
5,000	762	762	750	736	722	709	696	683	671	660	649	638	735
6,000	751	738	722	708	694	681	669	657	646	634	624	613	712
7,000	722	707	693	680	667	655	643	632	620	610	599	589	689
8,000	693	680	666	653	641	629	618	607	596	586	576	566	666
9,000	666	653	640	628	616	604	593	583	572	563	553	544	644
10,000	639	627	614	602	591	580	570	559	550	540	531	522	623
11,000	614	601	589	578	567	557	547	537	527	518	509	501	602
12,000	588	577	565	555	544	534	524	515	506	497	489	481	582
13,000	564	553	542	532	522	512	503	494	485	477	469	461	562
14,000	541	530	520	510	500	491	482	473	465	457	449	442	542
15,000	518	508	498	488	479	470	462	453	445	438	430	423	523

Cross Reference

Arrangement Number	Effective Serial Number	Engine Arrangement	
		Engineering Model	Engineering Model Version
2729744	FSE00001	GS282	-
2864923	FTE00001	GS282	-
2864924	FTE00001	GS282	-

Test Spec	Setting	Effective Serial Number	Test Specification Data			
			Engine Arrangement	Governor Type	Default Low Idle Speed	Default High Idle Speed
OK6281	PP5612	FSE00001	2729744	ELEC		
OK6281	PP5612	FTE00001	2864923	ELEC		
OK6281	PP5612	FTE00001	2864924	ELEC		

Performance Parameter Reference

Parameters Reference:DM9600-06 PERFORMANCE DEFINITIONS

PERFORMANCE DEFINITIONS DM9600

APPLICATION:

Engine performance tolerance values below are representative of a typical production engine tested in a calibrated dynamometer test cell at SAE J1995 standard reference conditions. Caterpillar maintains ISO9001:2000 certified quality management systems for engine test Facilities to assure accurate calibration of test equipment. Engine test data is corrected in accordance with SAE J1995. Additional reference material SAE J1228, J1349, ISO 8665, 3046-1:2002E, 3046-3:1989, 1585, 2534, 2288, and 9249 may apply in part or are similar to SAE J1995. Special engine rating request (SERR) test data shall be noted.

PERFORMANCE PARAMETER TOLERANCE FACTORS:

Power	+/- 3%
Torque	+/- 3%
Exhaust stack temperature	+/- 8%
Inlet airflow	+/- 5%
Intake manifold pressure-gage	+/- 10%
Exhaust flow	+/- 6%
Specific fuel consumption	+/- 3%
Fuel rate	+/- 5%
Specific DEF consumption	+/- 3%
DEF rate	+/- 5%
Heat rejection	+/- 5%
Heat rejection exhaust only	+/- 10%
Heat rejection CEM only	+/- 10%

Heat Rejection values based on using treated water.

Torque is included for truck and industrial applications, do not use for Gen Set or steady state applications.

On C7 - C18 engines, at speeds of 1100 RPM and under these values are provided for reference only, and may not meet the tolerance listed.

These values do not apply to C280/3600. For these models, see the tolerances listed below.

C280/3600 HEAT REJECTION TOLERANCE FACTORS:

Heat rejection	+/- 10%
Heat rejection to Atmosphere	+/- 50%
Heat rejection to Lube Oil	+/- 20%
Heat rejection to Aftercooler	+/- 5%

TEST CELL TRANSDUCER TOLERANCE FACTORS:

Torque	+/- 0.5%
Speed	+/- 0.2%
Fuel flow	+/- 1.0%
Temperature	+/- 2.0 C degrees
Intake manifold pressure	+/- 0.1 kPa

OBSERVED ENGINE PERFORMANCE IS CORRECTED TO SAE J1995 REFERENCE AIR AND FUEL CONDITIONS.

REFERENCE ATMOSPHERIC INLET AIR

FOR 3500 ENGINES AND SMALLER

SAE J1228 AUG2002 for marine engines, and J1995 JAN2014 for other engines, reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity at the stated aftercooler water temp, or inlet manifold temp.

FOR 3600 ENGINES

Engine rating obtained and presented in accordance with ISO 3046/1 and SAE J1995 JANJAN2014 reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity and 150M altitude at the stated aftercooler

PERFORMANCE DATA[DM8155]

December 18, 2014

water temperature.

MEASUREMENT LOCATION FOR INLET AIR TEMPERATURE

Location for air temperature measurement air cleaner inlet at stabilized operating conditions.

REFERENCE EXHAUST STACK DIAMETER

The Reference Exhaust Stack Diameter published with this dataset is only used for the calculation of Smoke Opacity values displayed in this dataset. This value does not necessarily represent the actual stack diameter of the engine due to the variety of exhaust stack adapter options available. Consult the price list, engine order or general dimension drawings for the actual stack diameter size ordered or options available.

REFERENCE FUEL

DIESEL

Reference fuel is #2 distillate diesel with a 35API gravity; A lower heating value is 42,780 KJ/KG (18,390 BTU/LB) when used at 29 (84.2), where the density is 838.9 G/Liter (7.001 Lbs/Gal).

GAS

Reference natural gas fuel has a lower heating value of 33.74 KJ/L (905 BTU/CU FT). Low BTU ratings are based on 18.64 KJ/L (500 BTU/CU FT) lower heating value gas. Propane ratings are based on 87.56 KJ/L (2350 BTU/CU FT) lower heating value gas.

ENGINE POWER (NET) IS THE CORRECTED FLYWHEEL POWER (GROSS) LESS EXTERNAL AUXILIARY LOAD

Engine corrected gross output includes the power required to drive standard equipment; lube oil, scavenge lube oil, fuel transfer, common rail fuel, separate circuit aftercooler and jacket water pumps. Engine net power available for the external (flywheel) load is calculated by subtracting the sum of auxiliary load from the corrected gross flywheel output power. Typical auxiliary loads are radiator cooling fans, hydraulic pumps, air compressors and battery charging alternators. For Tier 4 ratings additional Parasitic losses would also include Intake, and Exhaust Restrictions.

ALTITUDE CAPABILITY

Altitude capability is the maximum altitude above sea level at standard temperature and standard pressure at which the engine could develop full rated output power on the current performance data set. Standard temperature values versus altitude could be seen on TM2001. When viewing the altitude capability chart the ambient temperature is the inlet air temp at the compressor inlet.

Engines with ADEM MEUI and HEUI fuel systems operating at conditions above the defined altitude capability derate for atmospheric pressure and temperature conditions outside the values defined, see TM2001. Mechanical governor controlled unit injector engines require a setting change for operation at conditions above the altitude defined on the engine performance sheet. See your Caterpillar technical representative for non standard ratings.

REGULATIONS AND PRODUCT COMPLIANCE

TMI Emissions Information is presented at 'nominal' and 'Potential Site Variation' values for standard ratings. No tolerances are applied to the emissions data. These values are subject to change at any time. The controlling federal and local emission requirements need to be verified by your Caterpillar technical representative. Log on to the <https://pdgt.cat.com/cda/layout> Technology and Solutions Divisions (T&SD) web page (<https://pdgt.cat.com/cda/layout>) for information including federal regulation applicability and time lines for implementation. Information for labeling and tagging requirements is also provided.

NOTES:

Regulation watch covers regulations in effect and future regulation changes for world, federal, state and local. This page includes

PERFORMANCE DATA[DM8155]

December 18, 2014

items on the watch list where a regulation change or product change might be pending and may need attention of the engine product group. For additional emissions information log on to the TMI web page.

Additional product information for specific market application is available.

Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.

HEAT REJECTION DEFINITIONS:

Diesel Circuit Type and HHV Balance : DM9500

EMISSIONS DEFINITIONS:

Emissions : DM1176

SOUND DEFINITIONS:

Sound Power : DM8702

Sound Pressure : TM7080

RATING DEFINITIONS:

Agriculture : TM6008

Fire Pump : TM6009

Generator Set : TM6035

Generator (Gas) : TM6041

Industrial Diesel : TM6010

Industrial (Gas) : TM6040

Irrigation : TM5749

Locomotive : TM6037

Marine Auxiliary : TM6036

Marine Prop (Except 3600) : TM5747

Marine Prop (3600 only) : TM5748

MSHA : TM6042

Oil Field (Petroleum) : TM6011

Off-Highway Truck : TM6039

On-Highway Truck : TM6038

Date Released : 5/12/14



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2013 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: **Caterpillar Inc.**
(U.S. Manufacturer or Importer)
Certificate Number: **DCPXL15.2NZS-022**

Effective Date:
10/05/2012
Expiration Date:
12/31/2013


Byron J. Burkner, Acting Division Director
Compliance Division

Issue Date:
10/05/2012
Revision Date:
N/A

Model Year: 2013
Manufacturer Type: Original Engine Manufacturer
Engine Family: DCPXL15.2NZS

Mobile/Stationary Indicator: Stationary
Emissions Power Category: 560<kW<=2237
Fuel Type: Diesel
After Treatment Devices: No After Treatment Devices Installed
Non-after Treatment Devices: Engine Design Modification, Electronic Control

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Part 60, 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 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 compression-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.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068 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 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.

Caterpillar C15 500KW**REFER TO COMMENT SHEET****Standard Specifications:**

UL 2200 LISTED PACKAGE GEN SET

EPA Emergency Stationary Only

60 HZ 480 VOLTS

ESC PLATINUM Warranty 5YR 2,500 HRS

IBC CERTIFICATION

EMCP 4.2 CONTROL PANEL

500 EKW W/FAN

C15 480/227V 60 HZ PKG GEN

NFPA99-110/CSA282 LOCAL ANNUN

GENERATOR RUNNING RELAY

800 AMP UL 3 POLE 100% CB 78

RELAY END BLOCK TERMINALS

REM ANNUNCIATOR 99/110**SOUND ATTEN ENCL-YELLOW** Verify Sound attenuated Level 2 rating 76 db at 23'SDW FUEL TANK **660** GALLON

COOLANT LEVEL SENSOR

JACKET WATER HEATER 240 V

ANALOG VOLTAGE REGULATOR

FUEL RUPTURE BASIN ALARM

CIRCUIT BRKR AUX CONTACTS

SHUNT TRIP UL BREAKER

CONTROL PANEL MOUNTING - REAR

BATTERY CHARGER-5 AMP

5 ENGLISH LITERATURE PACKAGES

NEUTRAL GND CONNECTION

~~ATS-LS 150A ATS with Bypass, 4P, in a NEMA 1 Enclosure~~~~ATS-CC 260A ATS with Bypass, 3P, in a NEMA 1 Enclosure~~~~ATS-EQ1 800A ATS with Bypass, 4P, in a NEMA 1 Enclosure~~~~ATS-EQ 600A ATS with Bypass, 3P, in a NEMA 1 Enclosure~~

12 Month Preventative maintenance Agreement

NFPA 30 Kit

Stainless Steel outer Fill Station with Alarm and Containment

Remote Emergency Stop

Start-up by Cat Technician

Installation and Fuel by Others**Notes:****Generator**

2.7 A - C15 Cat Engine uses a 240V 3kW Jacket Water Heater

Transfer Switch

See Attached

**Sub-base Fuel
Tank**



Image shown may not reflect actual product.

C15 SUB-BASE FUEL TANK BASE Griffin

Diesel Generator Set
365-550 kVA 50 Hz
320-550 kW 60 Hz

FEATURES

- UL listed for United States (UL 142) and Canada (ULC S601)
- Compliant with NFPA 30, 37 & 110 and CSA C282-09 & B139-09 standards.
- Tank design provides capacity for thermal expansion of fuel
- Direct reading fuel level gauge
- Fuel supply dip tube is positioned so as not to pick up fuel sediment
- Fuel return and supply dip tubes are separated by an internal baffle to prevent recirculation of heated return fuel
- Fuel fill – 4 in, lockable flip top cap
- Primary tank level detection switch in containment basin
- Primary and secondary tanks are leak tested at 20.7 kPa (3 psi) minimum
- Welded steel containment basin (minimum of 110% of primary tank capacity)
- Interior tank surfaces coated with a solvent based thin-film rust preventative
- Heavy gauge steel gussets suitable for lifting package
- Gloss black polyester alkyd acrylic enamel exterior paint over epoxy based primer
- Primary tanks are equipped with customer connections for remote fuel transfer, return and vent

DESCRIPTION

- Dual wall, secondary containment
- Heavy gauge steel construction
- Rear and right side stub-up access
- Emergency vents on primary and secondary tanks are sized in accordance with NFPA 30
- Leak detection switch
- Compatible with enclosures (weather protective and sound attenuated)
- The sub-base fuel tank mounts below the generator set wide base

OPTIONS

- Manual fuel transfer pump
- Low fuel level switch (alarm and shutdown)

