141-47750-00642

RAMBOLL

ENVIRONMENT
& HEALTH

MAI 133954

Indiana Department of Environmental Management
Office of Air Quality, Air Permits Branch
ATTN: Incoming Application
100 N. Senate Avenue, IGCN 1003
Indianapolis, IN 46204-2251

Received
State of Indiana
JUN 25 2024
Dept of Environmental Mgmt
Office of Air Quality

HC

RE: APPLICATION FOR NEW SOURCE MINOR PSD CONSTRUCTION APPROVAL AND TITLE V OPERATING PERMIT
SITE SBN100
55001 LARRISON BLVD.
NEW CARLISLE, ST. JOSEPH COUNTY, INDIANA 46552

April 19, 2024

Ramboll Americas Engineering Solutions, Inc.
4245 North Fairfax Drive, Suite 700
Arlington, VA 22203
USA
T +1 703 516 2300
www.ramboll.com

Dear Sir or Madam:

On behalf of our client, Razor5 LLC (Razor5), Ramboll Americas Engineering Solutions, Inc. (Ramboll) has prepared this application to obtain a New Source Minor PSD Construction Approval and a Title V Operating Permit for installation and operation of a data center facility at the above referenced location (identified as "SBN100"). The detailed description of the facility, regulatory applicability, application forms, potential emission calculations with necessary supporting information are enclosed within this submittal.

Additionally, an information checklist used to determine if two or more plants should be combined is included within this submittal for SBN100 and a proposed separate data center site (SBN201).

If you have any questions or require further information, please do not hesitate to contact the undersigned via email or phone.

Yours sincerely,

Tingting Wang

Tingting Wang
Senior Managing Consultant
M +1 312-288-3860
twang@ramboll.com

Enclosures:

Information checklist used to determine if two or more plants should be combined, and
Application for New Source Minor PSD Construction Approval and Title V Operating Permit

Information checklist used to determine if two or more plants should be combined

Permit Reviewer: **Pending Application No.:**

Application Contact Name, Email & Tel.: Tingting Wang, Ramboll, twang@ramboll.com, 312-292-6872

For each plant below, list plant name, plant ID number and location address:

- Proposed Site SBN100, located at 55001 Larrison Blvd., New Carlisle, St. Joseph County, Indiana 46552.
- Proposed Site SBN201, located at the intersection of Western Avenue and Larrison Blvd., New Carlisle, Indiana.

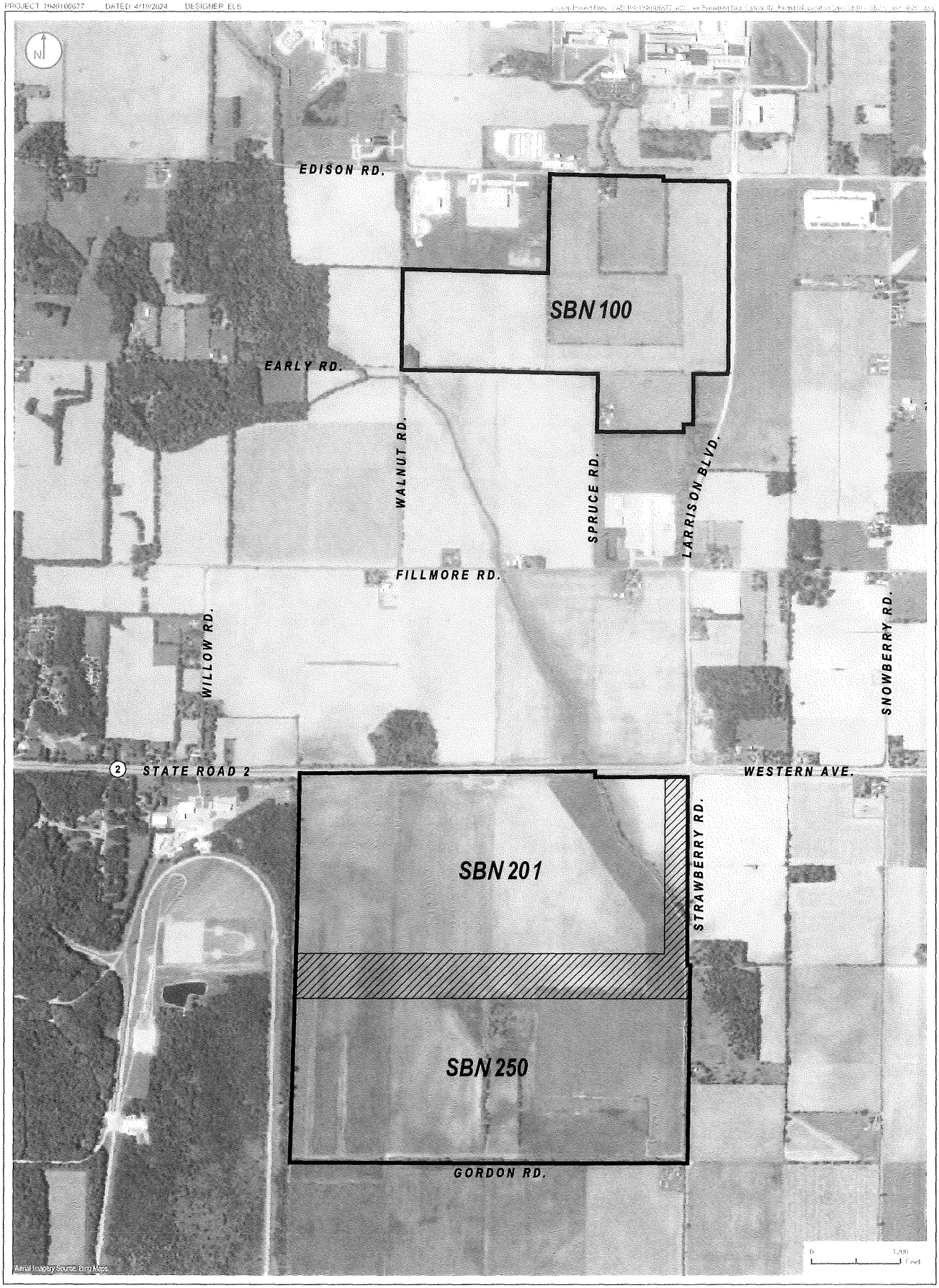
See the attached Figure A for the locations of SBN100 and SBN201.

Criteria	Detailed Information
1. *Common Control and Common Ownership*	
(a) Please state the details of ownership. Common ownership may exist in several forms. If one party has ownership of 51% or more in two or more plants, common ownership exists. If two or more plants share common corporate officers, in whole or in substantial part, who are responsible for the day-to-day operations of the plant, common ownership exists. If one plant owner has 51% or greater ownership of another plant, common ownership exists.	SBN100 and SBN201 will be under common control of Razor5, LLC
(b) Does one plant assist another plant by supplying material or a service? If so, does the plant supplying the material or service provide a majority of its output to this other plant? Does any plant have day-to-day control over another plant? Please see IDEM Nonrule Policy Documents Air-005 and Air-006 at https://www.in.gov/idem/resources/nonrule-policies/effective-nonrule-policies/ on IDEM's website for additional information.	No, neither facility will provide operational support for the other; operations at each site will be self-sufficient. They can and will operate independently of each other.
2. *SIC Codes and Support Relationships*	
(a) List the two-digit SIC Code for each plant's primary product or activity. More information about SIC Codes is available at: https://www.osha.gov/data/sic-manual on the Internet.	Plant A two-digit SIC Code:_73_____ Plant B two-digit SIC Code:_73_____ Plant C two-digit SIC Code:_____ Plant D two-digit SIC Code:_____
(b) For each plant, state the percentage of the plant's total output that is provided to each of the other plants. For example, Plant A makes only widgets and sends 90% to Plant B. Plant B paints all of the widgets. Plant B does not produce or paint any other products.	Each site will be operated as a data center facility. Each site will have its own emergency generators for backup power supply when the local electric supply is interrupted. The electricity generated by the emergency generators at one site will not provide backup power to support operations at the other site. Water treatment/cooling systems for the generators will be dedication installations at each site. Each site will have its own, independent fuel storage dedicated to each site. Fuel will not be supplied to any other location.

3. *Contiguous and Adjacent Properties*	
Distances (a) List the plants located on the same property or contiguous properties. Contiguous properties share a common property line.	See the attached figure. SBN100 and SBN201 will not be located on contiguous or adjacent properties. The two sites will be separated by two properties owned by other private owners.
(b) For plants located on separate properties, state the shortest distance between each of the plant properties in feet, yards or miles.	The shortest distance between the south boundary of SBN100 and the north boundary of SBN201 is approximately 0.87 miles. Development of the SBN201 and SBN250 facilities may be as separate facilities or a single facility, but regardless of the final decision, SBN201 and SBN250 will be permitted under a single air permit.
Relationships (c) Are any materials transferred between the plants? If so, list each material, state how often it is transferred and the rough percentage of each plant's total output that is transferred to each of the other plants.	Please see the response to 2(b). No process material outputs will be transferred between SBN100 and SBN201.
(d) List any production employees or production managers common to two or more plants. For each type of employee please state how often they travel between the plants.	Each site will have its own management team and employees, which will not be shared with the other site. The company may have the same administrative team (e.g., administrative assistants, human resources, payroll, etc.) to serve the two sites, as well as other sites in this region. However, the administrative team does not affect the day-to-day operation at each site.
(e) Is any production process split in any way between the plants? If so, please describe.	No, the data center operation at each site will be self-contained. As said in the response to 2(b), each site will have its own emergency generators for backup power supply when the local electric supply is interrupted. The electricity generated by the emergency generators at one site will not be provided to supply the operations at the other site. Each site will have its own fuel storage for the emergency generators and will not supply fuel to the other site.
4. *Additional Questions*	
(a) Describe or attach any evidence or documents that indicate that these plants are operating as one source.	The two sites will operate as two separate sources.
(b) Describe or attach any evidence or documents that indicate that these plants are separate sources.	
(c) If any of the plants indicated that they should be combined or separated, please provide any facts that support that position.	Each site will operate independently of each other and will not rely on material outputs of one facility to provide material inputs to the other.

(d) Set out any air compliance inspector's recommendation on whether the plants are one source.	
(e) State any other issues or facts that should be considered.	
5. Emissions Estimates	
(a) Is the combined/unlimited PTE any of the following equal to or greater than 100 tpy? PM, PM10, PM2.5, NOx, SO2, VOC, CO	The PTE of NOx and CO of each site will be greater than 100 tpy. The main emission units at each site are emergency generators, which are intermittent sources used only to provide power in the event of a utility outage and for routine testing/maintenance. Actual operations of the emergency generators will primarily depend on the local utility supply. The applicant proposes to limit the emissions of NOx (key pollutant from fuel combustion) from each site to be no more than 249 tpy.
(b) Is the combined/unlimited PTE any single/combined HAPs equal to or greater than 10/25 tpy, respectively?	No

PROJECT 1982010677 DATED 4/19/2024 DESIGNER ELS



SITE BOUNDARY

LOCATIONS OF SITES SBN100, SBN201, and SBN250

FIGURE A

ST. JOSEPH COUNTY
NEW CARLISLE, INDIANA

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

Submitted to:
Indiana Department of Environmental Management
Indianapolis, Indiana

Prepared for:
Razor5 LLC
Site SBN100
New Carlisle, Indiana

Prepared by:
Ramboll Americas Engineering Solutions, Inc

Date
April 2024

Project Number:
1940106677

APPLICATION FOR NEW SOURCE MINOR PSD CONSTRUCITON APPROVAL AND TITLE V OPERATING PERMIT

SBN100 SITE

NEW CARLISLE, INDIANA

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FIGURES

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Appendix A: IDEM Permit Application Forms

Appendix B: Potential Emission Calculations

Appendix C: Generator Specifications and Emission Data

1. INTRODUCTION

Razor 5 LLC (Razor5) proposes to construct and operate a data center facility at an unimproved location at 55001 Larrison Blvd., New Carlisle, St. Joseph County, Indiana 46552 (referred to as "SBN100" or the "Site"). SBN100 will have two hundred and forty-eight (248) emergency back-up generators in various sizes with a total power generation capacity of 654 Megawatts (MW) and associated diesel fuel storage tanks in a phased construction schedule to provide back-up power to the data center operations. A Site Location Map and a Site Layout Map are included within this submittal as **Figure 1** and **Figure 2**, respectively.

Pursuant to Title 326 of the Indiana Administrative Code (326 IAC), Article 2 – Permit Review Rules, Rule 2-5.1-3, Razor5 is requesting the issuance of a New Source Minor Prevention of Significant Deterioration (PSD) Construction Approval, for the proposed construction since SBN100's potential-to-emit (PTE) is below the PSD major source thresholds. Additionally, this submittal also serves as a permit application to obtain a Part 70 Operating Permit under 326 IAC, Rule 2-7.

Section 2 of this application includes a description of the proposed emission units at the Site. Section 3 contains a description of the emission calculation methodologies used and proposed emission limits for the Site. Section 4 contains a discussion of applicable federal and state requirements for the proposed operations.

The completed Indiana Department of Environmental Management (IDEM) Permit Application Forms are included in **Appendix A**. Potential emission calculations for the emergency generators and diesel fuel storage tanks are provided in **Appendix B**. The manufacturer provided equipment specifications for generators and control devices, as well as performance and emission data, are included in **Appendix C**.

2. PROJECT DESCRIPTION

Electrical generators are used to supply emergency power to the operations at SBN100 as needed to protect critical data center functions during any interruptions in electrical service. Each emergency generator is composed of two (2) distinct parts, a diesel engine and the associated electric generator. Ultra-low sulfur diesel (ULSD) will be used to fuel the engines.

2.1 Generator Installation

The Site will install multiple types and quantities of emergency generators, as summarized in **Table 1** below.

For the critical emergency generators CEG No. 1 – 234 and the house generators HG No. 1 – 9, two model options have been chosen for each type of generators (Caterpillar or Cummins), but a final selection has not been made. The applicant requests to retain flexibility to select either model for installation. The manufacturer provided equipment specifications and emission data for all the models listed in **Table 1** are provided in **Appendix C**.

The following emergency generators meet the insignificant criteria in 326 IAC 2-7-1(21)(xxii)(bb) as they are emergency generators, burn diesel fuel only, and each has a power capacity less than 1,600 horsepower (1,193 kW):

- House emergency generators HG No. 1 – 9 (750 kW each)
- Ancillary emergency generator CAB Gen No. 1 (400 kW)
- Ancillary emergency generator CLB Gen No. 1 (400 kW)
- Ancillary emergency generator ACB Gen No. 1 (250 kW)

Table 1 – List of Proposed Emergency Generators

Gen ID No.	Description	Model	Power Capacity per Gen	EPA Tier Level	Quantity
CEG No. 1 - 234	Critical emergency generators	To be determined (CAT 3516E or Cummins DQLF)	2,750 kW	Tier 4-equivalent[1]	234
WTP Gens No. 1 & No. 2	Ancillary emergency generators for water treatment system	CAT 3512C	1,500 kW	Tier 2	2
HG No. 1 – 9 [Insignificant per 326 IAC 2-7-1(21)(xxii)(bb)]	House emergency generators (one for each data center building)	To be determined (CAT C18 or Cummins DQFAA)	750 kW	Tier 2	9
CAB Gen No. 1 [Insignificant per 326 IAC 2-7-1(21)(xxii)(bb)]	Ancillary emergency generator for Admin Building	CAT C15	400 kW	Tier 3	1

Gen ID No.	Description	Model	Power Capacity per Gen	EPA Tier Level	Quantity
CLB Gen No. 1 [Insignificant per 326 IAC 2-7-1(21)(xxii)(bb)]	Ancillary emergency generator for Logistics Building	CAT C15	400 kW	Tier 3	1
ACB Gen No. 1 [Insignificant per 326 IAC 2-7-1(21)(xxii)(bb)]	Ancillary emergency generator for Security Building	CAT C9	250 kW	Tier 3	1
Note: 1. The 234 critical emergency generators will be powered by Tier 2-certified engines. Each critical emergency generator set will be equipped with a control system (SCR, DPF, DOC) to meet the Tier 4 emission standards.					

As required under federal New Source Performance Standards Subpart for Stationary Compression Ignition Internal Combustion Engines (40 CFR 60 Subpart IIII), the engines will be certified to meet the United States Environmental Protection Agency (USEPA) applicable Tier emission standards in 40 CFR Part 1039, Appendix I. Specifically, the engines with a rated power capacity greater than 450 kW each will be certified to meet the Tier 2 emission standards and the engines less than 450 kW each will be certified to meet the Tier 3 emission standards.

Additionally, to be classified as emergency engines, the Site will operate all the engines in accordance with the run time restrictions for maintenance checks and readiness testing and use in non-emergency situations in accordance with 40 CFR 60.4211(f). The engines will not be used for peak shaving or demand response.

Each of the critical emergency generators CEG No. 1 – 234 (2750 kW each) will be equipped with an emission control system, which is a combined after-treatment system that integrates selective catalytic reduction (SCR), diesel oxidation catalyst (DOC), and diesel particulate filter (DPF) to meet the Tier 4 equivalent emission limits and avoid major source (i.e., PSD) permitting. A process flow diagram showing the operation of the critical engines is presented on **Figure 3**.

2.2 Diesel Storage Tanks

The proposed emergency generators will be equipped with individual belly tanks for storage of diesel fuel. The quantities and volume capacities of the belly tanks are listed in **Table 2** below.

Table 2 – List of Proposed Fuel Belly Tanks for Emergency Generators

Belly Tank ID No.	Volume Capacity	Quantity
BT No. 1 - 234	6,300 gallons each	234
BT HG No. 1 – 9	Up to 1,500 gallons each	9
BT WTP No. 1 & 2	5,000 gallons each	2
BT CAB No. 1	Up to 1,000 gallons	1
BT LCB No. 1	Up to 1,000 gallons	1
BT ACB No. 1	Up to 1,000 gallons	1

In addition to the above listed belly tanks, the Site will also have nine (9) bulk diesel fuel storage tanks (TK No. 1 – 9), each with a volume capacity of 12,000 gallons.

The above listed diesel fuel storage tanks meet the insignificant activity criteria in 326 IAC 2-7-1(21)(E)(iv) and the trivial activity criteria in 2-7-1 (42)(C)(i)&(ii)(DD).

3. POTENTIAL EMISSIONS

Emissions from SBN100 will be primarily from the combustion of fuel in the diesel-fired engines. These emissions include nitrogen oxides (NO_X), volatile organic compounds (VOC), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (PM), particulate matter less than 10 micrometers in diameter (PM_{10}), particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$), hazardous air pollutants (HAPs) and greenhouse gases (GHGs). Additionally, VOC emissions may also result from the standing loss and working loss from the diesel storage tanks. This section describes the methodologies used to quantify the potential emissions from the emergency generators and tanks. Detailed emission calculations are included in **Appendix B**.

3.1 Emergency Generators

Potential emissions of NO_X, CO, PM, and VOC from the emergency generators are calculated using exhaust emission data (**Appendix C**) provided by the equipment manufacturer for each engine model. The manufacturer data includes emission factors in mass per power output per hour (i.e., grams per brake horsepower hour or g/BHP-hr) at various operating loads for the engine-generators (10%, 25%, 50%, 75%, and 100%). For each pollutant and each engine model, the maximum (worst-case) emission factor across all load levels is selected for a conservative estimate of the potential hourly emissions (see **Appendix B**, **Tables B.5.a – e** and **Tables B.7.a – f**).

As previously mentioned in Section 2.1, the final models for the critical emergency generators CEG No. 1 – 234 and the house generators HG No. 1 – 9, respectively, have not been selected. For a conservative estimate of the potential-to-emit (PTE) of each pollutant, the higher emission factor between the two model options is used in emission calculations for each type of generators.

As previously stated in Section 2.1, emission controls (SCR, DOC, and DRF) will be applied for the critical emergency generators CEG No. 1 – 234 to meet the EPA Tier 4 emission standards. Two sets of control systems, manufactured by Miratech and Safety Power, respectively, have been chosen as two options, but a final selection has not been made. The manufacturer provided control efficiencies of each system are provided in **Table 3** below. The specification sheets of the two control systems are attached in **Appendix C**. The post-controlled potential emissions from CEG No. 1 - 234 are conservatively calculated based on Miratech's control efficiencies, which are lower than Safety Power's control efficiencies, except VOC. The control efficiency for VOC is further reduced to 45% to provide a more conservative estimate of the potential VOC emissions.

Table 3 – Manufacturer Provided Control Efficiencies (Miratech & Safety Power)

Pollutant	Miratech Provided Control Efficiency	Safety Power Provided Control Efficiency	Control Efficiency used in PTE Calculations
NO_X	91.7%	91.9%	91.7%
CO	70%	80%	70%
VOC	50%	60%	45%
Filterable PM	68.6%	75.6%	68.6%

Potential emissions of SO_2 and HAPs are calculated based on the emission factors from AP-42 Chapter 3.3 – *Gasoline and Diesel Industrial Engines* for engines less than 600 kW and the emission factors from Chapter 3.4 – *Large Stationary Diesel and All Stationary Dual-fuel Engines* for engines greater than 600 kW. SO_2 emissions are based on the use of ULSD, i.e. containing less than 0.0015% sulfur. GHG emissions are expressed in CO_2 equivalent (CO_2e) emissions, using the global warming potentials for each compound published in 40 CFR 98, Table A-1 to Subpart A.

Potential annual pollutant emissions from the emergency generators are calculated based on the Site's anticipated annual fuel usage per engine type multiplied by an emission factor in pounds per gallon (lbs/gal) of fuel input. The lbs/gal factor for each engine type at each operating load is derived from the hourly emission rate (lbs/hr) divided by the corresponding hourly fuel consumption rate (gal/hr) from the manufacturer performance data. For each pollutant, the maximum lbs/gal emission factor across all load levels is selected for a conservative estimate of the potential annual emissions (see **Appendix B**, **Tables B.8.a-f** and **Tables B.10 – B.13**).

3.2 Diesel Storage Tank Emissions

VOC emissions may result from the standing and working losses from the proposed diesel fuel storage tanks associated with the engines. Potential emissions from the diesel fuel storage tanks, including the belly tanks and central fuel storage tanks, are calculated following the methodologies presented in AP-42, Chapter 7.1 (Organic Liquid Storage Tanks) and are provided in **Appendix B**, **Table B.14**.

The potential VOC emissions from all the diesel fuel storage tanks combined are approximately 0.21 tpy. No specific emission limits are proposed for the fuel storage tanks.

3.3 Facility Wide Potential Emissions

The calculated potential pollutant emissions from the proposed emission units at SBN100 are summarized in **Table 4** below. Although some of the emergency generators (HG No. 1 – 9, CAB Gen No. 1, CLB Gen No. 1, ACB Gen No. 1) and the diesel fuel storage tanks can be classified as insignificant activities under 326 IAC 2-7-1(21), their potential emissions are included in the facility wide emissions for source level determination. As shown in the table, the potential facility wide emissions of all criteria pollutants are below the PSD major source thresholds.

SBN100 will be a Title V source as the potential NO_X and CO emissions exceed 100 tpy. The potential HAP emissions from the Site are below the major HAP source thresholds (10 tpy for any single HAP and 25 tpy for any combination of HAPs).

Table 4 – Summary of Facility Wide Potential Emissions

Emission Units	NO_X	CO	$PM/PM_{10}/PM_{2.5}$	VOC	SO_2	Max. Single HAP	Total HAPs
CEG No. 1 - 234	236.80	90.41	10.52	38.44	0.54	0.17	0.35
All Support Tier 2/Tier 3 Gens	12.05	19.19	1.33	7.75	1.53	0.004	0.01
All Diesel Fuel Storage Tanks	-	-	-	0.21	-	Neg.	Neg.
Total	**248.85**	**109.60**	**11.85**	**46.40**	**2.08**	**0.18**	**0.36**
PSD Threshold	250	250	250	250	250	-	-
PSD Triggered?	No	No	No	No	No	-	-
Major Title V Threshold	100	100	100	100	100	10	25
Title V Triggered?	Yes	Yes	No	No	No	No	No

3.3.1 Proposed Permit Limits

Razor5 requests not to set operating hour limits for the emergency generators, except those run time restrictions set in the federal NSPS rule 40 CFR 60.4211(f) for emergency internal combustion engines (further discussed in Section 4.1.3.2 below).

The Site requests to limit the facility wide NO_X emissions below 249 tpy to avoid becoming a PSD major source. By limiting NO_X emissions below 249 tpy, the potential emissions of other criteria pollutants are inherently below the PSD major source thresholds. The Site also requests to limit the HAP emissions below 9 tpy for any single HAP and 24 tpy for any combination of HAPs to avoid becoming a major source of HAPs. The proposed emission limits are listed below:

Pollutant	**Proposed Emission Limits**
NO_X	249 tpy
Single HAP	9 tpy
Total HAPs	24 tpy

In lieu of setting fuel usage limits for the emergency generators, the Site requests to comply with the proposed emission limits by tracking actual emissions using the following calculation methodology:

249 tpy of $NO_X \geq \sum_{i=1}^{n} \frac{EFNOxi * Qi}{2000\ ^{lbs}/_{ton}}$

Where:

$EF_{NOx}i$ = NO_X emission factor for engine model i (lbs/gal),
Qi = Diesel fuel usage recorded per engine model (gal/yr).

The NO_X emission factor in lbs/gal for each engine model is derived from the manufacturer provided emission data (see **Appendix B**, **Tables B.8.a-f**). The maximum lbs/gal emission factors across all load levels will be used for actual emission tracking. The same calculation methodology will also be used to track actual emissions of other criteria pollutants and HAPs. The Site will maintain records of diesel fuel usage per engine model on a monthly and 12-month rolling basis for emission tracking.

4. REGULATORY APPLICABILITY

This section summarizes the applicability and non-applicability of key Federal and state regulations to the emission units at SBN100.

4.1 Federal Regulatory Requirements

Federal air quality regulations reviewed include federal permitting programs as well as New Source Performance Standards (NSPS) (40 CFR Part 60), pollutant- and category-specific National Emission Standards for Hazardous Air Pollutants (NESHAPs) (40 CFR Parts 61 and 63).

4.1.1 New Source Review

The current attainment status designations for areas within the State of Indiana are summarized in 40 CFR Section 81.315. The proposed site location is in St. Joseph County, which is designated as attainment or unclassifiable for all criteria pollutants. The New Source Review (NSR) program that potentially applies is PSD permitting requirements. State Rule 326 IAC 2-2 refers to the federal regulations 40 CFR 51.166 and 40 CFR 52.21 for implementation of PSD at major stationary sources. 40 CFR 51.21(b) defines "major stationary source" as "any stationary source which emits, or has the potential to emit, 250 tons per year or more of a regulated NSR pollutant".

As shown in Table 4 and Appendix B, Table B.1, potential site-wide emissions for attainment pollutants are below the PSD major source thresholds; therefore, the Site will be a non-PSD source after construction of the proposed emergency generators.

4.1.2 Title V Operating Permit

40 CFR Part 70 establishes the federal Title V operating permit program. IDEM has incorporated the provisions of this federal program in 326 IAC Rule 2-7. As demonstrated in Appendix B, the proposed Site is a major source with respect to Title V permitting because the Site has the potential to emit more than 100 tpy of NO_X and CO.

The Site will not be a major source of HAPs because its potential HAP emissions will not exceed 10 tpy for any single HAP or 25 tpy for any combination of HAPs.

4.1.3 New Source Performance Standards (NSPS), 40 CFR 60 Subpart IIII

NSPS Subpart IIII applies to new, modified, and reconstructed compression ignition (CI) internal combustion engines (ICE). Pursuant to 40 CFR 60.4200(a)(2), new engines are subject to this regulation if construction of the CI ICE commenced after July 11, 2005, and if the engine was manufactured after April 1, 2006, for CI ICE that are not fire pump engines. This rule is applicable to all CI ICE that will be operated at SBN100 Site.

All generators at the Site will meet the definition of emergency stationary ICE in 40 CFR 60.4219. The engines installed at the facility will be emergency generators and will not operate as fire pump engines.

4.1.3.1 Emission Standards and Fuel Requirements

All generators at the site will be classified as emergency generators under this regulation and the engines will each have a displacement of less than 10 liters per cylinder. Per 40 CFR 60.4205(b)

and 60.4202, these engines must comply with the emission standards for Tier 2 or Tier 3 emission standards for new nonroad CI engines for the same rated power as described in 40 CFR part 1039, appendix I, for all pollutants. The applicable Tier 2/Tier 3 emission standards are depicted in **Table 5** below.

Table 5 – Applicable Emission Standards in 40 CFR 1039, Appendix I

Rated Power (kW)	Tier Level	Starting Model Year	NOX + NMHC (g/kW-hr)	CO (g/kW-hr)	PM (g/kW-hr)
130 ≤ kW ≤ 560	Tier 3	2006	4.0	3.5	0.2
kW > 560	Tier 2	2006	6.4	3.5	0.2

Additionally, smoke opacity from the engines may not exceed the following standards in 40 CFR 1039.105(b):

- 20 percent during the acceleration mode.
- 15 percent during the lugging mode.
- 50 percent during the peaks in either the acceleration or lugging modes.

Pursuant to 40 CFR 60.4207 and 40 CFR 1090.305, engines with a displacement of less than 30 liters per cylinder must use ultra-low sulfur diesel fuel that meets the following criteria:

- Maximum sulfur content of 15 ppm; and
- Either a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.

The SBN100 site will comply with the above-described emission standards by purchasing engines certified by the manufacturer to comply with the applicable Tier 2 or Tier 3 emission standards. Further, the site will operate and maintain each engine according to the manufacturer's emission-related written instructions and only change those emission-related settings that are permitted by the manufacturer.

4.1.3.2 Run Time Restrictions for Emergency ICE

For a stationary engine to be considered an emergency ICE under NSPS Subpart IIII, it must meet the run time restrictions in 40 CFR 60.4211(f).

Pursuant to 40 CFR 60.4211(f)(1), there is no restriction on usage of an emergency ICE in emergency situations. Each engine is restricted to a maximum of 100 hours per calendar year of operation for maintenance checks and readiness testing pursuant to 40 CFR 60.4211(f)(3). Each engine is allowed up to 50 hours per calendar year of non-emergency operation other than maintenance, testing; however, any non-emergency run time must be counted as part of the 100 hours per calendar year for maintenance and testing pursuant to 40 CFR 60.4211(f)(3). Pursuant to 40 CFR 60.4209(a), all engines at SBN100 Site will be equipped with non-resettable hour meters prior to startup of the engines for tracking of operating hours during emergency and non-emergency runs.

4.1.3.3 Notifications, Reporting and Recordkeeping

Pursuant to 40 CFR 60.4214(b), an initial notification under NSPS Subpart A is not required for emergency stationary ICE. The Site will retain records of the emergency and non-emergency runs for each engine, as recorded through the engine's non-resettable hour meter. The records will indicate the time of operation of the engine and the reason the engine was in operation during that time.

4.1.4 National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR 63 Subpart ZZZZ

NESHAP Subpart ZZZZ applies to new and existing stationary reciprocating internal combustion engines (RICE) located at both major and area sources of HAP emissions. Pursuant to 40 CFR 63.6590(c), for new or reconstructed stationary RICE located at an area source of HAP emissions, the only requirement under NESHAP Subpart ZZZZ is to meet the requirements of NSPS Subpart IIII for CI ICE. Since the proposed generators at the Site will comply with NSPS Subpart IIII, the units will also maintain compliance with NESHAP Subpart ZZZZ. No further requirements apply to these engines under this regulation.

4.2 Indiana Regulatory Requirements

In addition to federal air regulations, Indiana has developed state regulations which apply to sources of air pollution. A summary of regulations applicable or potentially applicable to the proposed facility is provided in the following sections.

4.2.1 326 IAC-5-2-1 – Opacity Limits

Based on the location of the proposed Site, opacity shall meet the following:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

4.2.2 326 IAC 4-1 – Open Burning

The facility shall not open burn any material except as identified in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6 unless provided an open burning approval by the Commissioner.

4.2.3 326 IAC 6-4 – Fugitive Dust Emissions

This condition is not applicable to the facility as they are not expected to be a source of fugitive dust. The facility will not allow "fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located" as it will not generate any of emissions from this category.

4.2.4 326 IAC 6-2-1(d) – Particulate Emissions

"Particulate emissions from the combustion of fuel for indirect heating from all facilities receiving permits to construct on or after September 21, 1983, shall be limited by section 4 of this rule." The facility does not produce heat or power by indirect heat transfer, therefore the particulate rules in Article 6 Section 4 are not applicable and the facility will comply with particulate rules

established in 326 IAC 2-8 where limits are set to limit source's potential to less than major source levels in agreement with Section 502(a) of the Clean Air Act.

4.2.5 326 IAC 6.5-1-2 – Particulate Emission Limitations

Pursuant to 326 IAC 6.5-1-1(a)(2), if the Site has:

(A) the potential to emit 100 tons or more; or

(B) actual emissions of 10 tons or more;

of PM per year, PM emissions from each emission unit shall not exceed seven-hundredths (0.07) gram per dry standard cubic meter (g/dscm) (three-hundredths (0.03) grain per dry standard cubic foot (dscf)).

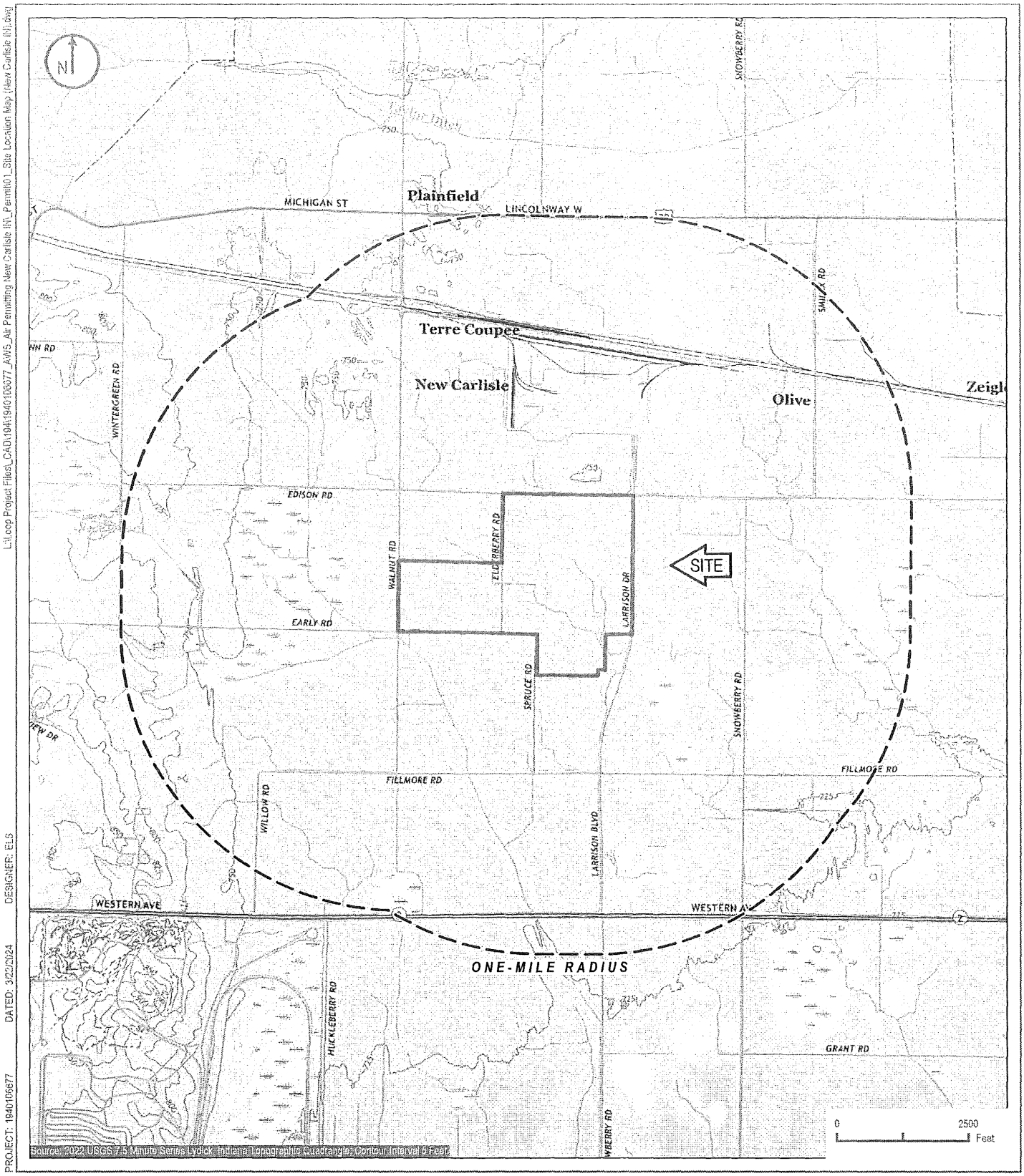
4.2.6 326 IAC 9 – Carbon Monoxide Emission Rules

Sources are exempt from this rule if subject to a carbon monoxide emission limit, and the generators will be subject to NSPS IIII.

4.2.7 326 IAC 10 – Nitrogen Oxides Rules

326 IAC 10-1 is applicable to sources only in Clark and Floyd Counties; the facility is located in St. Joseph County and therefore the rule is not applicable.

FIGURES



L:\Loop Project Files_CAD\194\194010\6677_AWS_Air Permitting New Carlisle IN_Permit\01_Site Location Map (New Carlisle IN).dwg

PROJECT: 194010677 DATED: 3/22/2024 DESIGNER: ELS

Map Scale: 1:30,000 | Map Center: 41°41'20.4496", -86°28'6.8383"

SITE LOCATION MAP

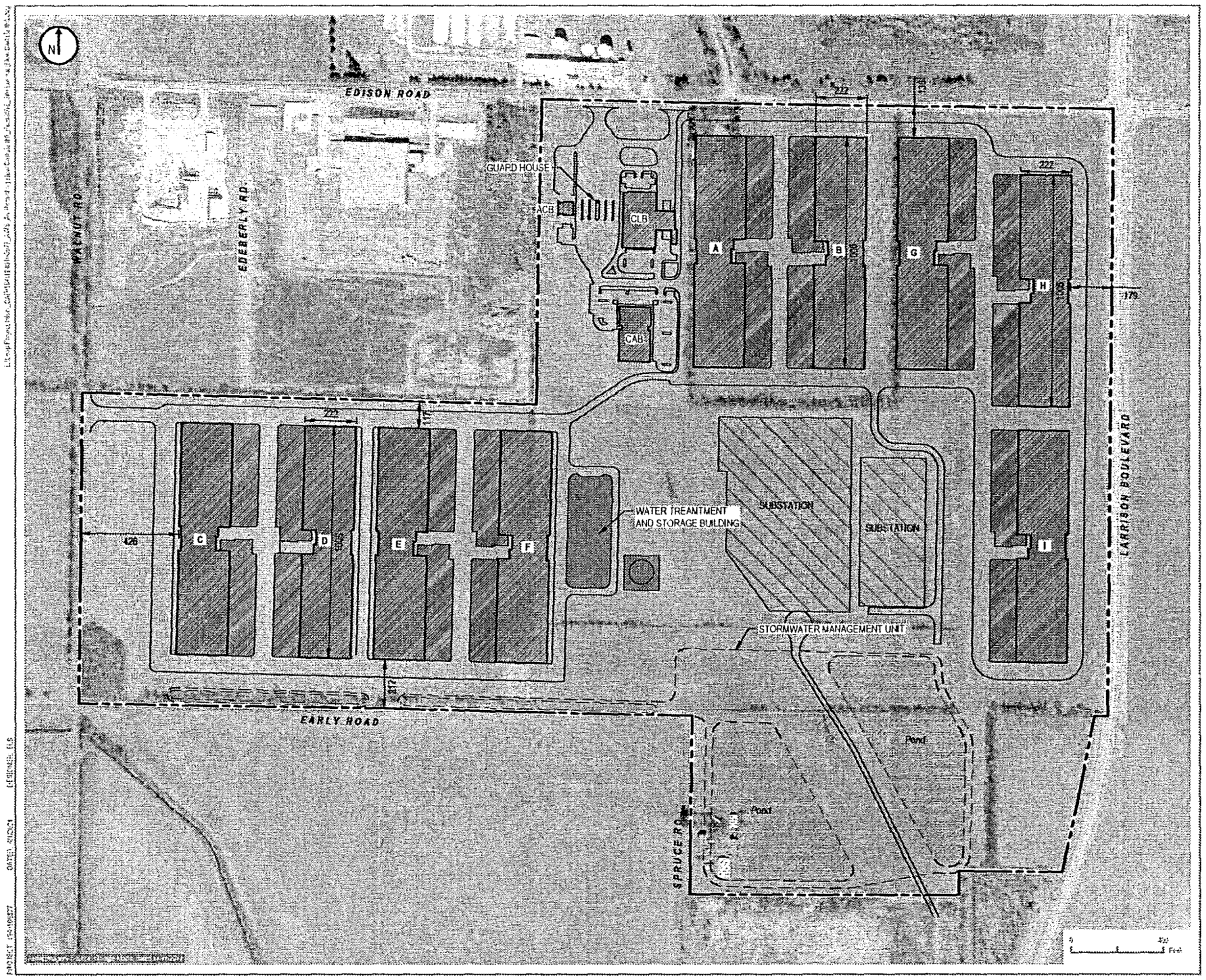
FIGURE 01

KEY MAP

RAZOR5 LLC - SBN100
55001 LARRISON BOULEVARD
NEW CARLISLE, INDIANA

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL



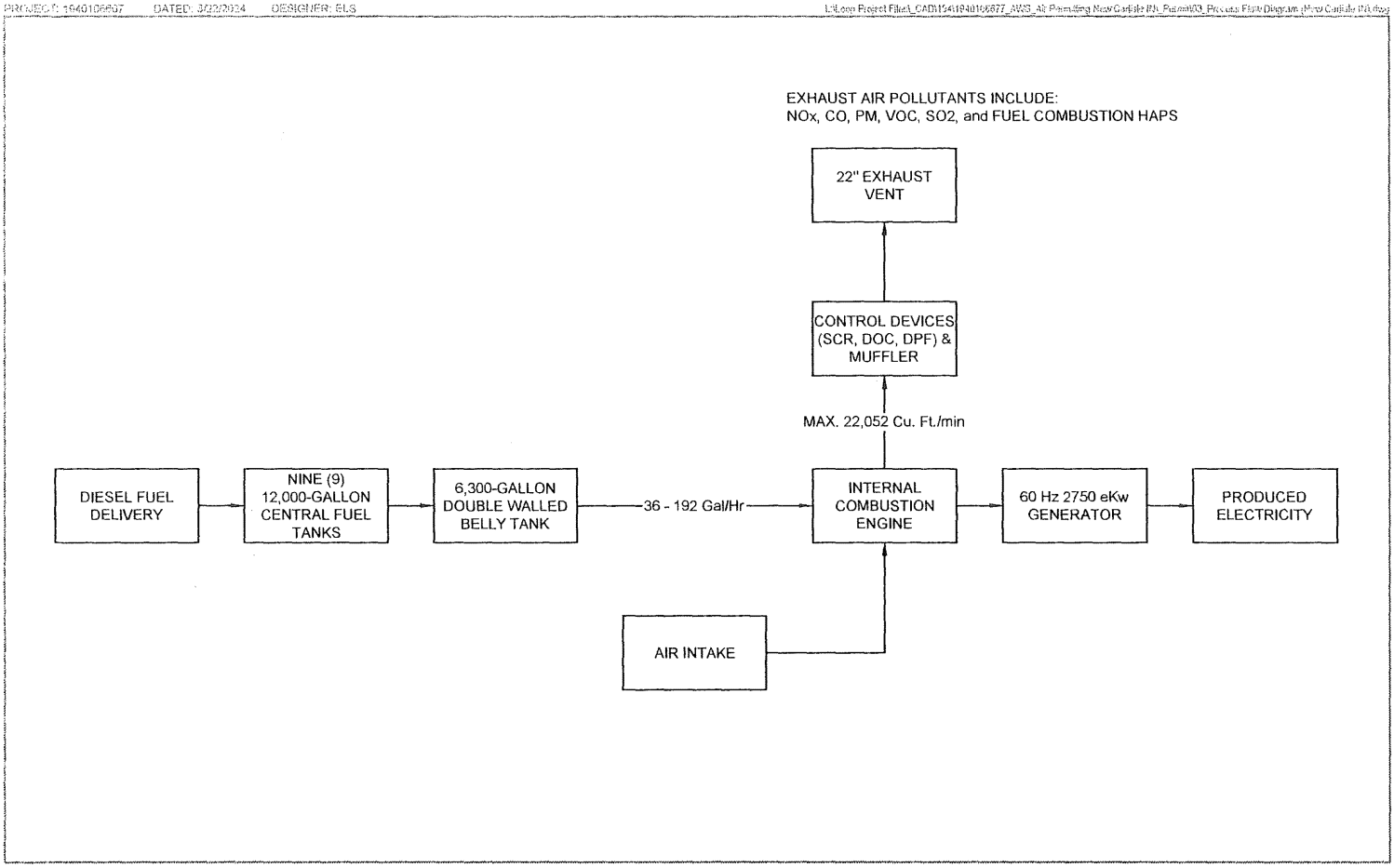
SITE LAYOUT MAP

RAZOR5 LLC - SBN100
SOUTH LARRISON ROAD
NEW CARLISLE, INDIANA

FIGURE 02

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL



PROCESSS FLOW DIAGRAM

RAZOR5 LLC - SBN100
55001 LARRISON BOULEVARD
NEW CARLISLE, INDIANA

FIGURE 03

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

APPENDIX A
IDEM PERMIT APPLICATION FORMS

AIR PERMIT APPLICATION COVER SHEET

State Form 50639 (R4 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this cover sheet is to obtain the core information needed to process the air permit application. This cover sheet is required for all air permit applications submitted to IDEM, OAQ. Place this cover sheet on top of all subsequent forms and attachments that encompass your air permit application packet.
- Submit the completed air permit application packet, including all forms and attachments, to **IDEM Air Permits Administration** using the address in the upper right hand corner of this page.
- IDEM will send a bill to collect the filing fee and any other applicable fees.
- Detailed instructions for this form are available on the Air Permit Application Forms website.

FOR OFFICE USE ONLY

PERMIT NUMBER: ___ ___ – ___ ___ ___ ___ – ___

DATE APPLICATION WAS RECEIVED:

Received
State of Indiana
JUN 25 2024
Dept of Environmental Mgmt
Office of Air Quality

CM.2

1. Tax ID Number:

PART A: Purpose of Application

Part A identifies the purpose of this air permit application. For the purposes of this form, the term "source" refers to the plant site as a whole and NOT to individual emissions units.

2. Source / Company Name: Razor5 LLC **3. Plant ID:** –

4. Billing Address: 251 Little Falls Drive

City: Wilmington **State:** DE **ZIP Code:** 19807–

5. Permit Level: ☐ Exemption ☐ Registration ☐ SSOA ☐ MSOP ☐ FESOP ☒ TVOP ☐ PBR

6. Application Summary: *Check all that apply. Multiple permit numbers may be assigned as needed based on the choices selected below.*

☒ Initial Permit
☐ Renewal of Operating Permit
☐ Asphalt General Permit
☐ Review Request
☐ Revocation of Operating Permit
☐ Alternate Emission Factor Request
☐ Interim Approval
☐ Relocation of Portable Source
☐ Acid Deposition (Phase II)
☐ Site Closure
☐ Emission Reduction Credit Registry

☐ Transition (between permit levels) *From:* *To:*

☐ Administrative Amendment:
☐ *Company Name Change*
☐ *Change of Responsible Official*
☐ *Correction to Non-Technical Information*
☐ *Notice Only Change*
☐ *Other (specify):*

☐ Modification:
☐ *New Emission Unit or Control Device*
☐ *Modified Emission Unit or Control Device*
☐ *New Applicable Permit Requirement*
☐ *Change to Applicability of a Permit Requirement*
☐ *Prevention of Significant Deterioration*
☐ *Emission Offset*
☐ *MACT Preconstruction Review*
☐ *Minor Source Modification*
☐ *Significant Source Modification*
☐ *Minor Permit Modification*
☐ *Significant Permit Modification*
☐ *Other (specify):*

7. Is this an application for an initial construction and/or operating permit for a **"Greenfield" Source**? ☐ Yes ☒ No

8. Is this an application for construction of a new emissions unit at an **Existing Source**? ☐ Yes ☒ No

Continued on Next Page

PART B: Pre-Application Meeting

Part B specifies whether a meeting was held or is being requested to discuss the permit application.

9. Was a meeting held between the company and IDEM prior to submitting this application to discuss the details of the project?

☒ No ☐ Yes: *Date:*

10. Would you like to schedule a meeting with IDEM management and your permit writer to discuss the details of this project?

☐ No ☒ Yes: *Proposed Date for Meeting:*

PART C: Confidential Business Information

Part C identifies permit applications that require special care to ensure that confidential business information is kept separate from the public file.

Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in the Indiana Administrative Code (IAC). To ensure that your information remains confidential, refer to the IDEM, OAQ information regarding submittal of confidential business information. For more information on confidentiality for certain types of business information, please review IDEM's Nonrule Policy Document Air-031-NPD regarding Emission Data.

11. Is any of the information contained within this application being claimed as **Confidential Business Information?**

☒ No ☐ Yes

PART D: Certification Of Truth, Accuracy, and Completeness

Part D is the official certification that the information contained within the air permit application packet is truthful, accurate, and complete. Any air permit application packet that we receive without a signed certification will be deemed incomplete and may result in denial of the permit.

For a Part 70 Operating Permit (TVOP) or a Source Specific Operating Agreement (SSOA), a "responsible official" as defined in 326 IAC 2-7-1(34) must certify the air permit application. For all other applicants, this person is an "authorized Individual" as defined in 326 IAC 2-1.1-1(1).

☒ *I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate, and complete.*

Pamela A. Gregorski	President
Name *(typed)*	Title
Pamela A Gregorski	4/11/24
Signature	Date

OAQ AIR PERMIT APPLICATION – FORMS CHECKLIST

State Form 51607 (R5 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this checklist is to help the applicant and IDEM, OAQ ensure that the air permit application packet is administratively complete. This checklist is a required form.
- Check the appropriate box indicating whether each application form is applicable for the current permit application. The source must submit only those forms pertinent to the current permit application.
- Place this checklist between the cover sheet and all subsequent forms and attachments that encompass your air permit application packet.

Part A: General Source Data

Applicable?	Form ID	Title of Form	State Form Number	When should this form be included in my application packet?
☒ Y ☐ N	COVER	Application Cover Sheet	50639	Include for every application, modification, and renewal, including source specific operating agreements (SSOA).
☒ Y ☐ N	CHECKLIST	Forms Checklist	51607	Include for every application, modification, and renewal, including SSOA.
☒ Y ☐ N	GSD-01	Basic Source Level Information	50640	Include for every application, modification, and renewal, including SSOA.
☒ Y ☐ N	GSD-02	Plant Layout Diagram	51605	Include for every new source application, and modification.
☒ Y ☐ N	GSD-03	Process Flow Diagram	51599	Include one for every process covered by the application.
☒ Y ☐ N	GSD-04	Stack / Vent Information	51606	Include for every new source application, and modification.
☒ Y ☐ N	GSD-05	Emissions Unit Information	51610	Include for every process covered by the application.
☒ Y ☐ N	GSD-06	Particulate Emissions Summary	51612	Include if the process has particulate emissions (PM).
☒ Y ☐ N	GSD-07	Criteria Pollutant Emissions Summary	51602	Include if the process has criteria pollutant emissions.
☒ Y ☐ N	GSD-08	HAP Emissions Summary	51604	Include if the process has hazardous air pollutant emissions (HAP).
☐ Y ☒ N	GSD-09	Summary of Additional Information	51611	Include if the additional information is included.
☒ Y ☐ N	GSD-10	Insignificant Activities	51596	Include if there are unpermitted insignificant activities.
☐ Y ☒ N	GSD-11	Alternative Operating Scenario	51601	Include if an AOS is requested.
☐ Y ☒ N	GSD-12	Affidavit of Nonapplicability	51600	Include if the standard notification requirements do not apply.
☒ Y ☐ N	GSD-13	Affidavit of Applicability	51603	Include if the standard notification requirements apply.
☒ Y ☐ N	GSD-14	Owners and Occupants Notified	51609	Include if the standard notification requirements apply.
☒ Y ☐ N	GSD-15	Government Officials Notified	51608	Include if the standard notification requirements apply.
☐ Y ☒ N	RENEWAL	Renewal Checklist	51755	Include with every operating permit renewal packet.

Continued on Next Page

Part B: Process Information				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☒ Y ☐ N	AEF-01	Alternate Emission Factor Request	51860	Submit if you are requesting to use an emission factor other than AP-42.
☐ Y ☒ N	PI-01	Miscellaneous Processes	52534	Include one form for each process for which there is not a specific PI form.
☒ Y ☐ N	PI-02A	Combustion Unit Summary	52535	Include one form to summarize all combustion units *(unless SSOA).*
☐ Y ☒ N	PI-02B	*Combustion:* Boilers, Process Heaters, & Furnaces	52536	Include one form for each boiler, process heater, or furnace *(unless SSOA).*
☒ Y ☐ N	PI-02C	*Combustion:* Turbines & Internal Combustion Engines	52537	Include one form for each turbine or internal combustion engine *(unless SSOA).*
☐ Y ☒ N	PI-02D	*Combustion:* Incinerators & Combustors	52538	Include one form for each incinerator or combustor *(unless SSOA).*
☐ Y ☒ N	PI-02E	*Combustion:* Kilns	52539	Include one form for each kiln *(unless SSOA).*
☒ Y ☐ N	PI-02F	*Combustion:* Fuel Use	52540	Include one form for each combustion unit *(unless SSOA).*
☒ Y ☐ N	PI-02G	*Combustion:* Emission Factors	52541	Include one form for each combustion unit *(unless SSOA).*
☒ Y ☐ N	PI-02H	*Combustion:* Federal Rule Applicability	52542	Include one form for each combustion unit *(unless SSOA).*
☒ Y ☐ N	PI-03	Storage and Handling of Bulk Material	52543	Include if the process involves the storage and handling of bulk materials.
☐ Y ☒ N	PI-04	Asphalt Plants	52544	Include for each asphalt plant process (*unless general permit*).
☐ Y ☒ N	PI-05	Brick / Clay Products	52545	Include for each brick and/or clay products process.
☐ Y ☒ N	PI-06	Electroplating Operations	52546	Include for each electroplating process.
☐ Y ☒ N	PI-07	Welding Operations	52547	Include for each welding process.
☐ Y ☒ N	PI-08	Concrete Batchers	52548	Include for each concrete batcher *(unless SSOA).*
☐ Y ☒ N	PI-09	Degreasing	52549	Include for each degreasing process *(unless SSOA).*
☐ Y ☒ N	PI-10	Dry Cleaners	52550	Include for each dry cleaning process
☐ Y ☒ N	PI-11	Foundry Operations	52551	Include for each foundry process
☐ Y ☒ N	PI-12	Grain Elevators	52552	Include for each grain elevator *(unless SSOA).*
☐ Y ☒ N	PI-13	Lime Manufacturing	52553	Include for each lime manufacturing process.
☐ Y ☒ N	PI-14	Liquid Organic Compound Storage	52554 (doc)	Include if the process involves the storage of liquid organic compounds.
☐ Y ☒ N	PI-14ALT	Alternate version of Liquid Organic Compound Storage	52555 (xls)	Include if the process involves the storage of liquid organic compounds and there are several storage vessels.
☐ Y ☒ N	PI-15	Portland Cement Manufacturing	52556	Include for each Portland cement manufacturing process.
☐ Y ☒ N	PI-16	Reinforced Plastics & Composites	52557	Include for each reinforced plastics and composites process.

Continued on Next Page

Part B: Process Information				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	PI-17	Blasting Operations	52558	Include for each blasting process *(unless SSOA)*.
☐ Y ☒ N	PI-18	Mineral Processing	52559	Include if the process involves mineral processing *(unless SSOA)*.
☐ Y ☒ N	PI-19	Surface Coating & Printing Operations	52560	Include for each surface coating or printing process *(unless SSOA)*.
☐ Y ☒ N	PI-20	Woodworking / Plastic Machining	52561	Include for each woodworking or plastic machining process *(unless SSOA)*.
☐ Y ☒ N	PI-21	Site Remediation	52570	Include for each soil remediation process.
☐ Y ☒ N	PI-22	Ethanol Plants *(Under Development)*	None	Include for each ethanol plant.

Part C: Control Equipment				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☒ Y ☐ N	CE-01	Control Equipment Summary	51904	Include if add-on control equipment will be used for the process.
☐ Y ☒ N	CE-02	Particulates – Baghouse / Fabric Filter	51953	Include for each baghouse or fabric filter.
☐ Y ☒ N	CE-03	Particulates – Cyclone	52620	Include for each cyclone.
☐ Y ☒ N	CE-04	Particulates – Electrostatic Precipitator	52621	Include for each electrostatic precipitator.
☐ Y ☒ N	CE-05	Particulates – Wet Collector / Scrubber / Absorber	52622	Include for each wet collector, scrubber, or absorber.
☐ Y ☒ N	CE-06	Organics – Flare / Oxidizer / Incinerator	52623	Include for each flare, oxidizer, or incinerator.
☐ Y ☒ N	CE-07	Organics – Adsorbers	52624	Include for each adsorber.
☐ Y ☒ N	CE-08	Organics – Condenser	52625	Include for each condenser.
☐ Y ☒ N	CE-09	Reduction Technology	52626	Include for each control device using reduction technology (e.g., SCR, SNCR).
☒ Y ☐ N	CE-10	Miscellaneous Control Equipment	52436	Include one form for equipment for which there is not a specific CE form.

Continued on Next Page

Part D: Compliance Determination for Part 70 Sources				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☒ Y ☐ N	CD-01	Emissions Unit Compliance Status	51861	Include for every Title V application, including modifications.
☒ Y ☐ N	CD-02	Compliance Plan by Applicable Requirement	51862	Include for every Title V application, including modifications.
☒ Y ☐ N	CD-03	Compliance Plan by Emissions Unit	51863	Include for every Title V application, including modifications.
☒ Y ☐ N	CD-04	Compliance Schedule and Certification	51864	Include for every Title V application, including modifications and renewal.
☒ Y ☐ N	FED-03	Compliance Assurance Monitoring	53377	Include for every Title V application, including modifications.

Part E: Best Available Control Technology				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	BACT-01	Analysis of Best Available Control Technology	None	Include for every BACT application.
☐ Y ☒ N	BACT-01a	Background Search: Existing BACT Determinations	None	Include for every BACT application.
☐ Y ☒ N	BACT-01b	Cost/Economic Impact Analysis	None	Include for every BACT application.
☐ Y ☐ N	BACT-02	Summary of Best Available Control Technology	None	Include for every BACT application.
☐ Y ☒ N	PSD / EO-01	PSD / Emission Offset Checklist	None	Include for every PSD application and every NSR application that requires emission offsets.

Part F: Emission Credit Registry				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	EC-01	Generation of Emission Credits	51783	Include if the modification results in emission reductions.
☐ Y ☒ N	EC-02	Transfer of Emission Credits	51784	Submit whenever registered emission credits are transferred.
☐ Y ☒ N	EC-03	Use of Emission Credits	51785	Include if the modification requires the use of emission credits for offsets.
☐ Y ☒ N	EC-04	Emission Credit Request	51906	Submit if you are looking for emission credits for offsets.

Continued on Next Page

Part G: Plantwide Applicability Limits				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	PAL-01	Actuals Plantwide Applicability Limit	52451	Include if the modification results in emission reductions.
☐ Y ☒ N	PAL-02	Revised Plantwide Applicability Limit	52452	Submit whenever registered emission credits are transferred.
☐ Y ☒ N	PAL-03	Plantwide Applicability Limit Renewal	52453	Include if the modification requires the use of emission credits for offsets.
☐ Y ☒ N	PAL-04	Request for Termination of Plantwide Applicability Limit	52454	Submit if you are looking for emission credits for offsets.

Part H: Air Toxics				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☒ Y ☐ N	FED-01	Summary of Federal Requirements – NSPS & NESHAP	53512	Include for each 40 CFR Part 60 NSPS, 40 CFR Part 61 NESHAP, and 40 CFR Part 63 NESHAP applicable to the process.
☐ Y ☒ N	FED-02	MACT Pre-Construction Review	51905	Include if constructing or modifying a process subject to a Part 63 NESHAP.
☐ Y ☒ N	No Form ID	MACT Initial Notification	None	This form is available on the U.S. EPA website. Completed notifications should be submitted to the IDEM Compliance Branch.

Part I: Special Permits				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	INTERIM	Interim Approval	None	Submit if you are applying for interim operating approval.
☐ Y ☒ N	ASPHALT	Asphalt General Permit	None	Submit if you are applying for or modifying an asphalt plant general permit.
☐ Y ☒ N	NOXBTP	NO_x Budget Permit	None	Submit if you are a power plant or if you have opted in to the NO_x budget trading program.
☐ Y ☒ N	ACIDRAIN	Phase 2 Acid Rain Permit	None	Submit if you are applying for, modifying, or renewing a Phase 2 Acid Rain permit.

Continued on Next Page

Part J: Source Specific Operating Agreements (SSOA)				
Applicable?	**Form ID**	**Title of Form**	**State Form Number**	**When should this form be included in my application packet?**
☐ Y ☒ N	OA-01	Summary of Application and Existing Agreements	53438	Submit if you are applying for or modifying a Source Specific Operating Agreement.
☐ Y ☒ N	OA-02	Industrial / Commercial Surface Coating Operations -OR- Graphic Arts Operations (326 IAC 2-9-2.5)	53439	Submit if you are applying for or modifying a SSOA for industrial or commercial surface coating operations not subject to 326 IAC 8-2; or graphic arts operations not subject to 326 IAC 8-5-5.
☐ Y ☒ N	OA-03	Surface Coating or Graphic Arts Operations (326 IAC 2-9-3)	53440	Submit if you are applying for or modifying a SSOA for surface coating or graphic arts operations.
☐ Y ☒ N	OA-04	Woodworking Operations (326 IAC 2-9-4)	53441	Submit if you are applying for or modifying a SSOA for woodworking operations.
☐ Y ☒ N	OA-05	Abrasive Cleaning Operations (326 IAC 2-9-5)	53442	Submit if you are applying for or modifying a SSOA for abrasive cleaning operations.
☐ Y ☒ N	OA-06	Grain Elevators (326 IAC 2-9-6)	53443	Submit if you are applying for or modifying a SSOA for grain elevators.
☐ Y ☒ N	OA-07	Sand And Gravel Plants (326 IAC 2-9-7)	53444	Submit if you are applying for or modifying a SSOA for sand and gravel plants.
☐ Y ☒ N	OA-08	Crushed Stone Processing Plants (326 IAC 2-9-8)	53445	Submit if you are applying for or modifying a SSOA for crushed stone processing plants.
☐ Y ☒ N	OA-09	Ready-Mix Concrete Batch Plants (326 IAC 2-9-9)	53446	Submit if you are applying for or modifying a SSOA for ready-mix concrete batch plants.
☐ Y ☒ N	OA-10	Coal Mines And Coal Preparation Plants (326 IAC 2-9-10)	53447	Submit if you are applying for or modifying a SSOA for coal mines and coal preparation plants.
☐ Y ☒ N	OA-11	Automobile Refinishing Operations (326 IAC 2-9-11)	53448	Submit if you are applying for or modifying a SSOA for automobile refinishing operations.
☐ Y ☒ N	OA-12	Degreasing Operations (326 IAC 2-9-12)	53449	Submit if you are applying for or modifying a SSOA for degreasing operations.
☐ Y ☒ N	OA-13	External Combustion Sources (326 IAC 2-9-13)	53450	Submit if you are applying for or modifying a SSOA for external combustion sources.
☐ Y ☒ N	OA-14	Internal Combustion Sources (326 IAC 2-9-14)	53451	Submit if you are applying for or modifying a SSOA for internal combustion sources.

OAQ GENERAL SOURCE DATA APPLICATION
GSD-01: Basic Source Level Information
State Form 50640 (R5 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of GSD-01 is to provide essential information about the entire source of air pollutant emissions. GSD-01 is a required form.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

PART A: Source / Company Location Information

1. **Source / Company Name**: Razor 5 LLC
2. **Plant ID**: –
3. **Location Address**: 55001 Larrison Blvd.
   - **City**: New Carlisle
   - **State**: IN
   - **ZIP Code**: 46552 –
4. **County Name**: St. Joseph
5. **Township Name**: Olive
6. **Geographic Coordinates**:
   - **Latitude**: 41.693524
   - **Longitude**: -86.461739
7. **Universal Transferal Mercadum Coordinates** *(if known)*:
   - **Zone**: 16T
   - **Horizontal**: 544799.23
   - **Vertical**: 4615885.88
8. **Adjacent States**: Is the source located within 50 miles of an adjacent state?
   ☐ No ☒ Yes – *Indicate Adjacent State(s):* ☐ Illinois (IL) ☒ Michigan (MI) ☐ Ohio (OH) ☐ Kentucky (KY)
9. **Attainment Area Designation**: Is the source located within a non-attainment area for any of the criteria air pollutants?
   ☒ No ☐ Yes – *Indicate Nonattainment Pollutant(s):* ☐ CO ☐ Pb ☐ NO_x ☐ O_3 ☐ PM ☐ PM_{10} ☐ $PM_{2.5}$ ☐ SO_2
10. **Portable / Stationary**: Is this a portable or stationary source? ☐ Portable ☒ Stationary

PART B: Source Summary

11. **Company Internet Address** *(optional)*:
12. **Company Name History**: Has this source operated under any other name(s)?
    ☒ No ☐ Yes – *Provide information regarding past company names in Part I, Company Name History.*
13. **Portable Source Location History**: Will the location of the portable source be changing in the near future?
    ☒ Not Applicable ☐ No ☐ Yes – *Complete Part J, Portable Source Location History, and Part K, Request to Change Location of Portable Source.*
14. **Existing Approvals**: Have any exemptions, registrations, or permits been issued to this source?
    ☒ No ☐ Yes – *List these permits and their corresponding emissions units in Part M, Existing Approvals.*
15. **Unpermitted Emissions Units**: Does this source have any unpermitted emissions units?
    ☒ No ☐ Yes – *List all unpermitted emissions units in Part N, Unpermitted Emissions Units.*
16. **New Source Review**: Is this source proposing to construct or modify any emissions units?
    ☐ No ☒ Yes – *List all proposed new construction in Part O, New or Modified Emissions Units.*
17. **Risk Management Plan**: Has this source submitted a Risk Management Plan?
    ☒ Not Required ☐ No ☐ Yes → Date submitted: EPA Facility Identifier: – –

Continued on Next Page

PART C: Source Contact Information

IDEM will send the original, signed permit decision to the person identified in this section. This person MUST be an employee of the permitted source.

18. Name of Source Contact Person: Pamela Gregorski		
19. Title *(optional)*: President		
20. Mailing Address: 251 Little Falls Drive		
City: Wilmington	**State**: DE	**ZIP Code**: 19807 –
21. Electronic Mail Address *(optional)*: pamela.gregorski@cscgfm.com		
22. Telephone Number: (312) 288 – 3860	**23. Facsimile Number** *(optional)*: ( ) –	

PART D: Authorized Individual/Responsible Official Information

IDEM will send a copy of the permit decision to the person indicated in this section, if the Authorized Individual or Responsible Official is different from the Source Contact specified in Part C.

24. Name of Authorized Individual or Responsible Official: Pamela Gregorski		
25. Title: President		
26. Mailing Address: 251 Little Falls Drive		
City: Wilmington	**State**: DE	**ZIP Code**: 19807–
27. Telephone Number: (312) 288 – 3860	**28. Facsimile Number** *(optional)*: ( ) –	

29. Request to Change the Authorized Individual or Responsible Official: Is the source officially requesting to change the person designated as the Authorized Individual or Responsible Official in the official documents issued by IDEM, OAQ? *The permit may list the title of the Authorized Individual or Responsible Official in lieu of a specific name.*

☒ No ☐ Yes – ***Change Responsible Official to:***

PART E: Owner Information

30. Company Name of Owner: Razor5 LLC		
31. Name of Owner Contact Person: Pamela Gregorski		
32. Mailing Address: 251 Little Falls Drive		
City: Wilmington	**State**: DE	**ZIP Code**: 19807–
33. Telephone Number: (312) 288 – 3860	**34. Facsimile Number** *(optional)*: ( ) –	

34. Operator: Does the "Owner" company also operate the source to which this application applies?

☐ No – *Proceed to Part F below.* ☒ Yes – *Enter "SAME AS OWNER" on line 35 and proceed to Part G below.*

PART F: Operator Information

35. Company Name of Operator: Same as Owner		
36. Name of Operator Contact Person:		
37. Mailing Address:		
City:	**State**:	**ZIP Code**: –
38. Telephone Number: ( ) –	**39. Facsimile Number** *(optional)*: ( ) –	

Continued on Next Page

PART G: Agent Information

40. **Company Name of Agent**: Ramboll Americas Engineering Solutions, Inc.

41. **Type of Agent**: ☒ Environmental Consultant ☐ Attorney ☐ Other (specify):

42. **Name of Agent Contact Person**: Tingting Wang

43. **Mailing Address**: 333 W. Wacker Dr., Suite 1050

City: Chicago	**State**: IL	**ZIP Code**: 60606 –

44. **Electronic Mail Address** *(optional)*: twang@ramboll.com

45. **Telephone Number**: (312) 292 – 6872	46. **Facsimile Number** *(optional)*: ( ) –

47. **Request for Follow-up**: Does the "Agent" wish to receive a copy of the preliminary findings during the public notice period (if applicable) and a copy of the final determination? ☐ No ☒ Yes

PART H: Local Library Information

48. **Date application packet was filed with the local library**:

49. **Name of Library**: New Carlisle-Olive Township Public Library

50. **Name of Librarian** *(optional)*:

51. **Mailing Address**: 408 S. Bray St.

City: New Carlisle	**State**: IN	**ZIP Code**: 46552 –

52. **Internet Address** *(optional)*: https://ncpl.lib.in.us/

53. **Electronic Mail Address** *(optional)*:

54. **Telephone Number**: (574) 654 – 3046	55. **Facsimile Number** *(optional)*: ( ) –

PART I: Company Name History *(if applicable)*

Complete this section only if the source has previously operated under a legal name that is different from the name listed above in Section A.

56. Legal Name of Company	57. Dates of Use
	to
	to
	to
	to
	to
	to
	to
	to
	to
	to

58. **Company Name Change Request**: Is the source officially requesting to change the legal name that will be printed on all official documents issued by IDEM, OAQ?

☒ No ☐ Yes – ***Change Company Name to:***

Continued on Next Page

PART J: Portable Source Location History *(if applicable)*

Complete this section only if the source is portable and the location has changed since the previous permit was issued. The current location of the source should be listed in Section A.

59. Plant ID	60. Location of the Portable Source	61. Dates at this Location
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to
–		to

PART K: Request to Change Location of Portable Source *(if applicable)*

Complete this section to request a change of location for a portable source.

62. Current Location:

Address:

City:	**State:**	**ZIP Code:** –

County Name:

63. New Location:

Address:

City:	**State:**	**ZIP Code:** –

County Name:

Continued on Next Page

PART L: Source Process Description

Complete this section to summarize the main processes at the source.

64. Process Description	65. Products	66. SIC Code	67. NAICS Code
A data center facility with emergency generators for back-up electrical power and associated diesel fuel storage tanks	The main emission units at the source will be the emergency generators, which generate electricity to supply back-up power for the data center facility.	7374	518210

PART M: Existing Approvals *(if applicable)*

Complete this section to summarize the approvals issued to the source since issuance of the main operating permit.

68. Permit ID	69. Emissions Unit IDs	70. Expiration Date
NA		

PART N: Unpermitted Emissions Units *(if applicable)*

Complete this section only if the source has emission units that are not listed in any permit issued by IDEM, OAQ.

71. Emissions Unit ID	72. Type of Emissions Unit	73. Actual Dates		
		Began Construction	Completed Construction	Began Operation
NA				

PART O: New or Modified Emissions Units *(if applicable)*

Complete this section only if the source is proposing to add new emission units or modify existing emission units.

74. Emissions Unit ID	75. NEW	76. MOD	77. Type of Emissions Unit	78. Estimated Dates		
				Begin Construction	Complete Construction	Begin Operation
CEG No. 1 - 234	Y		Diesel powered emergency generators (critical emergency gens)			
HG No. 1 - 9	Y		Diesel powered emergency generators (house gens)			

WTP Gens No. 1 & 2	Y		Diesel powered emergency generators (gen for water treatment system)			
CAB Gen No. 1, LCB Gen No.1, & ACB Gen No. 1	Y		Diesel powered emergency generators (ancillary gens for Admin Building, Logistics Building, and Security Building)			
Diesel fuel storage tanks	Y		Diesel fuel storage, including 248 belly tanks in various sizes for the generators and nine (9) aboveaground central fuel storage tanks.			

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OAQ GENERAL SOURCE DATA APPLICATION
GSD-02: Plant Layout Diagram

State Form 51605 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of GSD-02 is to provide a diagram of the entire plant site. This form and a Plant Layout diagram are required for all air permit applications. If you do not provide the necessary information, applicable to your source, the application process may be stopped.
- IDEM, OAQ has provided detailed instructions for this form and an example of a basic plant layout diagram on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Part A: Basic Plant Layout

Part A provides IDEM, OAQ with the appropriate information about all buildings and access-limiting features in and around the plant site. **Please use this table as a checklist.** You must provide scaled drawings, with the actual scale shown. All dimensions and units must be clearly indicated with a brief explanation of what is being shown. Include the following (*All measurements should be given in feet.*):

1.	☒ Building Location and Dimensions				
2.	☒ Property Lines and Access-Limiting Features				
3.	☒ Surrounding Building Location and Dimensions				
4.	☒ Distances to Property Lines and Access-Limiting Features				
5.	☒ UTM Location Coordinates	6.	☒ Compass (pointing North)	7.	☒ Scale

Part B: Stack Information

Part B provides IDEM, OAQ with the appropriate information about all stacks, roof monitors, control devices, and process vents at the plant site. **Please use this table as a checklist.** You must show the location of all applicable emission points and include all relevant stack and emissions unit identification numbers for each. In addition, you will need to identify each of these emission points under "Stack Identification" on form GSD-04, Stack/Vent Information. Include the following (*All measurements should be in feet.*):

8.	☒ Exhaust Stacks			
9.	☒ Process Vents			
10.	☐ Roof Monitors	☒ *No Roof Monitors*		
11.	☒ Control Devices	☐ *No Control Devices*		
12.	☐ Interior Vents	☒ *No Interior Vents*	☐ Doors and Windows *(for processes vented inside a building)*	

Part C: Roadway Information

Part C provides IDEM, OAQ with the appropriate information about the roadways in and around the plant site. **Please use this table as a checklist.** Include the following (*All measurements should be in feet.*):

13.	☒ Adjacent Roadways	☒ Interior Roadways
14.	☒ Roadway Surface Description (gravel, dirt, paved, etc.)	
15.	☒ Number of Lanes	

Continued on Next Page

Part D: Source Building Information

This table provides detailed information about each building at the plant site that is part of the source. If additional space is needed, you may make a copy of this table. (*All measurements should be given in feet.*)

16. Building ID	17. Building Description	18. Building Dimensions			19. Distance & direction to the nearest property line or access limiting feature (feet & compass coordinate)	20. Distance & direction to the nearest residence (feet & compass coordinate)	
		Length (feet)	Width (feet)	Height (feet)			
A	Data Center Bldg A	1005.00	222.00	35.00	138.00 North	3800.00	East
B	Data Center Bldg B	1005.00	222.00	35.00	138.00 North	3400.00	East
C	Data Center Bldg C	1005.00	222.00	35.00	117.00 North	5100.00	South
D	Data Center Bldg D	1005.00	222.00	35.00	117.00 North	4800.00	South
E	Data Center Bldg E	1005.00	222.00	35.00	117.00 North	4500.00	South
F	Data Center Bldg F	1005.00	222.00	35.00	117.00 North	4200.00	South
G	Data Center Bldg G	1005.00	222.00	35.00	138.00 North	3000.00	East
H	Data Center Bldg H	1005.00	222.00	35.00	138.00 North	2255.00	East
I	Data Center Bldg I	1005.00	222.00	35.00	179.00 East	2262.00	East
WTR TRMT	Water Treatment Building	483.00	189.00	25.00	570.00 NW	4000.00	South
CAB	Admin Building	200.00	100.00	25.00	350.00 West	4100.00	East
CLB	Logistics Building	200.00	100.00	25.00	350.00 West	4000.00	East
ACB	Security Building	40.00	35.00	12	120.00 West	4500.00	East

Continued on Next Page

Part E: Surrounding Building / Residence Information

This table provides detailed information about each building or residence surrounding the plant site. If additional space is needed, you may make a copy of this table. (*All measurements should be given in feet.*)

21. Surrounding Building / Residence Description	22. Surrounding Building / Residence Property Dimensions			23. Distance & direction to the nearest property line or access limiting feature (feet & compass coordinate)	24. Building ID of nearest building on the plant site	25. Distance & direction to the nearest building on the plant site (feet & compass coordinate)
	Length (feet)	Width (feet)	Height (feet)			
Residence Bldg 1	75.00	50.00	25.00	1800.00 South of the plant site	Data Center Bldg I	2700.00 South
Residence Bldg 2	85.00	67.00	25.00	1900.00 East of the plant site	Data Center Bldg I	2400.00 East
Residence Bldg 3	60.00	45.00	25.00	1900.00 East of the plant site	Data Center Bldg H	2400.00 East
R+L Carriers Bldg 1	720.00	120.00	35.00	900.00 South of the plant site	Data Center Bldg I	2000.00 South
R+L Carriers Bldg 2	175.00	115.00	35.00	875.00 South of the plant site	Data Center Bldg I	2250.00 South
Master Roller Maf. Bldg	280.00	270.00	35.00	573.00 East	ACB Bldg	700.00 East
Cliffs Tek New Carlisle Water Treatment Building	438.00	70.00	35.00	110.00 North	CAB Bldg	600.00 North
I/N Tek Building	215.00	164.00	35.00	880.00 North	Data Center Bldg G	1020.00 North
Tek & Kote Parking Bldg	216.00	160.00	35.00	794.00 NE	Data Center Bldg H	1230.00 NE
Edcoat	920.00	325.00	35.00	977.00 East	Data Center Bldg H	1160.00 East

Continued on Next Page

Part F: Plant Layout Diagram

This space provides a place for a hand drawn plant layout diagram. It is **optional** to use this space to create your plant layout, but you must include the diagram with your application. If you choose to submit the plant layout in a different format, state "plant layout attached" in the space provided, and submit the information with your completed application. IDEM, OAQ has provided an example of a basic plant layout diagram on the Air Permit Applications Forms website.

See Figure 2

OAQ GENERAL SOURCE DATA APPLICATION
GSD-03: Process Flow Diagram

State Form 51599 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of GSD-03 is to provide a checklist for identifying the information to be included on each Process Flow diagram.
- Complete this form and submit a process flow diagram for each process included in your air permit application.
- IDEM, OAQ has provided detailed instructions for this form and an example of a basic process flow diagram on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Part A: Process Flow Diagram

Part A provides basic information to understanding the nature of the process. Please use this table as a checklist to indicate that you have included the following items on your process flow diagram (*All throughputs should be given in pounds per hour.*):

1.	☒ **Process Description:**	Diesel-powered emergency generators			
2.	☒ Process Equipment	3.	☒ Raw Material Input	4.	☒ Process Throughput
5.	☐ Additions	☐ Deletions	☐ Modifications		

Use the space below to briefly explain the impacts of the additional equipment, the reason for removing any equipment, and/or the reason for the proposed modification. (*If additional space is needed, please attach a separate sheet with the information and indicate in the space below that additional information is attached.*)

Part B: Process Operation Schedule

Part B indicates the actual (or estimated actual) hours of operation for the process.

6. ☒ Process Operation Schedule _____ Hours per Day _____ Days per Week _____ Weeks Per Year

7. **Scheduled Downtime:** Use the space below to include as much information as is known about scheduled periods of downtime for this process. (*If additional space is needed, please attach a separate sheet with the information and indicate in the space below that additional information is attached.*)

All the generators will be operated for emergency situations only when the local electricity supply is interuptted.

Non-emergency runs will follow the NSPS Subpart IIII runtime restrictions for emergency engines.

Part C: Emissions Point Information

Part C provides information about each potential outlet of air pollutant emissions to the atmosphere. Please use this table as a checklist to indicate that you have included the following items on your process flow diagram (*All throughputs should be given in pounds per hour.*):

8. ☒ Stack / Vent Information
9. ☒ Pollutants Emitted
10. ☒ Air Pollution Control

Continued on Next Page

Part D: Process Flow Diagram

This space provides a place for a hand drawn process flow diagram. It is **optional** to use this space to create your process flow diagram, but you must include the diagram with your application. If you choose to submit the process flow diagram in a different format, state "process flow diagram attached" in the space provided, and submit the information with your completed application. IDEM, OAQ has provided an example of a basic process flow diagram on the Air Permit Applications Forms website.

See Figure 3

OAQ GENERAL SOURCE DATA APPLICATION
GSD-04: Stack / Vent Information

State Form 51606 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to provide basic information about each stack or vent that has the potential to emit air pollutants. If you do not provide enough information to adequately describe each process vent and/or stack, the application process may be stopped. This form is required for all air permit applications.
- Detailed instructions for this form are available online on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Stack / Vent Information

This table provides detailed information about each stack or vent through which air pollutants could be released into the atmosphere. If an air stream is vented inside a building, the vent does not need to be listed on this form. If additional space is needed, you may make a copy of this form.

1. Stack / Vent ID	2. Type (V H W O)	3. Shape (C R O)	4. Outlet Dimensions (feet)	5. Height (feet)	6. Maximum Outlet Flow Rate (acfm)	7. Outlet Gas Temperature (Degrees F)	8. Related Stacks / Vents (B P O)
S -1 thru S-234 for CEG No. 1-234	V	C	1.83	36.00	22052.00	896.0	P
S-WTP-1 & 2 for WTP Gens 1 & 2	V	C	1.50	36.00	11406.40	757.0	P
S-HG-1 thru 9 for HG 1 - 9	V	C	0.83	9.00	6028.00	847.0	P
S-CAB-1 for CAB Gen No. 1	V	C	0.50	8.00	3629.10	909.0	P
S-LCB-1 for LCB Gen No. 1	V	C	0.50	8.00	3629.10	909.0	P
S-ACB-1 for ACB Gen No. 1	V	C	0.42	8.00	2245.60	852.0	P
V-TK-1 thru 9 for nine 12,000-gal Central Diesel Fuel Tanks	V	C	0.25	12.00	Negligible	Ambient	P

OAQ GENERAL SOURCE DATA APPLICATION
GSD-05: Emissions Unit Information
State Form 51610 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to provide basic information about each emissions unit that has the potential to emit air pollutants. This form is required for all air permit applications.
- Detailed instructions for this form are available online on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Emissions Unit Information

This table provides detailed information about each emissions unit that has the potential to emit air pollutants to the atmosphere. Accurate information is needed to determine the total potential to emit. If you do not provide enough information to adequately describe each emissions unit, the application process may be stopped. If additional space is needed, you may make a copy of this form.

1. Unit ID	2. Model Number	3. Serial Number	4. Description	5. Manufacturer	6. Installation Date	7. Maximum Capacity	8. Stack / Vent ID
CEG No. 1 - 234	TBD		234 critical emergency generators, powered by Tier 2 certified diesel engines, with control to meet Tier 4 equivalent emission standards.	TBD	Est. September, 2024	2750.00 kW, each	S-1 thru S-234
WTP Gens No. 1 & 2	3512C		Two (2) ancillary emergency generators for water treatment system, Tier 2 certified engines, no control.	Caterpillar	Est. September, 2024	1500.00 kW, each	S-WTP-1 & S-WTP-2
HG No. 1 - 9	TBD		Nine (9) house gens (one for each data center building), powered by Tier 2 certified diesel engines, no control.	TBD	Est. September, 2024	750.00 kW, each	S-HG-1 thru S-HG-9
CAB Gen No. 1	C15		One (1) ancillary emergency generator for CAB (Admin Building)	Caterpillar	Est. September, 2024	400.00 kW	S-CAB-1
CLB Gen No. 1	C15		One (1) ancillary emergency generator for CLB (Logistics Building)	Caterpillar	Est. September, 2024	400.00 kW	S-CLB-1
ACB Gen No. 1	C9		One (1) ancillary emergency generator for ACB (Security Building)	Caterpillar	Est. September, 2024	400.00 kW	S-ACB-1
TK No. 1 - 9	TBD		Nine (9) 12,000-gallon aboveground storage tanks for storage of diesel fuel	TBD	Est. September, 2024	12000.00 gallons each	V-TK-1 thru V-TK-9

OAQ GENERAL SOURCE DATA APPLICATION
GSD-06: Particulate Emissions Summary

State Form 51612 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to provide basic information about each source of particulate emissions. This form is required for all air permit applications.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Part A: Particulate Matter Emissions

Part A provides a summary of the type and amount of particulate emissions at the source. The state rules on particulate emissions are found in Title 326 of the Indiana Administrative Code, Article 6, Particulate Rules. If you do not provide enough information to adequately describe each source of particulate emissions, the application process may be stopped. If additional space is needed, you may make a copy of this table.

Emissions Point		Potential To Emit (tons per year)						
1. ID	2. Description	3. PM	4. PM-10	5. PM-2.5	6. TSP	7. Fugitive Dust	8. Fugitive PM	9. HAP PM
	See Appendix B							

Continued on Next Page

Part B: Control of Particulate Emissions

Part C gathers information about how each source of particulate emissions is controlled. If you do not provide enough information to adequately describe how each source of particulate emissions is controlled, the application process may be stopped. If additional space is needed, you may make a copy of this table.

10. Emissions Point ID	11. Control Measure	12. Control Measure Description	13. Control Plan
CEG No. 1 - 234	☐ No Control ☐ Dust Suppression ☒ Other: Control System	Each of the critical emergency generators will be equipped with a control system, which is a combined after-treatment system that integrates selective catalytic reduction (SCR), diesel oxidation catalyst (DOC), and DPF (diesel particulate filter) to meet EPA Tier 4 equivalent emission standards.	☐ Yes ☒ No Date Submitted: _____
WTP Gens No. 1 & 2	☒ No Control ☐ Dust Suppression ☐ Other: _____		☐ Yes ☐ No Date Submitted: _____
HG No. 1 - 9	☒ No Control ☐ Dust Suppression ☐ Other: _____		☐ Yes ☐ No Date Submitted: _____
CAB Gen No. 1	☒ No Control ☐ Dust Suppression ☐ Other: _____		☐ Yes ☐ No Date Submitted: _____
CLB Gen No. 1	☒ No Control ☐ Dust Suppression ☐ Other: _____		☐ Yes ☐ No Date Submitted: _____
ACB Gen No. 1	☒ No Control ☐ Dust Suppression ☐ Other: _____		☐ Yes ☐ No Date Submitted: _____
	☐ No Control ☐ Dust Suppression ☐ Other: _____		☐ Yes ☐ No Date Submitted: _____
	☐ No Control ☐ Dust Suppression ☐ Other: _____		☐ Yes ☐ No Date Submitted: _____

Air Permitting Rules 326 IAC 6-4 and 326 IAC 6-5 require fugitive dust to be controlled as needed to prevent dust from visibly crossing property lines. Parts C and D summarize sources of fugitive particulate emissions from process operations and unpaved roads.

PART C: Fugitive Dust *(if applicable)*

Part C identifies measures implemented for controlling fugitive particulate emissions from process operations and unpaved roads.

14. Dust Control Plans: *Check all that apply.*	**15. Control Measures:**	
☐ Conveying:	☐ Wet	☐ Dry
☐ Stock Piles:	☐ Open	☐ Covered
☐ Unpaved Roads: *Watered?*	☐ Yes	☐ No
☐ Other *(specify)*:		
☐ Other *(specify)*:		
☐ Other *(specify)*:		

PART D: Vehicular Traffic on Unpaved Roads *(if applicable)*

Part D gathers information on vehicular traffic patterns when the site contains unpaved roads. All data should be provided assuming peak hours of vehicular traffic. Two one-way trips equal one round trip. For external traffic (vehicles entering and leaving the property lines), the distance from the plant to the property line is the one-way trip distance.

16. Average Silt Content of Unpaved Roads:

17. Vehicle Description	**18. Max. No. round trips at peak hours** (trips/hr)	**19. Distance of one-way trip** (miles/trip)	**20. Max. vehicle speed** (mph)	**21. Max. gross vehicle weight** *(fully loaded)* (tons)	**22. Tare weight** (tons)	**23. No. of wheels on vehicle** (wheels)

OAQ GENERAL SOURCE DATA APPLICATION
GSD-07: Criteria Pollutant Emissions Summary

State Form 51602 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to provide the actual and potential emissions of each criteria pollutant emitted from the source. This form is required for all air permit applications.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Part A: Unit Emissions Summary

Part A provides the actual and potential emissions of each criteria pollutant emitted from each emissions unit. If you do not provide enough information to adequately describe the emissions from each emissions unit, the application process may be stopped.

1. Unit ID	2. Stack / Vent ID	3. Criteria Pollutant	4. Actual Emissions		5. Potential To Emit	
			Standard Units	Tons Per Year	Standard Units	Tons Per Year
	See Appendix B					

Continued on Next Page

Part B: Pollutant Emissions Summary

Part B provides the total actual and potential emissions of each criteria pollutant emitted from the source (including all emissions units and fugitive emissions at the source). If you do not provide enough information to adequately describe the total source emissions, the application process may be stopped.

6. Criteria Pollutant	7. Actual Emissions		8. Potential To Emit	
	Standard Units	Tons Per Year	Standard Units	Tons Per Year
Carbon Monoxide (CO)	See Appendix B			
Lead (Pb)				
Nitrogen Oxides (NO_X)				
Particulate Matter (PM)				
Particulate Matter less than 10μm (PM_{10})				
Particulate Matter less than 2.5μm ($PM_{2.5}$)				
Sulfur Dioxide (SO_2)				
Volatile Organic Compounds (VOC)				
Other *(specify)*:				

Part C: Fugitive VOC Emissions *(if applicable)*

Part C summarizes the sources of fugitive VOC emissions at the source and estimates VOC emissions from these emission points. Complete this table if you are required to provide fugitive emissions data pursuant to 326 IAC 2-2 or 326 IAC 2-3.

9. Fugitive Emissions Source	10. Emission Factor (lb/hr)	11. Number Leaking	12. Uncontrolled Potential To Emit	
			Pounds Per Hour	Tons Per Year
Compressor Seals	NA			
Flanges				
Open-Ended Lines				
Pressure Relief Seals				
Pump Seals				
Sampling Connections				
Valves				
Other *(specify)*:				

OAQ GENERAL SOURCE DATA APPLICATION
GSD-08: Hazardous Air Pollutant Emissions Summary

State Form 51604 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to provide the actual and potential emissions of each hazardous air pollutant emitted from the source. This form is required for all air permit applications.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Part A: Unit Emissions Summary

Part A provides the actual and potential emissions of each hazardous air pollutant emitted from each emissions unit. If you do not provide enough information to adequately describe the emissions from each emissions unit, the application process may be stopped.

1. Unit ID	2. Stack / Vent ID	3. Hazardous Air Pollutant	4. CAS Number	5. Actual Emissions		6. Potential To Emit	
				Standard Units	Tons Per Year	Standard Units	Tons Per Year
See Appendix B							

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Part B: Pollutant Emissions Summary

Part B provides the total actual and potential emissions of each hazardous air pollutant emitted from the source (including all emissions units and fugitive emissions at the source). If you do not provide enough information to adequately describe the total source emissions, the application process may be stopped.

7. Hazardous Air Pollutant	8. CAS Number	9. Actual Emissions		10. Potential To Emit	
		Standard Units	Tons Per Year	Standard Units	Tons Per Year
See Appendix B					

Part C: Fugitive HAP Emissions *(if applicable)*

Part C summarizes the sources of fugitive HAP emissions at the source and estimates HAP emissions from these emission points. Complete this table if you are required to provide fugitive emissions data pursuant to 326 IAC 2-2 or 326 IAC 2-3.

11. Fugitive Emissions Source	12. Hazardous Air Pollutant	13. Emission Factor (lb/hr)	14. Number Leaking	15. Uncontrolled Potential To Emit	
				Pounds Per Hour	Tons Per Year
Compressor Seals	NA				
Flanges					
Open-Ended Lines					
Pressure Relief Seals					
Pump Seals					
Sampling Connections					
Valves					
Other *(specify)*:					

OAQ GENERAL SOURCE DATA APPLICATION
GSD-10: Insignificant Activities

State Form 51596 (R4 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to identify all trivial and insignificant activities in operation at the source. This form is required for all air permit applications.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Part A: Trivial Activities (Optional)

Part A identifies all trivial activities in operation at the source as defined in 326 IAC 2-7-1(40). **Please use this table as a checklist.** Check each item and sub-item that applies. If applicable, provide the Emissions Unit Identification number that corresponds to the Plant Layout and Process Flow diagrams.

Unit ID	Description of Trivial Activity	Citation (326 IAC)
	1. Any activity or emission unit:	2-7-1(40)(A)
All the diesel fuel storage tanks, including: TK No. 1 - 9 and all the belly tanks for the emergency generators.	☒ not regulated by a NESHAP, with potential uncontrolled emissions are equal to or less than one (1) pound per day on an emission unit basis for any single HAP or combination of HAPs; and	
	☒ for which the potential uncontrolled emissions meet the exemption levels specified in the following:	
	☐ For lead and lead compounds measured as elemental lead (Pb), potential uncontrolled emissions that are equal to or less than one (1) pound per day	
	☐ For carbon monoxide (CO), potential uncontrolled emissions that are equal to or less than one (1) pound per day	
	☐ For sulfur dioxide (SO_2), potential uncontrolled emissions that are equal to or less than one (1) pound per day	
	☒ For volatile organic compounds (VOC), potential uncontrolled emissions that are equal to or less than one (1) pound per day	
	☐ For nitrogen oxides (NO_X), potential uncontrolled emissions that are equal to or less than one (1) pound per day	
	☐ For particulate matter with an aerodynamic diameter less than or equal to ten (10) micrometers (PM_{10}), potential uncontrolled emissions that are equal to or less than one (1) pound per day	
	2. Water related activities including:	2-7-1(40)(B)
	☐ Production of hot water for on-site personal use not related to any industrial or production process	
	☐ Water treatment activities used to provide potable and process water for the plant, excluding any activities associated with wastewater treatment	
	☐ Steam traps, vents, leaks and safety relief valves	
	☐ Cooling ponds	
	☐ Laundry operations using only water solutions of bleach or detergents	
	☐ Demineralized water tanks and demineralizer vents	
	☐ Boiler water treatment operations, not including cooling towers	
	☐ Oxygen scavenging (de-aeration) of water	
	☐ Steam cleaning operations and steam sterilizers	
	☐ Pressure washing of equipment	
	☐ Water jet cutting operations	

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Part A: Trivial Activities (continued)

Part A identifies all trivial activities in operation at the source as defined in 326 IAC 2-7-1(40). **Please use this table as a checklist.** Check each item and sub-item that applies. If applicable, provide the Emissions Unit Identification number that corresponds to the Plant Layout and Process Flow diagrams.

Unit ID	Description of Trivial Activity	Citation (326 IAC)
	3. Combustion activities including the following:	2-7-1(40)(C)
	☐ Portable electrical generators that can be moved by hand from one location to another. "Moved by hand" means that it can be moved without the assistance of any motorized or non-motorized vehicle, conveyance, or device	
	☐ Combustion emissions from propulsion of mobile sources	
	☐ Fuel use related to food preparation for on-site consumption	
	☐ Tobacco smoking rooms and areas	
	☐ Blacksmith forges	
	☐ Indoor and outdoor kerosene heaters	
	4. Activities related to ventilation, venting equipment and refrigeration, including the following:	2-7-1(40)(D)
	☐ Ventilation exhaust, central chiller water systems, refrigeration and air conditioning equipment, not related to any industrial or production process, including natural draft hoods or ventilating systems that do not remove air pollutants	
	☐ Stack and vents from plumbing traps used to prevent the discharge of sewer gases, handling domestic sewage only, excluding those at wastewater treatment plants or those handling any industrial waste	
	☐ Vents from continuous emissions monitors and other analyzers	
	☐ Natural gas pressure regulator vents, excluding venting at oil and gas production facilities	
	☐ Air vents from air compressors	
	☐ Vents for air cooling of electric motors provided the air does not commingle with regulated air pollutants	
	☐ Vents from equipment used to air blow water from cooled plastics strands or sheets	
	5. Activities related to routine fabrication, maintenance and repair of buildings, structures, equipment or vehicles at the source where air emissions from those activities would not be associated with any commercial production process including the following:	2-7-1(40)(E)
	☐ Activities associated with the repair and maintenance of paved and unpaved roads, including paving or sealing, or both, of parking lots and roadways	
	☐ Painting, including interior and exterior painting of buildings, and solvent use, excluding degreasing operations utilizing halogenated organic solvents	
	☐ Brazing, soldering, or welding operations and associated equipment	
	☐ Portable blast-cleaning equipment with enclosures	
	☐ Blast-cleaning equipment using water as the suspension agent and associated equipment	
	☐ Batteries and battery charging stations, except at battery manufacturing plants	
	☐ Lubrication, including hand-held spray can lubrication, dipping metal parts into lubricating oil, and manual or automated addition of cutting oil in machining operations	
	☐ Non-asbestos insulation installation or removal	
	☐ Tarring, retarring and repair of building roofs	
	☐ Bead blasting of heater tubes	
	☐ Instrument air dryer and filter maintenance	
	☐ Manual tank gauging	
	☐ Open tumblers associated with deburring operations in maintenance shops	

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Part A: Trivial Activities (continued)

Part A is intended to identify all trivial activities in operation at the source as defined in 326 IAC 2-7-1(40). **Please use this table as a checklist.** Check each item and sub-item that applies. If applicable, provide the Emissions Unit Identification number that corresponds to the Plant Layout and Process Flow diagrams.

Unit ID	Description of Trivial Activity	Citation (326 IAC)
	6. Activities performed using hand-held equipment including the following:	2-7-1(40)(F)
	☐ Application of hot melt adhesives with no VOC in the adhesive formulation ☐ Cutting, excluding cutting torches ☐ Buffing ☐ Grinding ☐ Sanding ☐ Machining wood, metal, or plastic ☐ Carving ☐ Polishing ☐ Sawing ☐ Turning wood, metal, or plastic ☐ Drilling ☐ Routing ☐ Surface grinding	
	7. Housekeeping and janitorial activities and supplies including the following:	2-7-1(40)(G)
	☐ Vacuum cleaning systems used exclusively for housekeeping or custodial activities, or both	
	☐ Steam cleaning activities	
	☐ Rest rooms and associated cleanup operations and supplies	
	☐ Alkaline or phosphate cleaners and associated equipment	
	☐ Mobile floor sweepers and floor scrubbers	
	☐ Pest control fumigation	
	8. Office related activities including the following:	2-7-1(40)(H)
	☐ Office supplies and equipment	
	☐ Photocopying equipment and associated supplies	
	☐ Paper shredding	
	☐ Blueprint machines, photographic equipment, and associated supplies	
	9. Lawn care and landscape maintenance activities and equipment, including the storage, spraying or application of insecticides, pesticides and herbicides	2-7-1(40)(I)
	10. Storage equipment and activities including:	2-7-1(40)(J)
	☐ Pressurized storage tanks and associated piping for the following: ☐ Acetylene ☐ Inorganic compounds ☐ Natural gas ☐ Anhydrous ammonia ☐ Liquid petroleum gas (LPG) ☐ Nitrogen dioxide ☐ Carbon Monoxide ☐ Liquid natural gas (LNG) (propane) ☐ Sulfur dioxide ☐ Chlorine	
	☐ Storage tanks, vessels, and containers holding or storing liquid substances that do not contain any VOC or HAP	
	☐ Storage tanks, reservoirs, and pumping and handling equipment of any size containing soap, wax, vegetable oil, grease, animal fat, and nonvolatile aqueous salt solutions, provided appropriate lids and covers are utilized	
	☐ Storage of drums containing maintenance raw materials	
	☐ Storage of the following:	
	☐ Castings	
	☐ Lance rods	
	☐ Any non-HAP containing material in solid form stored in a sealed or covered container	
	☐ Portable containers used for the collection, storage, or disposal of materials provided the container capacity is equal to or less than forty-six hundredths (0.46) cubic meters and the container is closed except when the material is added or removed	

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Part A: Trivial Activities (continued)

Part A identifies to identify all trivial activities in operation at the source as defined in 326 IAC 2-7-1(40). **Please use this table as a checklist.** Check each item and sub-item that applies. If applicable, provide the Emissions Unit Identification number that corresponds to the Plant Layout and Process Flow diagrams.

Unit ID	Description of Trivial Activity	Citation (326 IAC)
	11. Emergency and standby equipment including:	2-7-1(40)(K)
	☐ Emergency (backup) electrical generators at residential locations, such as dormitories, prisons and hospitals.	
	☐ Safety and emergency equipment, except engine driven fire pumps, including fire suppression systems and emergency road flares.	
	☐ Process safety relief devices installed solely for the purpose of minimizing injury to persons or damage to equipment which could result from abnormal process operating conditions, including the following:	
	☐ Explosion relief vents, diaphragms or panels ☐ Rupture discs ☐ Safety relief valves	
	☐ Activities and equipment associated with on-site medical care not otherwise specifically regulated	
	☐ Vacuum producing devices for the purpose of removing potential accidental releases	
	12. Sampling and testing equipment and activities including the following:	2-7-1(40)(L)
	☐ Equipment used for quality control/assurance or inspection purposes, including sampling equipment used to withdraw materials for analysis	
	☐ Hydraulic and hydrostatic testing equipment	
	☐ Ground water monitoring wells and associated sample collection equipment	
	☐ Environmental chambers not using hazardous air pollutant (HAP) gases	
	☐ Shock chambers	
	☐ Humidity chambers	
	☐ Solar simulators	
	☐ Sampling activities including	
	☐ Sampling of waste ☐ Glove box sampling, charging, and packaging	
	☐ Instrument air dryers and distribution	
	13. Use of consumer products and equipment where the product or equipment is used at a source in the same manner as normal consumer use and is not associated with any production process	2-7-1(40)(M)
	14. Equipment and activities related to the handling, treating, and processing of animals including:	2-7-1(40)(N)
	☐ Equipment used exclusively to slaughter animals, but not including the following: Rendering cookers, Boilers, Heating plants, Incinerators, and/or Electrical power generating equipment	
	☐ Veterinary operating rooms	
	15. Activities generating limited amounts of fugitive dust including:	2-7-1(40)(O)
	☐ Fugitive emissions related to movement of passenger vehicles, provided the emissions are not counted for applicability purposes under 326 IAC 2-7-1(22)(B), and any required fugitive dust control plan or its equivalent is submitted	
	☐ Soil boring	
	☐ Road salting and sanding	

Continued on Next Page

Part A: Trivial Activities (continued)

Part A identifies all trivial activities in operation at the source as defined in 326 IAC 2-7-1(40). **Please use this table as a checklist.** Check each item and sub-item that applies. If applicable, provide the Emissions Unit Identification number that corresponds to the Plant Layout and Process Flow diagrams.

Unit ID	Description of Trivial Activity	Citation (326 IAC)
	16. Activities associated with production including the following:	2-7-1(40)(P)
	☐ Closed, non-vented, tumblers used for cleaning or deburring metal products without abrasive blasting	
	☐ Electrical resistance welding	
	☐ CO_2 lasers, used only on metals and other materials which do not emit HAPs in the process	
	☐ Laser trimmers which do not produce fugitive emissions and are equipped with dust collection devices such as bag filter, cyclone, or equivalent device	
	☐ Application equipment for hot melt adhesives with no VOC in the adhesive formulation	
	☐ Drop hammers or hydraulic presses for forging or metalworking	
	☐ Air compressors and pneumatically operated equipment, including hand tools	
	☐ Compressor or pump lubrication and seal oil systems	
	☐ Equipment used to mix and package soaps, vegetable oil, grease, animal fat, and nonvolatile aqueous salt solutions, provided appropriate lids and covers are utilized	
	☐ Equipment for washing or drying fabricated glass or metal products, if no VOCs or HAPs are used in the process, and no gas, oil or solid fuel is burned	
	☐ Handling of solid steel, including coils and slabs, excluding scrap burning, scarfing, and charging into steel making furnaces and vessels	
	17. Miscellaneous equipment, but not emissions associated with the process for which the equipment is used, and activities including the following:	2-7-1(40)(Q)
	☐ Equipment used for surface coating, painting, dipping or spraying operation, except those that will emit VOCs or HAPs	
	☐ Condensate drains for natural gas and landfill gas	
	☐ Electric or steam heated drying ovens and autoclaves, including only the heating emissions and not any associated process emissions	
	☐ Salt baths using nonvolatile salts including caustic solutions that do not result in emissions of any regulated air pollutants	
	☐ Ozone generators	
	☐ Portable dust collectors	
	☐ Scrubber systems circulating water based solutions of inorganic salts or bases which are installed to be available for response to emergency situations	
	☐ Soil borrow pits	
	☐ Manual loading and unloading operations	
	☐ Purging of refrigeration devices using a combination of nitrogen and CFC-22 (R-22) as pressure test media	
	☐ Construction and demolition operations	
	☐ Mechanical equipment gear boxes and vents which are isolated from process materials	
	☐ Non-volatile mold release waxes and agents	

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Part B: Insignificant Activities

Part B identifies all insignificant activities in operation at the source as defined in 326 IAC 2-7-1(21)(G). **Please use this table as a checklist.** Indicate which activities are present by checking the appropriate box. If applicable, provide the Emissions Unit Identification number that corresponds to the Plant Layout and Process Flow diagrams.

Unit ID	Description of Insignificant Activity	Citation (326 IAC)
	18. Combustion related activities, including the following:	2-7-1(21)(G)(i)
	☐ Space heaters, process heaters, or boilers using the following fuels	
	☐ Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour	
	☐ Propane or liquified petroleum gas, or butane-fired combustion sources with heat input equal to or less than six million (6,000,000) Btu per hour	
	☐ Fuel oil-fired combustion sources with heat input equal to or less than two million (2,000,000) Btu per hour and firing fuel containing less than five-tenths percent (0.5%) sulfur by weight	
	☐ Wood-fired combustion sources with heat input equal to or less than one million (1,000,000) Btu per hour and not burning wood refuse, treated wood or chemically contaminated wood	
	☐ Equipment powered by diesel fuel fired or natural gas fired internal combustion engines of capacity equal to or less than five hundred thousand (500,000) Btu/hour, except where total capacity of equipment operated by one stationary source exceeds two million (2,000,000) Btu/hour	
	☐ Combustion source flame safety purging on startup	
	19. Fuel dispensing activities, including the following:	2-7-1(21)(G)(ii)
	☐ A gasoline fuel transfer dispensing operation handling less than or equal to one thousand three hundred (1,300) gallons per day and filling storage tanks having a capacity equal to or less than ten thousand five hundred (10,500) gallons. Such storage tanks may be in a fixed location or on mobile equipment	
	☐ A petroleum fuel, other than gasoline, dispensing facility, having a storage tank capacity less than or equal to ten thousand five hundred (10,500) gallons, and dispensing three thousand five hundred (3,500) gallons per day or less	
	20. The following VOC and HAP storage containers:	2-7-1(21)(G)(iii)
	☐ Storage tanks with capacity less than or equal to one thousand (1,000) gallons and annual throughputs less than twelve thousand (12,000) gallons	
	☐ Vessels storing the following:	
	☐ Hydraulic oils ☐ Lubricating oils ☐ Machining oils ☐ Machining fluids	
	21. Refractory storage not requiring air pollution control equipment	2-7-1(21)(G)(iv)
	22. Equipment used exclusively for the following	2-7-1(21)(G)(v)
	☐ Packaging the following: ☐ Greases ☐ Lubricants	
	☐ Filling drums, pails or other packaging containers with the following:	
	☐ Greases ☐ Lubricating oils ☐ Waxes	

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Part B: Insignificant Activities (continued)

Part B identifies all insignificant activities in operation at the source as defined in 326 IAC 2-7-1(21)(G). **Please use this table as a checklist.** Indicate which activities are present by checking the appropriate box. If applicable, provide the Emissions Unit Identification number that corresponds to the Plant Layout and Process Flow diagrams.

Unit ID	Description of Insignificant Activity	Citation (326 IAC)
	23. Production related activities, including the following:	2-7-1(21)(G)(vi)
	☐ Application of the following as temporary protective coatings:	
	☐ Greases ☐ Lubricants ☐ Nonvolatile materials ☐ Oils	
	☐ Machining where an aqueous cutting coolant continuously floods the machining interface	
	☐ Degreasing operations that do not exceed one hundred forty-five (145) gallons per twelve (12) months, except if subject to 326 IAC 20-6	
	☐ Cleaners and solvents characterized as follows where the use of which, for all cleaners and solvents combined, does not exceed one hundred forty-five (145) gallons per twelve (12) months	
	☐ Having a vapor pressure equal to or less than two kilo Pascals (2.0 kPa) (fifteen millimeters of mercury (15 mm Hg) or three-tenths pound per square inch (0.3 psi)) measured at thirty-eight degrees Centigrade (38°C) (one hundred degrees Fahrenheit (100°F))	
	☐ Having a vapor pressure equal to or less than seven-tenths kilo Pascals (0.7 kPa) (five millimeters of mercury (5 mm Hg) or one-tenth pound per square inch (0.1 psi)) measured at twenty degrees Centigrade (20°C) (sixty-eight degrees Fahrenheit (68°F))	
	☐ The following equipment related to manufacturing activities not resulting in the emission of HAPs:	
	☐ Brazing equipment ☐ Cutting torches ☐ Soldering equipment ☐ Welding equipment	
	☐ Closed loop heating and cooling systems	
	☐ Infared cure equipment	
	☐ Exposure chambers (towers or columns) for curing of ultraviolet inks and ultra-violet coatings where heat is the intended discharge	
	☐ Any of the following structural steel and bridge fabrication activities:	
	☐ Cutting two hundred thousand (200,000) linear feet or less of one (1) inch plate or equivalent	
	☐ Using eighty (80) tons or less of welding consumables	
	24. Activities associated with the following recovery systems:	2-7-1(21)(G)(vii)
	☐ Rolling oil recovery systems	
	☐ Groundwater oil recovery wells	
	25. Solvent recycling systems with batch capacity less than or equal to one hundred (100) gallons	2-7-1(21)(G)(viii)

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Part B: Insignificant Activities (continued)

Part B is intended to identify all insignificant activities in operation at the source as defined in 326 IAC 2-7-1(21)(G). **Please use this table as a checklist.** Indicate which activities are present by checking the appropriate box. If applicable, provide the Emissions Unit Identification number that corresponds to the Plant Layout and Process Flow diagrams.

Unit ID	Description of Insignificant Activity	Citation (326 IAC)
	26. Water-based activities, including the following:	2-7-1(21)(G)(ix)
	☐ Activities associated with the treatment of wastewater streams with an oil and grease content less than or equal to one percent (1%) by volume	
	☐ Water runoff ponds for petroleum coke-cutting and coke storage piles	
	☐ Activities associated with the transportation and treatment of sanitary sewage, provided discharge to the treatment plant is under the control of the owner/operator, that is, an on-site sewage treatment facility	
	☐ Any operation using aqueous solutions containing less than one percent (1%) by weight of VOCs excluding HAPs	
	☐ Water based adhesives that are less than or equal to five percent (5%) by volume of VOCs excluding HAPs	
	☐ Noncontact cooling tower systems with either of the following:	
	☐ Natural draft cooling towers not regulated under a NESHAP	
	☐ Forced and induced draft cooling tower systems not regulated under a NESHAP	
	☐ Quenching operations used with heat treating processes	
	27. Repair activities, including the following:	2-7-1(21)(G)(x)
	☐ Replacement or repair of electrostatic precipitators, bags in baghouses and filters in other air filtration equipment	
	☐ Heat exchanger cleaning and repair	
	☐ Process vessel degassing and cleaning to prepare for internal repairs	
	28. Trimmers that do not produce fugitive emissions and that are equipped with a dust collection or trim material recovery device, such as a bag filter or cyclone	2-7-1(21)(G)(xi)
	29. Stockpiled soils from soil remediation activities that are covered and waiting transport for disposal	2-7-1(21)(G)(xii)
	30. Paved and unpaved roads and parking lots with public access	2-7-1(21)(G)(xiii)
	31. Conveyors as follows:	2-7-1(21)(G)(xiv)
	☐ Covered conveyors for solid raw material, including the following:	
	☐ Coal or coke conveying of less than or equal to three hundred sixty (360) tons per day	
	☐ Limestone conveying of less than or equal to seven thousand two hundred (7,200) tons per day for sources other than mineral processing plants constructed after August 31, 1983	
	☐ Uncovered coal or coke conveying of less than or equal to one hundred twenty (120) tons per day	
	☐ Underground conveyors	
	☐ Enclosed systems for conveying plastic raw materials and plastic finished goods	
	32. Coal bunker and coal scale exhausts and associated dust collector vents	2-7-1(21)(G)(xv)
	33. Asbestos abatement projects regulated by 326 IAC 14-10	2-7-1(21)(G)(xvi)

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Part B: Insignificant Activities (continued)

Part B is intended to identify all insignificant activities in operation at the source as defined in 326 IAC 2-7-1(21)(G). **Please use this table as a checklist.** Indicate which activities are present by checking the appropriate box. If applicable, provide the Emissions Unit Identification number that corresponds to the Plant Layout and Process Flow diagrams.

Unit ID	Description of Insignificant Activity	Citation (326 IAC)
	34. Routine maintenance and repair of buildings, structures, or vehicles at the source where air emissions from those activities would not be associated with any production process, including the following:	2-7-1(21)(G)(xvii)
	☐ Purging of gas lines ☐ Purging of vessels	
	35. Flue gas conditioning systems and associated chemicals such as the following:	2-7-1(21)(G)(xviii)
	☐ Sodium sulfate ☐ Ammonia ☐ Sulfur trioxide.	
	36. Equipment used to collect any material that might be released during a malfunction, process upset, or spill cleanup, including the following:	2-7-1(21)(G)(xix)
	☐ Catch tanks ☐ Temporary liquid separators ☐ Tanks ☐ Fluid handling equipment	
	37. Blowdown for the following:	2-7-1(21)(G)(xx)
	☐ Sight glass ☐ Boiler ☐ Compressors ☐ Pumps ☐ Cooling tower	
	38. Furnaces used for melting metals other than beryllium with a brim full capacity of less than or equal to four hundred fifty (450) cubic inches by volume	2-7-1(21)(G)(xxi)
	39. Activities associated with emergencies, including the following:	2-7-1(21)(G)(xxii)
	☐ On-site fire training approved by the IDEM	
	☐ Emergency generators as follows:	
HG No. 1 - 9	☐ Gasoline generators not exceeding one hundred ten (110) horsepower	
CAB Gen No. 1 CLB Gen No. 1	☒ Diesel generators not exceeding one thousand six hundred (1,600) horsepower	
ACB Gen No. 1	☐ Natural gas turbines or reciprocating engines not exceeding sixteen thousand (16,000) horsepower	
	☐ Stationary fire pump engines	
	40. Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to three one-hundredths grains per actual cubic foot (0.03 gr/acf) and a gas flow rate less than or equal to four thousand actual cubic feet per minute (4,000 acf/min), including the following:	2-7-1(21)(G)(xxiii)
	☐ Deburring ☐ Polishing ☐ Pneumatic conveying ☐ Buffing ☐ Abrasive blasting ☐ Woodworking operations	
	41. Purge double block and bleed valves	2-7-1(21)(G)(xxiv)
	42. Filter or coalescer media changeout	2-7-1(21)(G)(xxv)
	43. Vents from ash transport systems not operated at positive pressure	2-7-1(21)(G)(xxvi)
	44. Mold release agents using low volatile products (vapor pressure less than or equal to two kilo Pascals (2kPa) measured at thirty-eight degrees Centigrade (38°C)	2-7-1(21)(G)(xxvii)
	45. Farm operations	2-7-1(21)(G)(xviii)

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Part B: Insignificant Activities (continued)

Part B identifies all insignificant activities in operation at the source as defined in 326 IAC 2-7-1(21)(G). **Please use this table as a checklist.** Indicate which activities are present by checking the appropriate box. If applicable, provide the Emissions Unit Identification number that corresponds to the Plant Layout and Process Flow diagrams.

Unit ID	Description of Insignificant Activity	Citation (326 IAC)
	46. Woodworking equipment controlled by a baghouse provided that the following criteria are met:	2-7-1(21)(G)(xxix)
	☐ The baghouse does not exhaust to the atmosphere greater than one hundred twenty-five thousand (125,000) cubic feet per minute	
	☐ The baghouse does not emit particulate matter with a diameter less than ten (10) microns in excess of three-thousandths grains per dry standard cubic feet (0.003 gr/dscf) of outlet air	
	☐ Opacity from the baghouse does not exceed ten percent (10%)	
	☐ The baghouse is in operation at all times the woodworking equipment is in use	
	☐ Visible emissions from the baghouse are observed daily using procedures in accordance with 40 CFR 60, Appendix A, Method 22 and normal or abnormal emissions are recorded. In the event abnormal emissions are observed for greater than six (6) minutes in duration, the following shall occur:	
	☐ The baghouse shall be inspected	
	☐ Corrective actions, such as replacing or reseating bags, are initiated, when necessary	
	☐ The baghouse is inspected quarterly when vented to the atmosphere	
	☐ The owner or operator keeps the following records:	
	☐ Records documenting the date when the baghouse redirected indoors or to the atmosphere	
	☐ Quarterly inspection reports, when vented to the atmosphere	
	☐ Visible observation reports	
	☐ Records of corrective actions	
	47. Woodworking equipment controlled by a baghouse provided that the following criteria are met:	2-7-1(21)(G)(xxx)
	☐ The baghouse does not exhaust to the atmosphere greater than forty thousand (40,000) cubic feet per minute	
	☐ The baghouse does not emit particulate matter with a diameter less than ten (10) microns in excess of one-hundredth grains per dry standard cubic feet (0.01 gr/dscf) of outlet air	
	☐ Opacity from the baghouse does not exceed ten percent (10%)	
	☐ The baghouse is in operation at all times the woodworking equipment is in use	
	☐ Visible emissions from the baghouse are observed daily using procedures in accordance with 40 CFR 60, Appendix A, Method 22 and normal or abnormal emissions are recorded. In the event abnormal emissions are observed for greater than six (6) minutes in duration, the following shall occur:	
	☐ The baghouse shall be inspected	
	☐ Corrective actions, such as replacing or reseating bags, are initiated, when necessary	
	☐ The baghouse is inspected quarterly when vented to the atmosphere	
	☐ The owner or operator keeps the following records:	
	☐ Records documenting the date when the baghouse redirected indoors or to the atmosphere	
	☐ Quarterly inspection reports, when vented to the atmosphere	
	☐ Visible observation reports	
	☐ Records of corrective actions	

Continued on Next Page

Part C: Insignificant Laboratory, Research, and Educational Activities

Part C identifies insignificant activities in operation at the source as defined in 326 IAC 2-7-1(21), paragraph (D), (E), or (F). **Please use this table as a checklist.** Indicate which activities are present by checking the appropriate box. If applicable, provide the Emissions Unit Identification number that corresponds to the Plant Layout and Process Flow diagrams.

Unit ID	Description of Insignificant Activity
	48. ☐ Emissions from a laboratory as defined in 2-7-1(21)(D).
	49. ☐ Emissions from research and development activities as defined in 2-7-1(21)(E).
	50. ☐ Emissions from educational and teaching activities as defined in 2-7-1(21)(F).

Part D: Other Insignificant Activities

Part D identifies all other insignificant activities in operation at the source (as defined in 326 IAC 2-7-1(21), paragraphs (A) and (B) as those activities with potential uncontrolled emissions equal to or less than the thresholds listed below) that are not identified above in Parts A, B, or C. If applicable, provide the Emissions Unit Identification number that corresponds to the Plant Layout and Process Flow diagrams.

Carbon Monoxide (CO) ≤ 25 lb/day	Particulate Matter with aerodynamic diameter ≤ 10μm (PM_{10}) ≤ 5 lbs/hr or 25 lb/day
Lead (Pb) ≤ 0.6 ton/yr or 3.29 lb/day	Sulfur Dioxide (SO_2) ≤ 5 lbs/hr or 25 lb/day
Nitrogen Oxides (NO_x) ≤ 5 lbs/hr or 25 lb/day	Volatile Organic Compounds (VOC) ≤ 3 lbs/hr or 15 lb/day

51. **Other Insignificant Activities**: Identify any "other activities", and provide a brief description.

Unit ID	Description of Other Activity

Continued on Next Page

Part E: Insignificant Activities with HAP Emissions

Part D identifies all insignificant activities in operation at the source (as defined in 326 IAC 2-7-1(21)(C)) that have the potential to emit hazardous air pollutants (HAP). These activities may or may not be identified above in Parts A, B, or D. **Activities listed in Part C above, need not be listed in this section.** Indicate which type of "Insignificant HAP Activities" are present by checking the appropriate box, and provide a brief description.

52. **Individual HAP Emissions**:
Identify any emissions unit, not regulated by a NESHAP, emitting greater than 1 pound per day but less than 5 pounds per day or 1 ton per year of a single HAP.

Emissions Unit	HAP	Brief Description	Applicable Requirements

53. **Combination HAP Emissions**:
Identify any emissions unit, not regulated by a NESHAP, emitting greater than 1 pound per day but less than 12.5 pounds per day or 2.5 ton per year of a combination of HAPs.

Emissions Unit	HAPs	Brief Description	Applicable Requirements

Continued on Next Page

Part E: Specifically Regulated Insignificant Activities

Part E identifies all specifically regulated insignificant activities. Examples of specifically regulated activities that may have insignificant emissions include boilers, process heaters, any activity regulated under a federal rule such as MACT or BACT, etc. If you are not sure if an emissions unit would be considered a specifically regulated insignificant activity, contact the Air Permit Reviewer of the Day for additional guidance.

54. Unit ID	55. Stack / Vent ID	56. Pollutant	57. Actual Emissions		58. Potential to Emit		59. Citation
			Standard Units	Tons Per Year	Standard Units	Tons Per Year	

OAQ GENERAL SOURCE DATA APPLICATION
GSD-13: Affidavit of Applicability

State Form 51603 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of GSD-13 is to certify that the requirement to notify adjacent landowners and occupants is applicable to the source of air pollutant emissions.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

PART A: Affidavit Of Applicability

Complete this form to certify that the requirement to notify adjacent landowners and occupants pursuant to Indiana Code (IC) 13-15-8 is applicable to the source of air pollutant emissions. This form must be notarized by a public notary.

Pamela A. Gregorski, being first duly sworn upon oath, deposes and says:

1. I live in New Castle County, State of Delaware, and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.
2. I hold the position of President for Razor5 LLC - SBN100 Site (permit applicant's or facility's name).
3. By virtue of my position with Razor5 LLC (permit applicant's name), I am authorized to make the representation contained in this affidavit on behalf of the facility.
4. I understand that the notice requirements of Ind. Code §13-15-8 applies to Razor5 LLC - SBN100 Site permit applicant's or facility's name) for purposes of the accompanying permit application.
5. As required by Indiana Code § 13-15-8, the permit applicant will send written notice to adjacent landowners not more than ten (10) days after submission of the accompanying application for construction and operation of a data center facility in New Carlisle, St. Joseph County, Indiana (briefly describe type of permit application) filed on behalf of _____ (permit applicant's or facility's name).
6. **Further Affiant Saith Not.**

☒ I affirm under the penalty for perjury that the representations contained in this affidavit are true, to the best of my information and belief.

Pamela A. Gregorski	President
Name *(typed)*	Title
Pamela A Gregorski	4/11/24
Signature	Date

STATE OF Delaware COUNTY OF New Castle

PART B: Notarization

This section must be completed by a Public Notary.

Before me a notary Public in and for said County and State, personally appeared Pamela A. Gregorski, and being first duly sworn by me upon oath, says that the fact stated in the foregoing instrument are true. Signed and sealed this 11th of April, 2024

Suzanne F. Laberge

Printed: Suzanne F. Laberge

My Commission Expires: 12/21/24

Residence of Wilmington, Delaware

County New Castle

SUZANNE F. LABERGE
MY COMMISSION
EXPIRES
DEC. 21, 2024
NOTARY PUBLIC
STATE OF DELAWARE

OAQ GENERAL SOURCE DATA APPLICATION
GSD-14: Owners and Occupants Notified

State Form 51609 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of GSD-14 is to identify adjacent landowners and occupants that are to be notified that an air permit application has been submitted.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Owners And Occupants Notified

Use this table to identify adjacent landowners and occupants that you have notified of your intent to construct pursuant to Indiana Code (IC) 13-15-8. If you need additional space, you may make copies of this form.

1. **Owner / Occupant Name**: I/N Tek		2. **Date Notified**:
3. **Address**: 30755 Edison Rd		
City: New Carlisle	**State**: IN	**ZIP Code**: 46552 –
4. **Electronic Mail**:	5. **Telephone Number**: ( ) -	
6. **Method of Notification**: ☐ **Telephone** ☐ **Electronic Mail** ☒ **Standard Mail** ☐ **Other** *(specify)*:		
Owner / Occupant Name: Town of New Carlisle / Cliffs Tek New Carlisle Water Treatment Plant		**Date Notified**:
Address: 31061 Edison Rd		
City: New Carlisle	**State**: IN	**ZIP Code**: 46552 –
Electronic Mail:	**Telephone Number**: ( ) -	
Method of Notification: ☐ **Telephone** ☐ **Electronic Mail** ☒ **Standard Mail** ☐ **Other** *(specify)*:		
Owner / Occupant Name: Master Roll Manufacturing		**Date Notified**:
Address: 31140 Edison Rd		
City: New Carlisle	**State**: IN	**ZIP Code**: 46552 –
Electronic Mail:	**Telephone Number**: ( ) -	
Method of Notification: ☐ **Telephone** ☐ **Electronic Mail** ☒ **Standard Mail** ☐ **Other** *(specify)*:		
Owner / Occupant Name: Greenwood Motorlines DBA R&L Carriers		**Date Notified**:
Address: 30923 Fillmore Rd		
City: New Carlisle	**State**: IN	**ZIP Code**: 46552 –
Electronic Mail:	**Telephone Number**: ( ) -	
Method of Notification: ☐ **Telephone** ☐ **Electronic Mail** ☒ **Standard Mail** ☐ **Other** *(specify)*:		
Owner / Occupant Name: Board of County Commissioners of St. Joseph County		**Date Notified**:
Address: County-City Building 227 West Jefferson Blvd, Suite 722		
City: South Bend	**State**: IN	**ZIP Code**: –
Electronic Mail:	**Telephone Number**: ( ) -	
Method of Notification: ☐ **Telephone** ☐ **Electronic Mail** ☒ **Standard Mail** ☐ **Other** *(specify)*:		

OAQ GENERAL SOURCE DATA APPLICATION
GSD-14: Owners and Occupants Notified

State Form 51609 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of GSD-14 is to identify adjacent landowners and occupants that are to be notified that an air permit application has been submitted.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Owners And Occupants Notified

Use this table to identify adjacent landowners and occupants that you have notified of your intent to construct pursuant to Indiana Code (IC) 13-15-8. If you need additional space, you may make copies of this form.

1. **Owner / Occupant Name**: John E Critzer (owner of the property on the east side of the proposed data center site)		2. **Date Notified**:
3. **Address**: 854 Olive Branch Rd (owner's mailing address)		
City: Galien	**State**: MI	**ZIP Code**: 49113 –
4. **Electronic Mail**:	5. **Telephone Number**: ( ) -	
6. **Method of Notification**: ☐ Telephone ☐ Electronic Mail ☒ Standard Mail ☐ Other *(specify)*:		
Owner / Occupant Name:		**Date Notified**:
Address:		
City:	**State**:	**ZIP Code**: –
Electronic Mail:	**Telephone Number**: ( ) -	
Method of Notification: ☐ Telephone ☐ Electronic Mail ☐ Standard Mail ☐ Other *(specify)*:		
Owner / Occupant Name:		**Date Notified**:
Address:		
City:	**State**:	**ZIP Code**: –
Electronic Mail:	**Telephone Number**: ( ) -	
Method of Notification: ☐ Telephone ☐ Electronic Mail ☐ Standard Mail ☐ Other *(specify)*:		
Owner / Occupant Name:		**Date Notified**:
Address:		
City:	**State**:	**ZIP Code**: –
Electronic Mail:	**Telephone Number**: ( ) -	
Method of Notification: ☐ Telephone ☐ Electronic Mail ☐ Standard Mail ☐ Other *(specify)*:		
Owner / Occupant Name:		**Date Notified**:
Address:		
City:	**State**:	**ZIP Code**: –
Electronic Mail:	**Telephone Number**: ( ) -	
Method of Notification: ☐ Telephone ☐ Electronic Mail ☐ Standard Mail ☐ Other *(specify)*:		

OAQ GENERAL SOURCE DATA APPLICATION
GSD-15: Government Officials Notified

State Form 51608 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of GSD-15 is to identify local government officials that are to be notified that an air permit application has been submitted.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

Government Officials Notified		
Use this table to identify local government officials that should be notified pursuant to Indiana Code (IC) 13-15-3-1 that an air permit application has been submitted. If you need additional space, you may make copies of this form.		
1. **Name**: Carl H. Baxmeyer		2. **Date Notified**:
3. **Title**: St. Joseph County, Board of Commissioners, President		
4. **Address**: 227 W Jefferson Boulevard		
City: South Bend	**State**: IN	**ZIP Code**: 46601 –
5. **Electronic Mail**: sjccom@sjcindiana.com	6. **Telephone Number**: (574) 235 - 9534	
7. **Method of Notification**: ☐ **Telephone** ☐ **Electronic Mail** ☐ **Standard Mail** ☐ **Other** *(specify)*:		
Name: Marcy Kauffman		**Date Notified**:
Title: New Carlisle Town Council, President		
Address: 124 E. Michigan Street		
City: New Carlisle	**State**: IN	**ZIP Code**: 46552 –
Electronic Mail:	**Telephone Number**: (574) 654 - 3733	
Method of Notification: ☐ **Telephone** ☐ **Electronic Mail** ☐ **Standard Mail** ☐ **Other** *(specify)*:		
Name:		**Date Notified**:
Title:		
Address:		
City:	**State**:	**ZIP Code**: –
Electronic Mail:	**Telephone Number**: ( ) -	
Method of Notification: ☐ **Telephone** ☐ **Electronic Mail** ☐ **Standard Mail** ☐ **Other** *(specify)*:		
Name:		**Date Notified**:
Title:		
Address:		
City:	**State**:	**ZIP Code**: –
Electronic Mail:	**Telephone Number**: ( ) -	
Method of Notification: ☐ **Telephone** ☐ **Electronic Mail** ☐ **Standard Mail** ☐ **Other** *(specify)*:		

OAQ PROCESS INFORMATION APPLICATION
PI-02A: Combustion Unit Summary

State Form 52535 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to summarize all of the combustion process units.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

Form ID	Form Title	Guidance on when to submit the form
PI-02A	Combustion Unit Summary	Complete once for each application.
PI-02B	Boilers & Process Heaters	Complete once for each boiler or process heater.
PI-02C	Turbines & Internal Combustion Engines	Complete once for each turbine or internal combustion engine.
PI-02D	Incinerators & Combustors	Complete once for each incinerator or combustor.
PI-02E	Kilns	Complete once for each kiln.
PI-02F	Fuel Use	Complete once for each emissions unit that burns fuel **other than natural gas**.
PI-02G	Emission Factors	Complete once for each emissions unit.
PI-02H	Federal Rule Applicability	Complete once for each emissions unit.

Summary of Combustion Units

This table summarizes all the combustion units at the source. If there are multiple combustion units that are identical in nature, capacity, and use, you may use one row to summarize the identical units.

1. Combustion Unit Type	2. Number of Identical Units	3. Unit ID(s)	4. Date of Installation or Modification *(actual or anticipated)*	5. Heat Input Rate of each unit *(MMBtu/hr)*	6. Emergency / Back-Up Unit?
Internal combustion engines	234	CEG No. 1 - 234		9.38	☒ Yes ☐ No
Internal combustion engines	2	WTP Gens No. 1 & 2		5.12	☒ Yes ☐ No
Internal combustion engines	9	HG No. 1 - 9		2.56	☒ Yes ☐ No
Internal combustion engines	2	CAB Gen No. 1 and CLB Gen No. 1		1.36	☒ Yes ☐ No
Internal combustion engines	1	ACB Gen No. 1		0.85	☒ Yes ☐ No
					☐ Yes ☐ No
					☐ Yes ☐ No
					☐ Yes ☐ No

OAQ PROCESS INFORMATION APPLICATION
PI-02C: Combustion – Turbines & Reciprocating Internal Combustion Engines

State Form 52537 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to specify details that pertain only to turbines and internal combustion engines.
- Complete one PI-02C form for each emissions unit. If there are multiple emission units that are identical in nature, capacity, and use, you may use one PI-02C form to summarize the units.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

PART A: Process Unit Details

Part A specifies operating information that is unique to turbines and reciprocating internal combustion engines. Definitions and additional explanation of terminology are included in the instructions for this form.

1. **Unit ID**:	CEG No. 1 - 234 (2,750 kW each)	
2. **Type of Combustion Unit**		
☐ Turbine:	☐ Simple Cycle ☐ Regenerative Cycle ☐ Cogeneration ☐ Combined Cycle	
☒ Reciprocating Internal Combustion Engine:	☐ 2-stroke lean-burn ☒ 4-stroke lean-burn ☐ 4-stroke rich-burn	
3. **Combustion Process**:	☐ Diffusion Flame Combustion ☐ Lean-Premix Staged Combustion	
4. **Ignition Type**:	☐ Spark ☒ Compression	
5. **Power Output**:	horsepower (hp) 2.75 each megawatts (MW)	
6. **Duty Cycle**:	hours per year (hr/yr)	
7. **Fuel Used**:	☐ Natural Gas Only ☒ Other – *Attach completed PI-02F.*	
8. **Does this combustion unit supply power to an emergency generator?**	☒ Yes	☐ No

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Continued on Next Page

PART B: Emission Controls and Limitations

Part B identifies control technology, control techniques or other process limitations that impact air emissions.

9. Add-On Control Technology: *Identify all control technologies used for this process. Attach completed CE-01 (unless "none").*

☐ None

☐ Catalytic Oxidation – *Attach CE-06*

☐ NO_X Reduction – *Attach CE-09*

☒ Other *(specify)*: A combined after-treatment system that integrates selective catalytic reduction (SCR), diesel oxidation catalyst (DOC), and diesel particulate filter (DPF) to meet the Tier 4 equivalent emission limits – *Attach CE-10.*

10. Control Techniques: *Identify all control techniques used for this process.*

☐ None *(explain)*:

☐ Air-To-Fuel Ratio Adjustments
☐ Boiling Point adjusted to 10% and 90%
☐ Charge Cooling
☐ Derating
☐ Exhaust Gas Recirculation
☐ Fuel Injection Pressure
☐ Injection Timing Retard
☒ Lean Combustion
☐ Oil Consumption Control
☐ Rapid Spill Nozzles
☐ Two Stage Lean / Lean Combustion
☐ Water/Fuel Emulsions
☐ Other *(specify)*:

☐ Aromatic Content Increase
☐ Cetane Number
☐ Combustion Chamber Modifications
☐ Electronic Timing & Metering
☐ Fuel Additives
☐ Injection Rate Control
☐ Injector Nozzle Geometry
☒ Low Sulfur Content Fuel
☐ Pre-ignition Chamber Combustion
☐ Turbocharging
☐ Two Stage Rich / Lean Combustion
☐ Water / Steam Injection

– *Attach completed GSD-09.*

11. Process Limitations / Additional Information: *Identify any acceptable process limitations. Attach additional information if necessary.*

The applicant requests to limit the facility wide NOX emissions below 249 tpy to avoid becoming a PSD major source and limit the HAP emissions below 9 tpy for any single HAP and 24 tpy for any combination of HAPs to avoid becoming a major source of HAPs.

OAQ PROCESS INFORMATION APPLICATION
PI-02C: Combustion – Turbines & Reciprocating Internal Combustion Engines

State Form 52537 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to specify details that pertain only to turbines and internal combustion engines.
- Complete one PI-02C form for each emissions unit. If there are multiple emission units that are identical in nature, capacity, and use, you may use one PI-02C form to summarize the units.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

PART A: Process Unit Details

Part A specifies operating information that is unique to turbines and reciprocating internal combustion engines. Definitions and additional explanation of terminology are included in the instructions for this form.

1. Unit ID:	WTP Gens No. 1 & 2 (1,500 kW each)	
2. Type of Combustion Unit		
☐ Turbine:	☐ Simple Cycle ☐ Regenerative Cycle ☐ Cogeneration ☐ Combined Cycle	
☒ Reciprocating Internal Combustion Engine:	☐ 2-stroke lean-burn ☒ 4-stroke lean-burn ☐ 4-stroke rich-burn	
3. Combustion Process:	☐ Diffusion Flame Combustion ☐ Lean-Premix Staged Combustion	
4. Ignition Type:	☐ Spark ☒ Compression	
5. Power Output:	horsepower (hp) 1.5 each megawatts (MW)	
6. Duty Cycle:	hours per year (hr/yr)	
7. Fuel Used:	☐ Natural Gas Only ☒ Other – *Attach completed PI-02F.*	
8. Does this combustion unit supply power to an emergency generator?	☒ Yes	☐ No

This space was intentionally left blank.

Continued on Next Page

PART B: Emission Controls and Limitations

Part B identifies control technology, control techniques or other process limitations that impact air emissions.

9. Add-On Control Technology: *Identify all control technologies used for this process. Attach completed CE-01 (unless "none").*

- ☒ None
- ☐ Catalytic Oxidation – *Attach CE-06*
- ☐ NO_X Reduction – *Attach CE-09*
- ☐ Other *(specify)*: – *Attach CE-10.*

10. Control Techniques: *Identify all control techniques used for this process.*

- ☒ None *(explain)*:
- ☐ Air-To-Fuel Ratio Adjustments
- ☐ Aromatic Content Increase
- ☐ Boiling Point adjusted to 10% and 90%
- ☐ Cetane Number
- ☐ Charge Cooling
- ☐ Combustion Chamber Modifications
- ☐ Derating
- ☐ Electronic Timing & Metering
- ☐ Exhaust Gas Recirculation
- ☐ Fuel Additives
- ☐ Fuel Injection Pressure
- ☐ Injection Rate Control
- ☐ Injection Timing Retard
- ☐ Injector Nozzle Geometry
- ☒ Lean Combustion
- ☒ Low Sulfur Content Fuel
- ☐ Oil Consumption Control
- ☐ Pre-ignition Chamber Combustion
- ☐ Rapid Spill Nozzles
- ☐ Turbocharging
- ☐ Two Stage Lean / Lean Combustion
- ☐ Two Stage Rich / Lean Combustion
- ☐ Water/Fuel Emulsions
- ☐ Water / Steam Injection
- ☐ Other *(specify)*: – *Attach completed GSD-09.*

11. Process Limitations / Additional Information: *Identify any acceptable process limitations. Attach additional information if necessary.*

The applicant requests to limit the facility wide NOX emissions below 249 tpy to avoid becoming a PSD major source and limit the HAP emissions below 9 tpy for any single HAP and 24 tpy for any combination of HAPs to avoid becoming a major source of HAPs.

OAQ PROCESS INFORMATION APPLICATION
PI-02C: Combustion – Turbines & Reciprocating Internal Combustion Engines

State Form 52537 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to specify details that pertain only to turbines and internal combustion engines.
- Complete one PI-02C form for each emissions unit. If there are multiple emission units that are identical in nature, capacity, and use, you may use one PI-02C form to summarize the units.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

PART A: Process Unit Details

Part A specifies operating information that is unique to turbines and reciprocating internal combustion engines. Definitions and additional explanation of terminology are included in the instructions for this form.

1. Unit ID: House Gens No. 1 - 9 (750 kW each)

2. Type of Combustion Unit

☐ Turbine:	☐ Simple Cycle ☐ Regenerative Cycle ☐ Cogeneration ☐ Combined Cycle
☒ Reciprocating Internal Combustion Engine:	☐ 2-stroke lean-burn ☒ 4-stroke lean-burn ☐ 4-stroke rich-burn

3. Combustion Process:
☐ Diffusion Flame Combustion
☐ Lean-Premix Staged Combustion

4. Ignition Type:
☐ Spark
☒ Compression

5. Power Output:
horsepower (hp)
0.75 megawatts (MW)

6. Duty Cycle:
hours per year (hr/yr)

7. Fuel Used:
☐ Natural Gas Only
☒ Other – *Attach completed PI-02F.*

8. Does this combustion unit supply power to an emergency generator? ☒ Yes ☐ No

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PART B: Emission Controls and Limitations

Part B identifies control technology, control techniques or other process limitations that impact air emissions.

9. Add-On Control Technology: *Identify all control technologies used for this process. Attach completed CE-01 (unless "none").*

- ☒ None
- ☐ Catalytic Oxidation – *Attach CE-06*
- ☐ NO_X Reduction – *Attach CE-09*
- ☐ Other *(specify)*: – *Attach CE-10.*

10. Control Techniques: *Identify all control techniques used for this process.*

- ☒ None *(explain)*:
- ☐ Air-To-Fuel Ratio Adjustments
- ☐ Aromatic Content Increase
- ☐ Boiling Point adjusted to 10% and 90%
- ☐ Cetane Number
- ☐ Charge Cooling
- ☐ Combustion Chamber Modifications
- ☐ Derating
- ☐ Electronic Timing & Metering
- ☐ Exhaust Gas Recirculation
- ☐ Fuel Additives
- ☐ Fuel Injection Pressure
- ☐ Injection Rate Control
- ☐ Injection Timing Retard
- ☐ Injector Nozzle Geometry
- ☒ Lean Combustion
- ☒ Low Sulfur Content Fuel
- ☐ Oil Consumption Control
- ☐ Pre-ignition Chamber Combustion
- ☐ Rapid Spill Nozzles
- ☐ Turbocharging
- ☐ Two Stage Lean / Lean Combustion
- ☐ Two Stage Rich / Lean Combustion
- ☐ Water/Fuel Emulsions
- ☐ Water / Steam Injection
- ☐ Other *(specify)*: – *Attach completed GSD-09.*

11. Process Limitations / Additional Information: *Identify any acceptable process limitations. Attach additional information if necessary.*

The applicant requests to limit the facility wide NOX emissions below 249 tpy to avoid becoming a PSD major source and limit the HAP emissions below 9 tpy for any single HAP and 24 tpy for any combination of HAPs to avoid becoming a major source of HAPs.

OAQ PROCESS INFORMATION APPLICATION
PI-02C: Combustion – Turbines & Reciprocating Internal Combustion Engines

State Form 52537 (R2 / 1-10)
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NOTES:

- The purpose of this form is to specify details that pertain only to turbines and internal combustion engines.
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- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

PART A: Process Unit Details

Part A specifies operating information that is unique to turbines and reciprocating internal combustion engines. Definitions and additional explanation of terminology are included in the instructions for this form.

1. Unit ID: CAB Gen No. 1 and CLB Gen No. 1 (400 kW each)

2. Type of Combustion Unit

☐ Turbine:	☐ Simple Cycle ☐ Regenerative Cycle ☐ Cogeneration ☐ Combined Cycle
☒ Reciprocating Internal Combustion Engine:	☐ 2-stroke lean-burn ☒ 4-stroke lean-burn ☐ 4-stroke rich-burn

3. Combustion Process:
☐ Diffusion Flame Combustion
☐ Lean-Premix Staged Combustion

4. Ignition Type:
☐ Spark
☒ Compression

5. Power Output:
horsepower (hp)
0.4 each megawatts (MW)

6. Duty Cycle: hours per year (hr/yr)

7. Fuel Used:
☐ Natural Gas Only
☒ Other – *Attach completed PI-02F.*

8. Does this combustion unit supply power to an emergency generator? ☒ Yes ☐ No

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PART B: Emission Controls and Limitations

Part B identifies control technology, control techniques or other process limitations that impact air emissions.

9. Add-On Control Technology: *Identify all control technologies used for this process. Attach completed CE-01 (unless "none").*

- ☒ None
- ☐ Catalytic Oxidation – *Attach CE-06*
- ☐ NO_X Reduction – *Attach CE-09*
- ☐ Other *(specify)*: – *Attach CE-10.*

10. Control Techniques: *Identify all control techniques used for this process.*

- ☒ None *(explain)*:
- ☐ Air-To-Fuel Ratio Adjustments
- ☐ Aromatic Content Increase
- ☐ Boiling Point adjusted to 10% and 90%
- ☐ Cetane Number
- ☐ Charge Cooling
- ☐ Combustion Chamber Modifications
- ☐ Derating
- ☐ Electronic Timing & Metering
- ☐ Exhaust Gas Recirculation
- ☐ Fuel Additives
- ☐ Fuel Injection Pressure
- ☐ Injection Rate Control
- ☐ Injection Timing Retard
- ☐ Injector Nozzle Geometry
- ☒ Lean Combustion
- ☒ Low Sulfur Content Fuel
- ☐ Oil Consumption Control
- ☐ Pre-ignition Chamber Combustion
- ☐ Rapid Spill Nozzles
- ☐ Turbocharging
- ☐ Two Stage Lean / Lean Combustion
- ☐ Two Stage Rich / Lean Combustion
- ☐ Water/Fuel Emulsions
- ☐ Water / Steam Injection
- ☐ Other *(specify)*: -- *Attach completed GSD-09.*

11. Process Limitations / Additional Information: *Identify any acceptable process limitations. Attach additional information if necessary.*

The applicant requests to limit the facility wide NOX emissions below 249 tpy to avoid becoming a PSD major source and limit the HAP emissions below 9 tpy for any single HAP and 24 tpy for any combination of HAPs to avoid becoming a major source of HAPs.

OAQ PROCESS INFORMATION APPLICATION
PI-02C: Combustion – Turbines & Reciprocating Internal Combustion Engines

State Form 52537 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to specify details that pertain only to turbines and internal combustion engines.
- Complete one PI-02C form for each emissions unit. If there are multiple emission units that are identical in nature, capacity, and use, you may use one PI-02C form to summarize the units.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

PART A: Process Unit Details

Part A specifies operating information that is unique to turbines and reciprocating internal combustion engines. Definitions and additional explanation of terminology are included in the instructions for this form.

1. Unit ID: ACB Gen No. 1 (250 kW)

2. Type of Combustion Unit

☐ Turbine:	☐ Simple Cycle ☐ Regenerative Cycle ☐ Cogeneration ☐ Combined Cycle
☒ Reciprocating Internal Combustion Engine:	☐ 2-stroke lean-burn ☒ 4-stroke lean-burn ☐ 4-stroke rich-burn

3. Combustion Process:
☐ Diffusion Flame Combustion
☐ Lean-Premix Staged Combustion

4. Ignition Type:
☐ Spark
☒ Compression

5. Power Output:
horsepower (hp)
0.25 megawatts (MW)

6. Duty Cycle:
hours per year (hr/yr)

7. Fuel Used:
☐ Natural Gas Only
☒ Other – *Attach completed PI-02F.*

8. Does this combustion unit supply power to an emergency generator? ☒ Yes ☐ No

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PART B: Emission Controls and Limitations

Part B identifies control technology, control techniques or other process limitations that impact air emissions.

9. Add-On Control Technology: *Identify all control technologies used for this process. Attach completed CE-01 (unless "none").*

- ☒ None
- ☐ Catalytic Oxidation – *Attach CE-06*
- ☐ NO_X Reduction – *Attach CE-09*
- ☐ Other *(specify)*: – *Attach CE-10.*

10. Control Techniques: *Identify all control techniques used for this process.*

- ☒ None *(explain)*:
- ☐ Air-To-Fuel Ratio Adjustments
- ☐ Aromatic Content Increase
- ☐ Boiling Point adjusted to 10% and 90%
- ☐ Cetane Number
- ☐ Charge Cooling
- ☐ Combustion Chamber Modifications
- ☐ Derating
- ☐ Electronic Timing & Metering
- ☐ Exhaust Gas Recirculation
- ☐ Fuel Additives
- ☐ Fuel Injection Pressure
- ☐ Injection Rate Control
- ☐ Injection Timing Retard
- ☐ Injector Nozzle Geometry
- ☒ Lean Combustion
- ☒ Low Sulfur Content Fuel
- ☐ Oil Consumption Control
- ☐ Pre-ignition Chamber Combustion
- ☐ Rapid Spill Nozzles
- ☐ Turbocharging
- ☐ Two Stage Lean / Lean Combustion
- ☐ Two Stage Rich / Lean Combustion
- ☐ Water/Fuel Emulsions
- ☐ Water / Steam Injection
- ☐ Other *(specify)*: – *Attach completed GSD-09.*

11. Process Limitations / Additional Information: *Identify any acceptable process limitations. Attach additional information if necessary.*

The applicant requests to limit the facility wide NOX emissions below 249 tpy to avoid becoming a PSD major source and limit the HAP emissions below 9 tpy for any single HAP and 24 tpy for any combination of HAPs to avoid becoming a major source of HAPs.

OAQ PROCESS INFORMATION APPLICATION
PI-02F: Combustion – Fuel Use
State Form 52540 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to identify each fuel that will be used in the combustion unit. Definitions and additional explanation of terminology are included in the instructions for this form.
- Complete one form PI-02F for each combustion unit. If the unit has any capability of using a fuel, even if on a backup or intermittent basis, complete the applicable section. Using a fuel that is not specified in the permit is a violation of the permit.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

PART A: Process Unit Identification

1. **Unit ID:** All the proposed emergency gens (CEG No. 1 - 234, WTP Gens No. 1 & 2, HG No. 1 - 9, CAB Gen No. 1, CLB Gen No. 1, and ACB Gen No. 1)

PART B: Gaseous Fuels

Part B identifies the gaseous fuels that will be used in the combustion unit.

2. Fuel Type:	3. Percent of Fuel Use *(by volume)*	4. Primary or Secondary Fuel?	5. Component Percentages:	6. Heating Value:
☐ Natural Gas		☐ Primary ☐ Secondary	Sulfur:	*(Btu/ft³)*
☐ Liquefied Petroleum Gas ☐ *Commercial- Propane* ☐ *Engine Fuel Propane (HD-5)* ☐ *Commercial- Butane*		☐ Primary ☐ Secondary	Sulfur: Butane: Propane:	*(Btu/ft³)*
☐ Process Gas *		☐ Primary ☐ Secondary	Sulfur:	*(Btu/ft³)*
☐ Landfill Gas *		☐ Primary ☐ Secondary	Sulfur:	*(Btu/ft³)*
☐ Other *(specify)*:		☐ Primary ☐ Secondary	:	*(Btu/ft³)*

* Indicate the source of the process or landfill gas:

Continued on Next Page

PART C: Liquid Fuels

Part C identifies the liquid fuels that will be used in the combustion unit.

7. Fuel Type:	8. Percent of Fuel Use *(by volume)*	9. Primary or Secondary Fuel?	10. Component Percentages:	11. Heating Value:	12. Percent Heat:
☐ Residual Fuel Oil ☐ *No. 5 – Heavy* ☐ *No. 5 – Light* ☐ *No. 6 (Bunker C)*		☐ Primary ☐ Secondary	Sulfur:	*(Btu/gal)*	
☒ Distillate Fuel Oil ☐ *No. 1* ☒ *No. 2 (Diesel)* ☐ *No. 4*	100.00%	☒ Primary ☐ Secondary	Sulfur: 0.0015%	137030.00 *(Btu/gal)*	100%
☐ Gasoline		☐ Primary ☐ Secondary	Sulfur:	*(Btu/gal)*	
☐ Waste Oil		☐ Primary ☐ Secondary	Sulfur: Ash: Lead Chlorine:	*(Btu/gal)*	
☐ Liquid Waste *		☐ Primary ☐ Secondary	Sulfur: Fluorine: Chlorine:	*(Btu/gal)*	
☐ Other *(specify)*:		☐ Primary ☐ Secondary	: :	*(Btu/gal)*	

* RCRA alpha-numeric codes for Special or Hazardous Waste to be Burned:

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PART D1: Solid Fuels – Coal

Part D1 identifies all variations of coal that will be used in the combustion unit.

13. Fuel Type:	14. Percent of Fuel Use *(by volume)*	15. Primary or Secondary Fuel?	16. Component Percentages:	17. Heating Value:	18. Basis:
☐ Anthracite Coal ☐ *Anthracite* ☐ *Culm*		☐ Primary ☐ Secondary	Sulfur: Ash: Moisture:	*(Btu/lb)*	☐ Dry ☐ Moist
☐ Bituminous Coal		☐ Primary ☐ Secondary	Sulfur: Ash: Moisture:	*(Btu/lb)*	☐ Dry ☐ Moist
☐ Sub-bituminous Coal		☐ Primary ☐ Secondary	Sulfur: Ash: Moisture:	*(Btu/lb)*	☐ Dry ☐ Moist
☐ Lignite Coal		☐ Primary ☐ Secondary	Sulfur: Ash: Moisture:	*(Btu/lb)*	☐ Dry ☐ Moist
☐ Coke		☐ Primary ☐ Secondary	Sulfur: Ash: Moisture:	*(Btu/lb)*	☐ Dry ☐ Moist
☐ Other Coal *(specify)*:		☐ Primary ☐ Secondary	Sulfur: Ash: Moisture:	*(Btu/gal)*	☐ Dry ☐ Moist

This space was intentionally left blank.

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PART D2: Other Solid Fuels

Part D2 identifies the solid fuels, other than coal, that will be used in the combustion unit.

19. Fuel Type:	20. Percent of Fuel Use *(by volume)*	21. Primary or Secondary Fuel?	22. Component Percentages:	23. Heating Value:	24. Percent Heat:
☐ Wood or Wood Waste ☐ *Wood Only* ☐ *Wood Residue Only* ☐ *Wood and Wood Residue*		☐ Primary ☐ Secondary	Moisture:	*(Btu/ton)*	
☐ Tires or Tire Derived Fuel ☐ *Whole Tires* ☐ *Tire Derived Fuel*		☐ Primary ☐ Secondary	Sulfur: Chromium: Chlorine:	*(Btu/lb)*	
☐ Bagasse		☐ Primary ☐ Secondary	Ash: Moisture:	*(Btu/lb)*	
☐ Solid Waste *		☐ Primary ☐ Secondary	: :	*(Btu/lb)*	
☐ Other *(specify)*:		☐ Primary ☐ Secondary	: :	*(Btu/lb)*	

*RCRA alpha-numeric codes for Special or Hazardous Waste to be Burned:

PART E: Fuel Consumption Limitations

Use the space provided to specify any fuel consumption limitations that are acceptable for the combustion unit.

The applicant requests to limit the facility wide NOx emissions below 249 tpy to avoid becoming a PSD major source and limit the HAP emissions below 9 tpy for any single HAP and 24 tpy for any combination of HAPs to avoid becoming a major source of HAPs.

The applicant requests not to set fuel usage as permit limits. The site will comply with emissions limits by tracking actual emissions based on the lbs/gal emission factors and actual fuel usage of each engine type. See the proposed compliance method in the narrative description, Section 3.3.1.

OAQ PROCESS INFORMATION APPLICATION
PI-02G: Combustion – Emission Factors

State Form 52541 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to specify the emission factors used to calculate potential to emit from the combustion unit.
- Complete one PI-02G form for each emissions unit. If there are multiple emission units that are identical in nature, capacity, and use, you may use one PI-02G form to summarize the units.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

Emission Factors

This table identifies all emission factors used to calculate air emissions from the combustion unit.

1. **Unit ID**: All the proposed emergency generators (CEG No. 1-234, WTP Gens No. 1 & 2, HG No. 1-9, CAB Gen No. 1, CLB Gen No. 1, and ACB Gen No. 1) See emission calculations in Appendix B

2. Air Pollutant:	3. Emission Factor		4. Source of Emission Factor *(if not using AP-42, include calculations)*		
	value	*units*			
Carbon Monoxide (CO)			☐ AP-42	☒ Other	☐ N/A
Lead (Pb)			☐ AP-42	☐ Other	☐ N/A
Hazardous Air Pollutant (HAP) *(specify)*:			☒ AP-42	☐ Other	☐ N/A
Nitrogen Oxides (NO_X)			☐ AP-42	☒ Other	☐ N/A
Mercury (Hg)			☐ AP-42	☐ Other	☐ N/A
Particulate Matter (PM)			☐ AP-42	☒ Other	☐ N/A
Particulate Matter less than 10μm (PM_{10})			☐ AP-42	☒ Other	☐ N/A
Particulate Matter less than 2.5μm ($PM_{2.5}$)			☐ AP-42	☒ Other	☐ N/A
Sulfur Dioxide (SO_2)			☒ AP-42	☐ Other	☐ N/A
Volatile Organic Compounds (VOC)			☐ AP-42	☒ Other	☐ N/A
Other *(specify)*:			☐ AP-42	☐ Other	☐ N/A
Other *(specify)*:			☐ AP-42	☐ Other	☐ N/A
Other *(specify)*:			☐ AP-42	☐ Other	☐ N/A

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AEF-01 – ALTERNATE EMISSION FACTOR REQUEST

State Form 51860 (R / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this application is to request to use an alternate emission factor for permitting determinations, estimating source emissions for billing, or for development of emission inventories for use in air quality planning. This is required form.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for any one to inspect and photocopy.

FOR OFFICE USE ONLY
PERMIT NUMBER:
___ _____ – _____ – _____

PART A: Process Identification

Part A is intended to identify the process at the source for which the alternate emission factor is requested.

1. Process Description: Emergency Generators

2. Affected Emissions Units:	**3.** Affected Control Devices:	**4.** Raw Materials Impacting Emissions:
CEG No. 1 - 234	CE 1 - 234	Ultra-low sulfur diesel
WTP Gens No. 1 & 2	None	Ultra-low sulfur diesel
HG No. 1 - 9	None	Ultra-low sulfur diesel
CAB Gen No. 1	None	Ultra-low sulfur diesel
CLB Gen No. 1	None	Ultra-low sulfur diesel
ACB Gen No. 1	None	Ultra-low sulfur diesel

PART B: Standard Calculation Method

Part B is intended to identify the standard emission calculation method and to identify why the method is not adequate.

5. Standard Emission Calculation Method: AP-42

6. Rationale: Briefly explain why the published emission factor does not appropriately represent the process, operation, or pollution control equipment efficiently.

Manufacturer provided specific emission factors for NOx, CO, VOC, and filterable PM per engine model.

PART C: Proposed Alternate Emission Factor

Part C is intended to identify the proposed alternate emission factor (AEF) and to sufficiently describe the AEF such that IDEM staff can understand the process used to develop the AEF.

7. **Proposed AEF:** Briefly describe the proposed alternate emission factor.

Manufacturer provided specific emission factors for NOx, CO, VOC, and filterable PM per engine model.

8. **AEF Development Method:** What approach was, or will be used to develop the alternate emission factor?

- ☐ Continuous Emissions Monitoring System (CEMS)
  - A. Is the CEM certified by IDEM? ☐ Yes ☐ No
  - B. Is the CEM operated and maintained in accordance with the applicable regulations? ☐ Yes ☐ No
- ☐ Source Testing
  - A. Was testing conducted by a trade association or industry group? ☐ Yes ☐ No
    - Identify the trade association or industry group:
  - B. Was testing published and validated through peer review? ☐ Yes ☐ No
  - C. Was testing approved by IDEM? ☐ Yes ☐ No
- ☐ Development of Material Balance Equations
- ☐ Emission Modeling
- ☐ Engineering Estimates
- ☐ Other – Please Specify: Manufacturer provided performance and emission data (see Appendix C)

9. **Supporting Data:** Have you attached the data supporting the development of your alternate emission factor? ☒ Yes ☐ No

10. **RM/TP Submittal:** Have you submitted the appropriate reference method or test protocol to IDEM? ☐ Yes ☐ No ☒ NA

11. **Modeling Analysis:** Was any modeling conducted? ☐ Yes ☐ No ☒ NA

12. **Modeling Summary:** Briefly describe any modeling that was conducted. *Attach additional information using form GSD-05, Summary of Additional Information, as needed.*

OAQ PROCESS INFORMATION APPLICATION
PI-02H: Combustion – Federal Rule Applicability

State Form 52542 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
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Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to identify any federal rules that apply to the emission unit.
- Complete one PI-02H form for each emissions unit. If there are multiple emission units that are identical in nature, capacity, and use, you may use one PI-02H form to summarize the units.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

Federal Rule Applicability

This table identifies any federal rules that apply to the process.

1. Is a **New Source Performance Standard (NSPS)** applicable to this source? ☒ Yes ☐ No *If yes, attach a completed FED-01 for each rule that applies.*		2. **Unit IDs**
☐ 40 CFR Part 60, Subpart Cb	Large Municipal Waste Combustors *(constructed before 9/20/1994)*	
☐ 40 CFR Part 60, Subpart Ce	Hospital/Medical/Infectious Waste Incinerators	
☐ 40 CFR Part 60, Subpart D	Fossil-Fuel-Fired Steam Generators *(constructed after 8/17/1971)*	
☐ 40 CFR Part 60, Subpart Da	Electric Utility Steam Generating Units *(constructed after 9/18/1978)*	
☐ 40 CFR Part 60, Subpart Db	Industrial-Commercial-Institutional Generating Units	
☐ 40 CFR Part 60, Subpart Dc	Small Industrial-Commercial-Institutional Generating Units	
☐ 40 CFR Part 60, Subpart E	Incinerators	
☐ 40 CFR Part 60, Subpart Ea	Municipal Waste Combustors *(constructed after 12/20/1989 and before 9/20/1994)*	
☐ 40 CFR Part 60, Subpart Eb	Large Municipal Waste Combustors *(constructed after 9/20/1994 or modified / reconstructed after 6/19/1996)*	
☐ 40 CFR Part 60, Subpart Ec	Hospital/Medical/Infectious Waste Incinerators *(constructed after 6/20/1996)*	
☐ 40 CFR Part 60, Subpart O	Sewage Treatment Plants *(sludge burners)*	
☐ 40 CFR Part 60, Subpart Y	Coal Preparation Plants	
☐ 40 CFR Part 60, Subpart GG	Stationary Gas Turbines	
☐ 40 CFR Part 60, Subpart AAA	New Residential Wood Heaters	
☐ 40 CFR Part 60, Subpart AAAA	Small Municipal Waste Combustion Units *(constructed after 8/30/1999 or modified / reconstructed after 6/6/2001)*	
☐ 40 CFR Part 60, Subpart BBBB	Small Municipal Waste Combustion Units *(constructed on or before 8/30/1999)*	
☐ 40 CFR Part 60, Subpart CCCC	Commercial and Industrial Solid Waste Incineration Units *(constructed after 11/30/1999 or modified / reconstructed after 6/1/2001)*	
☐ 40 CFR Part 60, Subpart DDDD	Commercial and Industrial Solid Waste Incineration Units *(constructed on or before 11/30/1999)*	
☐ 40 CFR Part 60, Subpart KKKK	Stationary Combustion Turbines	

Continued on Next Page

Federal Rule Applicability *(continued)*

This table identifies any federal rules that apply to the process.

3. Is a **National Emission Standard for Hazardous Air Pollutants (NESHAP)** applicable to this source? ☒ Yes ☐ No *If yes, attach a completed FED-01 for each rule that applies.*		4. **Unit IDs**
☐ 40 CFR Part 63, Subpart MM	Combustion Sources at Kraft, Soda, and Sulfite Pulp & Paper Mills	
☐ 40 CFR Part 63, Subpart EEE	Hazardous Waste Combustion	
☐ 40 CFR Part 63, Subpart YYYY	Stationary Combustion Turbines	
☒ 40 CFR Part 63, Subpart ZZZZ	Reciprocating Internal Combustion Engines (RICE)	All the proposed emergency generators
☐ 40 CFR Part 63, Subpart DDDDD	Industrial, Commercial, and Institutional Boilers and Process Heaters	

5. **Non-Applicability Determination**: *Provide an explanation if the process unit appears subject to a rule (based on the rule title or the source category), but the rule will not apply.*

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OAQ PROCESS INFORMATION APPLICATION
PI-14: Volatile Organic Liquid Compound Storage

State Form 52554 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to obtain detailed information about all tanks larger than 250 gallons that are used to store volatile organic liquid compounds. Duplicate this form as necessary.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

PART A: Tank Identification

Part A identifies and describes the tank. Duplicate this form as necessary to include all applicable tanks.

1. **Tank/Unit ID**: Nine (9) 12,000-Gal Central Diesel Fuel Storage Tanks / TK No. 1 - 9
2. **Installation Date**: *(actual or anticipated)*
3. **Tank Location**: One for the each data center building
4. **Tank Type**

☐ Fixed Roof, Cone ☐ External Floating Roof, Domed ☐ Internal Floating Roof
☐ Fixed Roof, Dome ☐ External Floating Roof, Not Domed ☐ Variable Vapor Space
☒ Other *(specify)*: Horizontal tanks ☐ Pressure Tank

5. Is the tank **Above Ground**? ☒ Yes ☐ No
6. **Tank Orientation**: ☒ Horizontal ☐ Vertical
7. **Tank Color**: White
8. **Materials Stored**: *(include MSDS)* Diesel fuel
9. **True Vapor Pressure** (PVA): 0.04 pounds per square inch (*psi at 20°C*)
10. **Vapor Molecular Weight** (Mv): ~ 200 gallons (*b/lbmole*)
11. **Annual Throughput**: 5.28MMgallons per year (*gal/yr*) for all nine tanks combined
12. **Venting Method**: Tank vent
13. **Filling Method**: ☒ Submerged ☐ Not Submerged ☐ Other *(specify)*:

PART B: Emission Controls and Limitations

Part B identifies control technology, control techniques or other process limitations that impact air emissions.

14. **Add-On Control Technology**: *Identify all control technologies used for this unit, and attach completed CE-01 (unless "none").*

☒ None ☐ Other *(specify)*: – *Attach CE-10.*

15. **Control Techniques**: *Identify all control techniques used for this process.*

☒ None ☐ Flare ☐ Vapor Recovery System
☐ Other *(specify)*: – *Attach GSD-09.*

16. **Process Limitations / Additional Information**: *Identify any acceptable process limitations. Attach additional information if necessary.*

Diesel fuel storage

Continued on Next Page

PART C: Information Specific to Tank Type

Part C identifies the physical properties of the tank.

17. Tank Diameter (D):	8.00	feet (*ft*)	
18. Tank ~~Height (Hs)~~: Length	32	feet (*ft*)	
19. Tank Volume / Capacity (V):	12000.00	gallons (*gal*)	cubic feet (ft^3)
20. Maximum Liquid Height (Hlx):	7.5	feet (ft)	

21. External Floating Roof: *Complete only if applicable.*

a. Average Liquid Density (Wl):	pounds per gallon (*lb/gal*)			
b. Roof Type:	☐ Pontoon Floating Roof	☐ Double Deck Floating Roof		
c. Tank Construction:	☐ Welded	☐ Riveted		
d. Primary Rim Seal:	☐ Vapor Mounted	☐ Liquid Mounted	☐ Mechanical Shoe	
e. Secondary Rim Seal:	☐ Weather Shield	☐ Rim Mounted	☐ None	

22. Internal Floating Roof: *Complete only if applicable.*

a. Average Liquid Density (Wl):	pounds per gallon (*lb/gal*)		
b. Roof Type	☐ Double Deck Floating Roof	☐ Other: *(specify)*	
c. Self-supported fixed roof	☐ Yes	☐ No	
d. Number of columns supporting the fixed roof			
e. Deck Construction:	☐ Welded	☐ Riveted	☐ Bolted
f. Primary Rim Seal:	☐ Vapor Mounted	☐ Liquid Mounted	
g. Is there a Secondary Rim Seal?	☐ Yes	☐ No	

23. Variable Vapor Space: *Complete only if applicable.*

a. Volume of liquid pumped into the system (V1):	gallons per year (*gal/yr*)
b. Volume expansion capacity of system (V2):	gallons (*gal*)
c. Number of Transfers Into the System (N2)	per year (*/yr*)

PART D: Emission Factors

Part D identifies all emission factors used to calculate air emissions from the storage tank.

24. Air Pollutant:	**25. Emission Factor**		**26. Source of Emission Factor** *(if not using AP-42, include calculations)*		
	value	*units*			
Hazardous Air Pollutant (HAP): *(specify)*:			☐ AP-42	☐ Other	☐ N/A
Volatile Organic Compounds (VOC)			☒ AP-42	☐ Other	☐ N/A
Other *(specify)*:			☐ AP-42	☐ Other	
Other *(specify)*:			☐ AP-42	☐ Other	

Continued on Next Page

PART E: Federal Rule Applicability

Part E identifies any federal rules that apply to the process.

27. Is a **New Source Performance Standard (NSPS)** applicable to this source? *If yes, attach a completed FED-01 for each rule that applies.* ☐ Yes ☒ No		**28. Unit ID:**
☐ 40 CFR Part 60, Subpart K	Petroleum Liquid Storage Vessels (constructed after 6/11/1973 and before 5/19/1978)	
☐ 40 CFR Part 60, Subpart Ka	Petroleum Liquid Storage Vessels (constructed after 5/18/1978 and before 7/23/1984)	
☐ 40 CFR Part 60, Subpart Kb	Volatile Organic Liquid Storage Vessels, Including Petroleum Liquid Storage (constructed after 7/23/1984)	
☐ 40 CFR Part 60, Subpart VV	Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry	
☐ 40 CFR Part 60, Subpart GGG	Equipment Leaks of VOC in Petroleum Refineries	
☐ 40 CFR Part 60, Subpart KKK	Equipment Leaks of VOC from On-Shore Natural Gas Processing Plants	
29. Is a **National Emission Standard for Hazardous Air Pollutants (NESHAP)** applicable to this source? *If yes, attach a completed FED-01 for each rule that applies.* ☐ Yes ☒ No		**30. Unit ID:**
☐ 40 CFR Part 61, Subpart J	Equipment Leaks (Fugitive Emission Sources) of Benzene	
☐ 40 CFR Part 61, Subpart V	Equipment Leaks (Fugitive Emission Sources)	
☐ 40 CFR Part 61, Subpart Y	Benzene Emissions from Benzene Storage Vessels	
☐ 40 CFR Part 63, Subpart R	Gasoline Distribution (Bulk Gasoline Terminals and Pipeline Breakout Stations)	
☐ 40 CFR Part 63, Subpart CC	Petroleum Refineries	
☐ 40 CFR Part 63, Subpart HHH	Natural Gas Transmission and Storage	
☐ 40 CFR Part 63, Subpart EEEE	Organic Liquids Distribution (non-gasoline)	

31. Non-Applicability Determination: *Provide an explanation if the process unit appears subject to a rule (based on the rule title or the source category), but the rule will not apply.*

TK No. 1 - 9 are not subject to 40 CFR 60 Subpart Kb because the tank size is less than 75 cubic meters (approximately 19,813 gallons).

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OAQ PROCESS INFORMATION APPLICATION
PI-14: Volatile Organic Liquid Compound Storage

State Form 52554 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to obtain detailed information about all tanks larger than 250 gallons that are used to store volatile organic liquid compounds. Duplicate this form as necessary.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

PART A: Tank Identification

Part A identifies and describes the tank. Duplicate this form as necessary to include all applicable tanks.

1. **Tank/Unit ID**:	6,300-Gal Belly Tanks BT No. 1 - 234 for critical emergency engines CEG No. 1 - 234
2. **Installation Date**: *(actual or anticipated)*	
3. **Tank Location**:	Under each critical emergency engine

4. **Tank Type**

☐ Fixed Roof, Cone ☐ External Floating Roof, Domed ☐ Internal Floating Roof
☐ Fixed Roof, Dome ☐ External Floating Roof, Not Domed ☐ Variable Vapor Space
☒ Other *(specify)*: Horizontal rectangle tanks ☐ Pressure Tank

5. Is the tank **Above Ground**?	☒ Yes	☐ No
6. **Tank Orientation**:	☒ Horizontal	☐ Vertical
7. **Tank Color**:	White	
8. **Materials Stored**: *(include MSDS)*	Diesel fuel	
9. **True Vapor Pressure** (PVA):	0.04 pounds per square inch (*psi at 20°C*)	
10. **Vapor Molecular Weight** (Mv):	~ 200 ~~gallons~~ (*lb/lbmole*)	
11. **Annual Throughput**:	5.20MMgallons per year (*gal/yr*) for all 234 belly tanks combined	
12. **Venting Method**:	Tank vent	
13. **Filling Method**:	☐ Submerged ☒ Not Submerged	☐ Other *(specify)*:

PART B: Emission Controls and Limitations

Part B identifies control technology, control techniques or other process limitations that impact air emissions.

14. **Add-On Control Technology**: *Identify all control technologies used for this unit, and attach completed CE-01 (unless "none").*

☒ None ☐ Other *(specify)*: *– Attach CE-10.*

15. **Control Techniques**: *Identify all control techniques used for this process.*

☒ None ☐ Flare ☐ Vapor Recovery System
☐ Other *(specify)*: *– Attach GSD-09.*

16. **Process Limitations / Additional Information**: *Identify any acceptable process limitations. Attach additional information if necessary.*

Belly tanks for storage of diesel fuel for emergency generators

Continued on Next Page

PART C: Information Specific to Tank Type

Part C identifies the physical properties of the tank.

17. Tank ~~Diameter (D):~~ Length (L) & Width (W)	feet (*ft*)	36.1 ft (L) x 14.0 ft (W)	
18. Tank Height (Hs):	1.70 feet (*ft*)		
19. Tank Volume / Capacity (V):	6300.00	gallons (*gal*) each	cubic feet (ft^3)
20. Maximum Liquid Height (Hlx):	1.5 feet (ft)		

21. External Floating Roof: *Complete only if applicable.*

a. Average Liquid Density (Wl):	pounds per gallon (*lb/gal*)		
b. Roof Type:	☐ Pontoon Floating Roof	☐ Double Deck Floating Roof	
c. Tank Construction:	☐ Welded	☐ Riveted	
d. Primary Rim Seal:	☐ Vapor Mounted	☐ Liquid Mounted	☐ Mechanical Shoe
e. Secondary Rim Seal:	☐ Weather Shield	☐ Rim Mounted	☐ None

22. Internal Floating Roof: *Complete only if applicable.*

a. Average Liquid Density (Wl):	pounds per gallon (*lb/gal*)		
b. Roof Type	☐ Double Deck Floating Roof	☐ Other: *(specify)*	
c. Self-supported fixed roof	☐ Yes	☐ No	
d. Number of columns supporting the fixed roof			
e. Deck Construction:	☐ Welded	☐ Riveted	☐ Bolted
f. Primary Rim Seal:	☐ Vapor Mounted	☐ Liquid Mounted	
g. Is there a Secondary Rim Seal?	☐ Yes	☐ No	

23. Variable Vapor Space: *Complete only if applicable.*

a. Volume of liquid pumped into the system (V1):	gallons per year (*gal/yr*)
b. Volume expansion capacity of system (V2):	gallons (*gal*)
c. Number of Transfers Into the System (N2)	per year (*/yr*)

PART D: Emission Factors

Part D identifies all emission factors used to calculate air emissions from the storage tank.

24. Air Pollutant:	**25. Emission Factor**		**26. Source of Emission Factor** *(if not using AP-42, include calculations)*		
	value	*units*			
Hazardous Air Pollutant (HAP): *(specify)*:			☐ AP-42	☐ Other	☐ N/A
Volatile Organic Compounds (VOC)			☒ AP-42	☐ Other	☐ N/A
Other *(specify)*:			☐ AP-42	☐ Other	
Other *(specify)*:			☐ AP-42	☐ Other	

Continued on Next Page

PART E: Federal Rule Applicability

Part E identifies any federal rules that apply to the process.

27. Is a **New Source Performance Standard (NSPS)** applicable to this source? *If yes, attach a completed FED-01 for each rule that applies.* ☐ Yes ☒ No		28. Unit ID:
☐ 40 CFR Part 60, Subpart K	Petroleum Liquid Storage Vessels (constructed after 6/11/1973 and before 5/19/1978)	
☐ 40 CFR Part 60, Subpart Ka	Petroleum Liquid Storage Vessels (constructed after 5/18/1978 and before 7/23/1984)	
☐ 40 CFR Part 60, Subpart Kb	Volatile Organic Liquid Storage Vessels, Including Petroleum Liquid Storage (constructed after 7/23/1984)	
☐ 40 CFR Part 60, Subpart VV	Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry	
☐ 40 CFR Part 60, Subpart GGG	Equipment Leaks of VOC in Petroleum Refineries	
☐ 40 CFR Part 60, Subpart KKK	Equipment Leaks of VOC from On-Shore Natural Gas Processing Plants	
29. Is a National Emission Standard for Hazardous Air Pollutants (NESHAP) applicable to this source? *If yes, attach a completed FED-01 for each rule that applies.* ☐ Yes ☒ No		**30. Unit ID:**
☐ 40 CFR Part 61, Subpart J	Equipment Leaks (Fugitive Emission Sources) of Benzene	
☐ 40 CFR Part 61, Subpart V	Equipment Leaks (Fugitive Emission Sources)	
☐ 40 CFR Part 61, Subpart Y	Benzene Emissions from Benzene Storage Vessels	
☐ 40 CFR Part 63, Subpart R	Gasoline Distribution (Bulk Gasoline Terminals and Pipeline Breakout Stations)	
☐ 40 CFR Part 63, Subpart CC	Petroleum Refineries	
☐ 40 CFR Part 63, Subpart HHH	Natural Gas Transmission and Storage	
☐ 40 CFR Part 63, Subpart EEEE	Organic Liquids Distribution (non-gasoline)	

31. Non-Applicability Determination: *Provide an explanation if the process unit appears subject to a rule (based on the rule title or the source category), but the rule will not apply.*

These belly tanks are not subject to 40 CFR 60 Subpart Kb because the tank size is less than 75 cubic meters (approximately 19,813 gallons).

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OAQ PROCESS INFORMATION APPLICATION
PI-14: Volatile Organic Liquid Compound Storage
State Form 52554 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
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Indianapolis, IN 46204-2251
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NOTES:

- The purpose of this form is to obtain detailed information about all tanks larger than 250 gallons that are used to store volatile organic liquid compounds. Duplicate this form as necessary.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
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PART A: Tank Identification

Part A identifies and describes the tank. Duplicate this form as necessary to include all applicable tanks.

1. **Tank/Unit ID**: Two (2) 5,000-Gal Belly Tanks for the two WTP gens / BT-WTP No. 1 & 2
2. **Installation Date**: *(actual or anticipated)*
3. **Tank Location**: Under each emergency engine
4. **Tank Type**

☐ Fixed Roof, Cone	☐ External Floating Roof, Domed	☐ Internal Floating Roof
☐ Fixed Roof, Dome	☐ External Floating Roof, Not Domed	☐ Variable Vapor Space
☒ Other *(specify)*: Horizontal rectangle tanks		☐ Pressure Tank

5. Is the tank **Above Ground**? ☒ Yes ☐ No
6. **Tank Orientation**: ☒ Horizontal ☐ Vertical
7. **Tank Color**: White
8. **Materials Stored**: *(include MSDS)* Diesel fuel
9. **True Vapor Pressure** (PVA): 0.04 pounds per square inch (*psi at 20°C*)
10. **Vapor Molecular Weight** (Mv): ~ 200 ~~gallons~~ (*lb/lbmole*)
11. **Annual Throughput**: 77050.00 gallons per year (*gal/yr*) for all the ancillary gens' belly tanks combined.
12. **Venting Method**: Tank vent
13. **Filling Method**: ☐ Submerged ☒ Not Submerged ☐ Other *(specify)*:

PART B: Emission Controls and Limitations

Part B identifies control technology, control techniques or other process limitations that impact air emissions.

14. **Add-On Control Technology**: *Identify all control technologies used for this unit, and attach completed CE-01 (unless "none").*

☒ None ☐ Other *(specify)*: — *Attach CE-10.*

15. **Control Techniques**: *Identify all control techniques used for this process.*

☒ None ☐ Flare ☐ Vapor Recovery System

☐ Other *(specify)*: — *Attach GSD-09.*

16. **Process Limitations / Additional Information**: *Identify any acceptable process limitations. Attach additional information if necessary.*

Belly tanks for storage of diesel fuel for emergency generators

Continued on Next Page

PART C: Information Specific to Tank Type

Part C identifies the physical properties of the tank.

17. Tank ~~Diameter (D)~~: Length (L) x Width (W)		feet (*ft*)	31 ft (L) x 11 ft (W)	
18. Tank Height (Hs):	2.00	feet (*ft*)		
19. Tank Volume / Capacity (V):	5000.00	gallons (*gal*) each	cubic feet (ft^3)	
20. Maximum Liquid Height (Hlx):	1.80	feet (ft)		
21. External Floating Roof: *Complete only if applicable.*				
a. Average Liquid Density (Wl):		pounds per gallon (*lb/gal*)		
b. Roof Type:	☐ Pontoon Floating Roof	☐ Double Deck Floating Roof		
c. Tank Construction:	☐ Welded	☐ Riveted		
d. Primary Rim Seal:	☐ Vapor Mounted	☐ Liquid Mounted	☐ Mechanical Shoe	
e. Secondary Rim Seal:	☐ Weather Shield	☐ Rim Mounted	☐ None	
22. Internal Floating Roof: *Complete only if applicable.*				
a. Average Liquid Density (Wl):		pounds per gallon (*lb/gal*)		
b. Roof Type	☐ Double Deck Floating Roof	☐ Other: *(specify)*		
c. Self-supported fixed roof	☐ Yes	☐ No		
d. Number of columns supporting the fixed roof				
e. Deck Construction:	☐ Welded	☐ Riveted	☐ Bolted	
f. Primary Rim Seal:	☐ Vapor Mounted	☐ Liquid Mounted		
g. Is there a Secondary Rim Seal?	☐ Yes	☐ No		
23. Variable Vapor Space: *Complete only if applicable.*				
a. Volume of liquid pumped into the system (V1):		gallons per year (*gal/yr*)		
b. Volume expansion capacity of system (V2):		gallons (*gal*)		
c. Number of Transfers Into the System (N2)		per year (*/yr*)		

PART D: Emission Factors

Part D identifies all emission factors used to calculate air emissions from the storage tank.

24. Air Pollutant:	**25. Emission Factor**		**26. Source of Emission Factor** *(if not using AP-42, include calculations)*		
	value	*units*			
Hazardous Air Pollutant (HAP): *(specify)*:			☐ AP-42	☐ Other	☐ N/A
Volatile Organic Compounds (VOC)			☒ AP-42	☐ Other	☐ N/A
Other *(specify)*:			☐ AP-42	☐ Other	
Other *(specify)*:			☐ AP-42	☐ Other	

Continued on Next Page

PART E: Federal Rule Applicability

Part E identifies any federal rules that apply to the process.

27. Is a **New Source Performance Standard (NSPS)** applicable to this source? *If yes, attach a completed FED-01 for each rule that applies.* ☐ Yes ☒ No		**28. Unit ID:**
☐ 40 CFR Part 60, Subpart K	Petroleum Liquid Storage Vessels (constructed after 6/11/1973 and before 5/19/1978)	
☐ 40 CFR Part 60, Subpart Ka	Petroleum Liquid Storage Vessels (constructed after 5/18/1978 and before 7/23/1984)	
☐ 40 CFR Part 60, Subpart Kb	Volatile Organic Liquid Storage Vessels, Including Petroleum Liquid Storage (constructed after 7/23/1984)	
☐ 40 CFR Part 60, Subpart VV	Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry	
☐ 40 CFR Part 60, Subpart GGG	Equipment Leaks of VOC in Petroleum Refineries	
☐ 40 CFR Part 60, Subpart KKK	Equipment Leaks of VOC from On-Shore Natural Gas Processing Plants	
29. Is a **National Emission Standard for Hazardous Air Pollutants (NESHAP)** applicable to this source? *If yes, attach a completed FED-01 for each rule that applies.* ☐ Yes ☒ No		**30. Unit ID:**
☐ 40 CFR Part 61, Subpart J	Equipment Leaks (Fugitive Emission Sources) of Benzene	
☐ 40 CFR Part 61, Subpart V	Equipment Leaks (Fugitive Emission Sources)	
☐ 40 CFR Part 61, Subpart Y	Benzene Emissions from Benzene Storage Vessels	
☐ 40 CFR Part 63, Subpart R	Gasoline Distribution (Bulk Gasoline Terminals and Pipeline Breakout Stations)	
☐ 40 CFR Part 63, Subpart CC	Petroleum Refineries	
☐ 40 CFR Part 63, Subpart HHH	Natural Gas Transmission and Storage	
☐ 40 CFR Part 63, Subpart EEEE	Organic Liquids Distribution (non-gasoline)	

31. Non-Applicability Determination: *Provide an explanation if the process unit appears subject to a rule (based on the rule title or the source category), but the rule will not apply.*

The emergency generator belly tanks are not subject to 40 CFR 60 Subpart Kb because the tank size is less than 75 cubic meters (approximately 19,813 gallons).

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OAQ PROCESS INFORMATION APPLICATION
PI-14: Volatile Organic Liquid Compound Storage

State Form 52554 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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NOTES:

- The purpose of this form is to obtain detailed information about all tanks larger than 250 gallons that are used to store volatile organic liquid compounds. Duplicate this form as necessary.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

PART A: Tank Identification

Part A identifies and describes the tank. Duplicate this form as necessary to include all applicable tanks.

1. **Tank/Unit ID**: Nine (9) up to 1,500-Gal Belly Tanks for the nine house gens / BT-HG No. 1-9
2. **Installation Date**: *(actual or anticipated)*
3. **Tank Location**: Under each emergency engine
4. **Tank Type**

☐ Fixed Roof, Cone ☐ External Floating Roof, Domed ☐ Internal Floating Roof
☐ Fixed Roof, Dome ☐ External Floating Roof, Not Domed ☐ Variable Vapor Space
☒ Other *(specify)*: Horizontal rectangle tanks ☐ Pressure Tank

5. Is the tank **Above Ground**? ☒ Yes ☐ No
6. **Tank Orientation**: ☒ Horizontal ☐ Vertical
7. **Tank Color**: White
8. **Materials Stored**: *(include MSDS)* Diesel fuel
9. **True Vapor Pressure** (PVA): 0.04 pounds per square inch (*psi at 20°C*)
10. **Vapor Molecular Weight** (Mv): ~ 200 ~~gallons~~ (*lb/lbmole*)
11. **Annual Throughput**: 77050.00 gallons per year (*gal/yr*) for all ancillary gens' belly tanks combined.
12. **Venting Method**: Tank vent
13. **Filling Method**: ☐ Submerged ☒ Not Submerged ☐ Other *(specify)*:

PART B: Emission Controls and Limitations

Part B identifies control technology, control techniques or other process limitations that impact air emissions.

14. **Add-On Control Technology**: *Identify all control technologies used for this unit, and attach completed CE-01 (unless "none").*

☒ None ☐ Other *(specify)*: — *Attach CE-10.*

15. **Control Techniques**: *Identify all control techniques used for this process.*

☒ None ☐ Flare ☐ Vapor Recovery System
☐ Other *(specify)*: — *Attach GSD-09.*

16. **Process Limitations / Additional Information**: *Identify any acceptable process limitations. Attach additional information if necessary.*

Belly tanks for storage of diesel fuel for emergency generators

Continued on Next Page

PART C: Information Specific to Tank Type

Part C identifies the physical properties of the tank.

17. Tank ~~Diameter (D)~~:	Length (L) x Width (W)	feet (*ft*)	15 ft (L) x 6.4 ft (W)
18. Tank Height (Hs):	2.10	feet (*ft*)	
19. Tank Volume / Capacity (V):	Up to 1,500	gallons (*gal*) each	cubic feet (ft^3)
20. Maximum Liquid Height (Hlx):	1.80	feet (ft)	

21. External Floating Roof: *Complete only if applicable.*

a. Average Liquid Density (Wl):	pounds per gallon (*lb/gal*)			
b. Roof Type:	☐ Pontoon Floating Roof	☐ Double Deck Floating Roof		
c. Tank Construction:	☐ Welded	☐ Riveted		
d. Primary Rim Seal:	☐ Vapor Mounted	☐ Liquid Mounted	☐ Mechanical Shoe	
e. Secondary Rim Seal:	☐ Weather Shield	☐ Rim Mounted	☐ None	

22. Internal Floating Roof: *Complete only if applicable.*

a. Average Liquid Density (Wl):	pounds per gallon (*lb/gal*)		
b. Roof Type	☐ Double Deck Floating Roof	☐ Other: *(specify)*	
c. Self-supported fixed roof	☐ Yes	☐ No	
d. Number of columns supporting the fixed roof			
e. Deck Construction:	☐ Welded	☐ Riveted	☐ Bolted
f. Primary Rim Seal:	☐ Vapor Mounted	☐ Liquid Mounted	
g. Is there a Secondary Rim Seal?	☐ Yes	☐ No	

23. Variable Vapor Space: *Complete only if applicable.*

a. Volume of liquid pumped into the system (V1):	gallons per year (*gal/yr*)
b. Volume expansion capacity of system (V2):	gallons (*gal*)
c. Number of Transfers Into the System (N2)	per year (*/yr*)

PART D: Emission Factors

Part D identifies all emission factors used to calculate air emissions from the storage tank.

24. Air Pollutant:	**25. Emission Factor**		**26. Source of Emission Factor** *(if not using AP-42, include calculations)*		
	value	*units*			
Hazardous Air Pollutant (HAP): *(specify)*:			☐ AP-42	☐ Other	☐ N/A
Volatile Organic Compounds (VOC)			☒ AP-42	☐ Other	☐ N/A
Other *(specify)*:			☐ AP-42	☐ Other	
Other *(specify)*:			☐ AP-42	☐ Other	

Continued on Next Page

PART E: Federal Rule Applicability

Part E identifies any federal rules that apply to the process.

27. Is a **New Source Performance Standard (NSPS)** applicable to this source? *If yes, attach a completed FED-01 for each rule that applies.* ☐ Yes ☒ No		**28. Unit ID:**
☐ 40 CFR Part 60, Subpart K	Petroleum Liquid Storage Vessels (constructed after 6/11/1973 and before 5/19/1978)	
☐ 40 CFR Part 60, Subpart Ka	Petroleum Liquid Storage Vessels (constructed after 5/18/1978 and before 7/23/1984)	
☐ 40 CFR Part 60, Subpart Kb	Volatile Organic Liquid Storage Vessels, Including Petroleum Liquid Storage (constructed after 7/23/1984)	
☐ 40 CFR Part 60, Subpart VV	Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry	
☐ 40 CFR Part 60, Subpart GGG	Equipment Leaks of VOC in Petroleum Refineries	
☐ 40 CFR Part 60, Subpart KKK	Equipment Leaks of VOC from On-Shore Natural Gas Processing Plants	
29. Is a **National Emission Standard for Hazardous Air Pollutants (NESHAP)** applicable to this source? *If yes, attach a completed FED-01 for each rule that applies.* ☐ Yes ☒ No		**30. Unit ID:**
☐ 40 CFR Part 61, Subpart J	Equipment Leaks (Fugitive Emission Sources) of Benzene	
☐ 40 CFR Part 61, Subpart V	Equipment Leaks (Fugitive Emission Sources)	
☐ 40 CFR Part 61, Subpart Y	Benzene Emissions from Benzene Storage Vessels	
☐ 40 CFR Part 63, Subpart R	Gasoline Distribution (Bulk Gasoline Terminals and Pipeline Breakout Stations)	
☐ 40 CFR Part 63, Subpart CC	Petroleum Refineries	
☐ 40 CFR Part 63, Subpart HHH	Natural Gas Transmission and Storage	
☐ 40 CFR Part 63, Subpart EEEE	Organic Liquids Distribution (non-gasoline)	

31. **Non-Applicability Determination**: *Provide an explanation if the process unit appears subject to a rule (based on the rule title or the source category), but the rule will not apply.*

The emergency generator belly tanks are not subject to 40 CFR 60 Subpart Kb because the tank size is less than 75 cubic meters (approximately 19,813 gallons).

This space was intentionally left blank.

OAQ PROCESS INFORMATION APPLICATION
PI-14: Volatile Organic Liquid Compound Storage

State Form 52554 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of this form is to obtain detailed information about all tanks larger than 250 gallons that are used to store volatile organic liquid compounds. Duplicate this form as necessary.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for anyone to inspect and photocopy.

PART A: Tank Identification

Part A identifies and describes the tank. Duplicate this form as necessary to include all applicable tanks.

1. **Tank/Unit ID**:	Three (3) up to 1,000-Gal Belly Tanks for the ancillary CAB, CLB, and ACB emergency generators
2. **Installation Date**: *(actual or anticipated)*	
3. **Tank Location**:	Under each emergency engine

4. **Tank Type**

☐ Fixed Roof, Cone ☐ External Floating Roof, Domed ☐ Internal Floating Roof
☐ Fixed Roof, Dome ☐ External Floating Roof, Not Domed ☐ Variable Vapor Space
☒ Other *(specify)*: Horizontal rectangle tanks ☐ Pressure Tank

5. Is the tank **Above Ground**?	☒ Yes	☐ No
6. **Tank Orientation**:	☒ Horizontal	☐ Vertical
7. **Tank Color**:	White	
8. **Materials Stored**: *(include MSDS)*	Diesel fuel	
9. **True Vapor Pressure** (PVA):	0.04	pounds per square inch (*psi at 20°C*)
10. **Vapor Molecular Weight** (Mv):	~ 200	~~gallons~~ (*lb/lbmole*)
11. **Annual Throughput**:	77050.00	gallons per year (*gal/yr*) for all ancillary gens' belly tanks combined
12. **Venting Method**:	Tank vent	
13. **Filling Method**:	☐ Submerged ☒ Not Submerged	☐ Other *(specify)*:

PART B: Emission Controls and Limitations

Part B identifies control technology, control techniques or other process limitations that impact air emissions.

14. **Add-On Control Technology**: *Identify all control technologies used for this unit, and attach completed CE-01 (unless "none").*

☒ None ☐ Other *(specify)*: – *Attach CE-10.*

15. **Control Techniques**: *Identify all control techniques used for this process.*

☒ None ☐ Flare ☐ Vapor Recovery System
☐ Other *(specify)*: – *Attach GSD-09.*

16. **Process Limitations / Additional Information**: *Identify any acceptable process limitations. Attach additional information if necessary.*

Belly tanks for storage of diesel fuel for emergency generators

Continued on Next Page

PART C: Information Specific to Tank Type

Part C identifies the physical properties of the tank.

17. Tank ~~Diameter (D)~~:	Length (L) x Width (W)	feet (*ft*)	12.8 ft (L) x 5 ft (W)	
18. Tank Height (Hs):	2.10	feet (*ft*)		
19. Tank Volume / Capacity (V):	Up to 1,000	gallons (*gal*) each	cubic feet (ft^3)	
20. Maximum Liquid Height (Hlx):	1.80	feet (ft)		

21. External Floating Roof: *Complete only if applicable.*

a. Average Liquid Density (Wl):	pounds per gallon (*lb/gal*)		
b. Roof Type:	☐ Pontoon Floating Roof	☐ Double Deck Floating Roof	
c. Tank Construction:	☐ Welded	☐ Riveted	
d. Primary Rim Seal:	☐ Vapor Mounted	☐ Liquid Mounted	☐ Mechanical Shoe
e. Secondary Rim Seal:	☐ Weather Shield	☐ Rim Mounted	☐ None

22. Internal Floating Roof: *Complete only if applicable.*

a. Average Liquid Density (Wl):	pounds per gallon (*lb/gal*)		
b. Roof Type	☐ Double Deck Floating Roof	☐ Other: *(specify)*	
c. Self-supported fixed roof	☐ Yes	☐ No	
d. Number of columns supporting the fixed roof			
e. Deck Construction:	☐ Welded	☐ Riveted	☐ Bolted
f. Primary Rim Seal:	☐ Vapor Mounted	☐ Liquid Mounted	
g. Is there a Secondary Rim Seal?	☐ Yes	☐ No	

23. Variable Vapor Space: *Complete only if applicable.*

a. Volume of liquid pumped into the system (V1):	gallons per year (*gal/yr*)
b. Volume expansion capacity of system (V2):	gallons (*gal*)
c. Number of Transfers Into the System (N2)	per year (*/yr*)

PART D: Emission Factors

Part D identifies all emission factors used to calculate air emissions from the storage tank.

24. Air Pollutant:	**25. Emission Factor**		**26. Source of Emission Factor** *(if not using AP-42, include calculations)*		
	value	*units*			
Hazardous Air Pollutant (HAP): *(specify)*:			☐ AP-42	☐ Other	☐ N/A
Volatile Organic Compounds (VOC)			☒ AP-42	☐ Other	☐ N/A
Other *(specify)*:			☐ AP-42	☐ Other	
Other *(specify)*:			☐ AP-42	☐ Other	

Continued on Next Page

PART E: Federal Rule Applicability

Part E identifies any federal rules that apply to the process.

27. Is a **New Source Performance Standard (NSPS)** applicable to this source? *If yes, attach a completed FED-01 for each rule that applies.* ☐ Yes ☒ No		28. Unit ID:
☐ 40 CFR Part 60, Subpart K	Petroleum Liquid Storage Vessels (constructed after 6/11/1973 and before 5/19/1978)	
☐ 40 CFR Part 60, Subpart Ka	Petroleum Liquid Storage Vessels (constructed after 5/18/1978 and before 7/23/1984)	
☐ 40 CFR Part 60, Subpart Kb	Volatile Organic Liquid Storage Vessels, Including Petroleum Liquid Storage (constructed after 7/23/1984)	
☐ 40 CFR Part 60, Subpart VV	Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry	
☐ 40 CFR Part 60, Subpart GGG	Equipment Leaks of VOC in Petroleum Refineries	
☐ 40 CFR Part 60, Subpart KKK	Equipment Leaks of VOC from On-Shore Natural Gas Processing Plants	
29. Is a **National Emission Standard for Hazardous Air Pollutants (NESHAP)** applicable to this source? *If yes, attach a completed FED-01 for each rule that applies.* ☐ Yes ☒ No		**30. Unit ID:**
☐ 40 CFR Part 61, Subpart J	Equipment Leaks (Fugitive Emission Sources) of Benzene	
☐ 40 CFR Part 61, Subpart V	Equipment Leaks (Fugitive Emission Sources)	
☐ 40 CFR Part 61, Subpart Y	Benzene Emissions from Benzene Storage Vessels	
☐ 40 CFR Part 63, Subpart R	Gasoline Distribution (Bulk Gasoline Terminals and Pipeline Breakout Stations)	
☐ 40 CFR Part 63, Subpart CC	Petroleum Refineries	
☐ 40 CFR Part 63, Subpart HHH	Natural Gas Transmission and Storage	
☐ 40 CFR Part 63, Subpart EEEE	Organic Liquids Distribution (non-gasoline)	

31. Non-Applicability Determination: *Provide an explanation if the process unit appears subject to a rule (based on the rule title or the source category), but the rule will not apply.*

The emergency generator belly tanks are not subject to 40 CFR 60 Subpart Kb because the tank size is less than 75 cubic meters (approximately 19,813 gallons).

This space was intentionally left blank.

OAQ CONTROL EQUIPMENT APPLICATION
CE-01: Control Equipment Summary

State Form 51904 (R3 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of CE-01 is to summarize all of the equipment used to control emissions. This is a required form.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for any one to inspect and photocopy.

Summary of Control Equipment

This table summarizes all of the equipment used to control air pollutant emissions. The identification numbers listed on this form should correspond to the emissions unit identified on the Plant Layout diagram and Process Flow diagram.

1. Control Equipment ID	2. Control Equipment Description	3. Pollutant Controlled	4. Emission Unit ID	5. Stack / Vent ID	6. Applicable Rule
CE 1 - 234	Each of the critical emergency generators CEG No. 1 – 234 (2750 kW each) will be equipped with an emission control system, which is a combined after-treatment system that integrates selective catalytic reduction (SCR), diesel oxidation catalyst (DOC), and diesel particulate filter (DPF) to meet the Tier 4 equivalent emission limits	NOx, CO, VOC, and PM	CEG No. 1 - 234	S-1 thru S-234	Tier 2 certified engines with voluntary emission control to achieve EPA Tier 4 emission standards

OAQ CONTROL EQUIPMENT APPLICATION
CE-10: Miscellaneous Control Equipment

State Form 52436 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
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Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of CE-10 is to identify all the parameters that describe the control device.
- Complete this form once for each control device not covered by CE-02 through CE-09.
- Detailed instructions for this form are available online on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for any one to inspect and photocopy.

PART A: Identification and Description of Control Equipment

Part A identifies the control device and describes its physical properties.

1. Control Equipment ID:	CE 1 - 234 for critical emergency generators CEG No. 1 - 234
2. Installation Date:	
3. Description of Control Device:	Each critical emergency generator will be equipped with a combined after-treatment system that integrates selective catalytic reduction (SCR), diesel oxidation catalyst (DOC), and diesel particulate filter (DPF). All these components work together to achieve the control efficiencies provided in the manufacturer specifications (attached in Appendix B).

PART B: Operational Parameters

Part B provides the operational parameters of the control device and the pollutant laden gas stream. Appropriate units must be included if the standard units are not used.

	A. Units	B. Inlet	C. Outlet	D. Differential
4. Gas Stream Flow Rate				
5. Gas Stream Temperature	°F			
6. Gas Stream Pressure	inches of water			to
7. Moisture Content	%			
8. Particle Size Range	micrometers			to
9. Other *(specify)*:				

PART C: Pollutant Concentrations

Part C provides the pollutant concentrations of the pollutant laden gas stream.

	10. Units	11. Inlet	12. Outlet	13. Efficiency *(%)*: Capture	Control
☒ **a.** Carbon Monoxide (CO)				100.00%	70.00%
☐ **b.** Lead (Pb)					
☒ **c.** Hazardous Air Pollutant (HAP) *(specify)*: Volatile organic HAPs from diesel fuel combustion				100.00%	45.00%
☒ **d.** Nitrogen Oxides (NO_X)				100.00%	91.70%
☐ **e.** Mercury (Hg)					
☒ **f.** Particulate Matter (PM)				100.00%	68.60%
☒ **g.** Particulate Matter less than 10μm (PM_{10})				100.00%	68.60%
☒ **h.** Particulate Matter less than 2.5μm ($PM_{2.5}$)				100.00%	68.60%

Continued on Next Page

☐	i. Sulfur Dioxide (SO_2)					
☒	j. Volatile Organic Compounds (VOC)				100.00%	45.00%
☐	k. Other Pollutant *(specify)*:					

PART D: Monitoring, Record Keeping, & Testing Procedures

Part D identifies any existing or proposed monitoring, record keeping, & testing procedures that may need to be included in the permit.

14. Item(s) Monitored:	Catalyst bed temperature	Differential pressure across the control system		
15. Monitoring Frequency:	At least once every 15 miutes during generator operation	Per equipment supplier's recommendation		
16. Item(s) Recorded:	Catalyst bed temperature	Differential pressure across the control system		
17. Record Keeping Frequency:	At least once every 15 miutes during generator operation	Per equipment supplier's recommendation		
18. Pollutant(s) Tested:	NA			
19. Test Method(s):	NA			
20. Testing Frequency:	NA			

PART E: Preventive Maintenance Plan

Part E verifies that a complete Preventive Maintenance Plan (PMP) has been prepared for the control device, if applicable. Use this table as a checklist to ensure that the PMP is complete.

21. Do you have a Preventive Maintenance Plan (PMP)?

☐ No PMP is needed. ☒ Yes – the following items are identified on the PMP:

- ☒ **A.** Identification of the individual(s) responsible for inspecting, maintaining and repairing emission control devices.
- ☒ **B.** Description of the items or conditions that will be inspected.
- ☒ **C.** Schedule for inspection of items or conditions described above.
- ☒ **D.** Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

PART F: Determination of Integral Control

Part F provides explanation to determine whether the control device should be considered integral to the process.

22. Has IDEM already made an integral control determination for this device? ☒ No ☐ Yes
If "Yes", provide the following:

Permit Number:	**Issuance Date:**	**Determination:** ☐ Integral ☐ Not Integral

23. Is this device integral to the process? ☒ No ☐ Yes
If "Yes", provide the reason(s) why the device is integral.

OAQ FEDERAL RULE INCORPORATION APPLICATION
FED-01: Summary of Federal Requirements – NSPS & NESHAP

State Form 53512 (R / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53, Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.in.gov/idem

NOTES:

- The purpose of this form is to provide a standardized way for sources to identify the NSPS or NESHAP requirements that are applicable to the regulated source. Complete one (1) form for each federal rule that applies to the source. This is a required form.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record.

Part A: Identification of Applicable Standard

Part A identifies the applicable standard and affected source.

1. **Type of Standard:**	☒ Part 60 NSPS ☐ Part 61 NESHAP ☒ Part 63 NESHAP (MACT)
2. **Subpart Letter:**	Part 50 NSPS Subpart IIII and Part 63 NESHAP Subpart ZZZZ
3. **Source Category Name:**	Emergency generators
4. **Affected Source** *(Include all applicable emission unit IDs)*:	CEG No. 1 - 234, WTP Gens No. 1 & 2, HG No. 1 - 9, CAB Gen No. 1, CLB Gen No. 1, and ACB Gen No. 1

Part B: Applicable Requirements

Part B specifies the specific requirements of the federal rule that are applicable to the process or emission unit.

5. **Applicable Requirements**: *Identify the section of the federal standard that is applicable at the lowest subsection level. For example, if all of 40 CFR 63.342(c) is applicable, "40 CFR 63.342(c)" is the appropriate citation. If only paragraph 2 of 40 CFR 63.342(c) is applicable, then the appropriate citation is 40 CFR 63.342(c)(2).*

- 40 CFR 60.4200(a)(2) and (4), (c)
- 40 CFR 60.4205(b)
- 40 CFR 60.4206
- 40 CFR 60.4207(b)
- 40 CFR 60.4208
- 40 CFR 60.4209
- 40 CFR 60.4211(a), (c), (f), and (g)
- 40 CFR 60.4212
- 40 CFR 60.4214(b)
- 40 CFR 60.4218
- 40 CFR 60.4219
- Table 8 to NSPS Subpart IIII
- 40 CFR 63.6580
- 40 CFR 63.6585
- 40 CFR 63.6590(a)(2)(iii) and (c)(1)
- 40 CFR 63.6595(a)(7)
- 40 CFR 63.6670
- 40 CFR 63.6675

Continued on Next Page

Part C: Performance Testing Requirements

Part C identifies the performance testing requirements that are applicable to the process or emission unit.

6. Performance Testing:	No testing required by NSPS or NESHAP
7. Date of Initial Performance Test:	
8. Test Methods:	
9. Was the initial performance test approved by IDEM?	☐ Yes: *Date approved:* _____ ☐ No
10. Did the initial performance test show compliance with the rule?	☐ Yes ☐ No: *Date of next performance test:* _____

Part D: Important Dates

Part D identifies specific dates associated with the federal standard that are applicable to the process or emission unit.

11. Date Initial Notification was Submitted:	Proposed units not yet installed	
12. Initial Compliance Date:	☐ Startup: _____ ☐ Other: _____	
13. Other Dates	Description: _____	Date: _____
	Description: _____	Date: _____
	Description: _____	Date: _____

Part E: Other Information

Part E identifies any additional information pertaining to the applicable federal rule. Attach additional information using form GSD-09 as necessary.

OAQ COMPLIANCE DETERMINATION APPLICATION
CD-01: Emissions Unit Compliance Status
State Form 51861 (R / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of CD-01 is to identify the requirements that apply to each emissions unit at the permitted source and to determine the compliance status of these emissions units.
- This is required form for each initial Title V permit application as well as each modification and every renewal.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for any one to inspect and photocopy.

PART A: Identification of Source and Emissions Unit

Part A identifies the source and the emissions unit. For the purposes of this form, the term "source" refers to the plant site as a whole and NOT to individual emissions units.

1. **Source Name:** Razor5 LLC	2. **Source ID:** –
3. **Emissions Unit Description:** All the proposed emergency generators	4. **Unit ID:** CEG No. 1-234, WTP Gens 1 & 2, HG 1-9, CAB Gen No. 1, CLB Gen No. 1 & ACB Gen No. 1

PART B: Regulatory Compliance Status

Part B identifies the regulatory requirements that apply to the emissions unit and to determine the compliance status of the emissions unit. These "regulatory requirements" are those required by federal, state, or local law.

5. Rule Cite	6. Description	7. State / Local Only	8. Limitation	9. Test Method	10. In Compliance (y/n)
40 CFR 60 Subpart IIII	NSPS for Stationary Compression Ignition Internal Combustion Engines		Tier 2 or Tier 3 emission standards, depending on the engine power capacity	Purchasing certified engines	y
40 CFRR 63 Subpart ZZZZ	NESHAP for Stationary Reciprocating Internal Combustion Engines		Comply with this subpart by meeting the requirements of 40 CFR 60 Subpart IIII	NA	y
326 IAC-5-2-1	Opacity limits	X	See Narrative Description, Section 4.2.1	Visible emission obervations	y
326 IAC 6.5-1-2	PM limitations	X	See Narrative Description, Section 4.2.5	Purchasing certified engines	y

PART C: Compliance Status – Other Requirements

Part C identifies any other requirements that apply to the emissions unit and to determine the compliance status of the emissions unit. These "other requirements" would not be required by federal, state, or local law.

11. Other Requirements	12. State / Local Only	13. In Compliance (y/n)

OAQ COMPLIANCE DETERMINATION APPLICATION
CD-02: Compliance Plan Requirements Per Applicable Requirement

State Form 51862 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of CD-02 is to identify existing compliance monitoring activities (monitoring, testing, record keeping and/or reporting) required in an applicable requirement or to provide compliance monitoring activities for applicable requirements where there is no or inadequate compliance monitoring requirements.
- CD-02 focuses on generally applicable requirements that apply to many or all emission units at the source.
- This is required form for each initial Title V permit application as well as each modification and every renewal.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for any one to inspect and photocopy.

PART A: Identification of Source and Applicable Requirement

Part A identifies the source and the applicable requirement. Use one form for each applicable requirement. For the purposes of this form, the term "source" refers to the plant site as a whole and NOT to individual emissions units.

1. **Source Name:**	Razor5 LLC	2. **Source ID:**	—
3. **Applicable Requirement:**	40 CFR 60 Subpart IIII - NSPS for Stationary Compression Ignition Internal Combustion Engines		
4. **Rule Cite:**	40 CFR 60.4205(b) and 60.4211(f)		

5. **Limitations:** List each operational and/or emission limit specified in the applicable requirement.

Emission limits: meet applicable Tier 2 or Tier 3 emission standards based on the power capacity of each engine.

Operational limits: Runtime restrictions for emergency engines:

(1) No time limit in emergency situations.

(2) Runtime for maintenance checks and rediness testing shall not exceed 100 hrs/yr.

(3) Runtime in non-emergency situations shall not exceed 50 hrs/yr, which are counted as part of the 100 hrs/yr for maintenance checks and readiness testing.

6. **Reporting Schedule:** Provide a description of the reporting schedule to be used. The schedule should include what will be reported and how often the reports will be submitted.

No initial notificaiton or routine reporting required for emergency engines under 40 CFR 60. The owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.

Continued on Next Page

PART B: Compliance Plan Components

Part B identifies the main components of each required compliance plan.

7. Unit ID	8. Stack / Vent ID	9. Control Equipment	10. Parameters Monitored	11. Monitoring Frequency	12. Item Recorded	13. Record Keeping Frequency	14. Pollutants tested	15. Test Method	16. Testing Frequency
All the emergency gens		NA	Operation of each engine in emergency and non-emergency service: time of operation and the reason of run.	Each engine run event	Time of operation and the reason of run.	Each engine run event	NA	NA	NA

OAQ COMPLIANCE DETERMINATION APPLICATION
CD-03: Compliance Plan Requirements Per Emissions Unit

State Form 51863 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of CD-03 is to identify existing compliance monitoring activities (monitoring, testing, record keeping and/or reporting) required in an applicable requirement or to provide compliance monitoring activities for applicable requirements where there is no or inadequate compliance monitoring requirements.
- CD-03 focuses on specific applicable requirements that may apply to a single emission unit or group of emission units.
- This is required form for each initial Title V permit application as well as each modification and every renewal.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for any one to inspect and photocopy.

PART A: Identification of Source and Applicable Requirement

Part A identifies the source and the emissions unit. Use one form for each emissions unit. For the purposes of this form, the term "source" refers to the plant site as a whole and NOT to individual emissions units.

1. Source Name: Razor5 LLC	**2. Source ID:** —
3. Emissions Unit Description: Emergency Gens < 460 kW each	**4. Unit ID:** CAB Gen No. 1, CLB Gen No. 1, & ACB Gen No. 1

5. Limitations: List each operational and/or emission limit for this emissions unit.

Meet EPA Tier 3 emission standards (will comply by purchasing certified engines).

Operational limits: Runtime restrictions for emergency engines:

(1) No time limit in emergency situations.

(2) Runtime for maintenance checks and rediness testing shall not exceed 100 hrs/yr.

(3) Runtime in non-emergency situations shall not exceed 50 hrs/yr, which are counted as part of the 100 hrs/yr for maintenance checks and readiness testing.

6. Reporting Schedule: Provide a description of the reporting schedule to be used. The schedule should include what will be reported and how often the reports will be submitted.

No initial notificaiton or routine reporting required for emergency engines under 40 CFR 60. The owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.

Continued on Next Page

PART B: Compliance Plan Components

Part B identifies the main components of each required compliance plan.

7. Rule Cite	8. Control Equipment	9. Parameters Monitored	10. Monitoring Frequency	11. Item Recorded	12. Record Keeping Frequency	13. Pollutants tested	14. Test Method	15. Testing Frequency
40 CFR 60.4211(f) & 4214 (b)	NA	Operation of each engine in emergency and non-emergency service: time of operation and the reason of run.	Each engine run event	Time of operation and the reason of run.	Each engine run event	NA	NA	NA

OAQ COMPLIANCE DETERMINATION APPLICATION
CD-04: Compliance Schedule and Certification

State Form 51864 (R2 / 1-10)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

NOTES:

- The purpose of CD-04 is to provide a schedule of for compliance certification submittals, a certification of the source's compliance status with all applicable requirements, and a compliance schedule that details the measures a source will use to address non-compliance.
- Complete this form once per application (not once for each emissions unit) with respect to all applicable requirements at the source.
- This is required form for each initial Title V permit application as well as each modification and every renewal.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for any one to inspect and photocopy.

PART A: Source Identification and Compliance Schedule

Part A identifies the permitted source and the permit term compliance certification schedule.

1. **Source Name:** Razor5 LLC	2. **Source ID:** —
3. **Permit Term Compliance Certification Schedule**	
Date of first certification submittal:	**Frequency of future submittals:** Annual

PART B: Risk Management Plan

Part B indicates whether sources subject to section 112(r), Accidental Release Prevention, are complying with the requirement to submit a Risk Management Plan (RMP).

4. **Statement of Applicability / Non-Applicability:** Indicate whether the source is subject to Section 112(r) and the requirement to submit and RMP.

☐ Source is subject to Section 112(r) and a Risk Management Plan (RMP) is required.

☒ Source is not subject to Section 112(r) and a Risk Management Plan (RMP) is not required.

RMP Submittal Information: Indicate when the RMP was submitted to each of the following agencies. If the RMP has not yet been submitted to any of the listed agencies, indicate the date when the RMP will be mailed to that agency. If the RMP for IDEM is attached to this application, please write "attached" in the Date Submitted column.

5. Agency Name	6. Date Submitted	7. Expected Submittal Date
Chemical Safety and Hazard Investigation Board (CSHIB)		
United States Environmental Protection Agency (U.S. EPA)		
Indiana Department of Environmental Management (IDEM)		
Local Agency responsible for permitting:		

8. **EPA Facility Identifier:** — —

Continued on Next Page

PART C: Certification of Source Compliance Status

Part C states whether the source is or is not in full compliance with all applicable requirements and to identify corrective actions to be taken in cases of noncompliance.

9. Check the Most Accurate Statement.

☒ The source described in this air pollution control permit application is fully in compliance with all applicable requirements and will continue to comply with those requirements.

☐ FORM CD-01 includes new requirements that apply or will apply to the emissions unit during the term of the permit. The source will meet such requirements on a timely basis.

☐ The source described in this air pollution control permit application is fully in compliance with all applicable requirements, except for the emissions unit(s) listed below. Compliance will be achieved according to the schedule identified below.

10. Unit ID	11. Applicable Requirement	12. Corrective Action	13. Deadline	14. Progress Reports	
				Start Date	Frequency

15. Signature of Responsible Official

☒ I certify that, based on information and belief formed after reasonable inquiry, the statements and information presented are true, accurate and complete.

Pamela A. Gregorski
Name *(typed)*

President
Title

Signature

4/8/2024
Date

PART C: Certification of Source Compliance Status

Part C states whether the source is or is not in full compliance with all applicable requirements and to identify corrective actions to be taken in cases of noncompliance.

9. Check the Most Accurate Statement.

- ☒ The source described in this air pollution control permit application is fully in compliance with all applicable requirements and will continue to comply with those requirements.
- ☐ FORM CD-01 includes new requirements that apply or will apply to the emissions unit during the term of the permit. The source will meet such requirements on a timely basis.
- ☐ The source described in this air pollution control permit application is fully in compliance with all applicable requirements, except for the emissions unit(s) listed below. Compliance will be achieved according to the schedule identified below.

10. Unit ID	11. Applicable Requirement	12. Corrective Action	13. Deadline	14. Progress Reports	
				Start Date	Frequency

15. Signature of Responsible Official

☒ I certify that, based on information and belief formed after reasonable inquiry, the statements and information presented are true, accurate and complete.

Pamela A. Gregorski
Name *(typed)*

President
Title

Pamela A Gregorski
Signature

4/11/2024
Date

APPENDIX B
POTENTIAL EMISSION CALCULATIONS

Facility Wide Potential Emissions Summary

Facility: SBN100

Address: 55001 Larrison Blvd., New Carlisle, IN 46552

Table B.1 - Summary of Facility Wide Potential Emissions

Emission Units	Insignificant Activity?	Equipment ID No.	Number of Units	NO_x (tpy)	CO (tpy)	$PM/PM_{10}/PM_{2.5}$ (tpy)	TOC (tpy)	SO_2 (tpy)	Max. Single HAP (tpy)	Total HAPs (tpy)	CO_2e (tpy)
Critical Emergency Generators (Tier 4 Equivalent - 2,750 kW ea.)	Significant EUs	CEG No. 1 - 234	234	236.80	90.41	10.52	38.44	0.54	0.17	0.35	58,291.86
Ancillary Emergency Generators for Water Treatment System (Tier 2 - 1,500 kW ea.)	Significant EUs	WTP Gens No. 1 & 2	2								
House Emergency Generators (Tier 2 - 750kW ea.)	Insignificant per 326 IAC 2-7-1 (21)(xxii)(bb)	HG No. 1 - 9	9								
Ancillary Emergency Generator for CAB (Tier 3 - 400 kW)	Insignificant per 326 IAC 2-7-1 (21)(xxii)(bb)	CAB Gen No. 1	1	12.05	19.19	1.33	7.75	1.53	0.004	0.01	863.73
Ancillary Emergency Generator for LCB (Tier 3 - 400 kW)	Insignificant per 326 IAC 2-7-1 (21)(xxii)(bb)	LCB Gen No. 1	1								
Ancillary Emergency Generator for ACB (Tier 3 - 250kW)	Insignificant per 326 IAC 2-7-1 (21)(xxii)(bb)	ACB Gen No. 1	1								
Central Diesel Fuel Storage Tanks - Nine (9) 12,000-Gal Fuel Tanks	Insignificant per 326 IAC 2-7-1(21)(E)(iv) or Trivial per 2-7-1 (42)(C)(i)&(ii)(DD)	TK No. 1 - 9	9				0.056		Neg.	Neg.	
Diesel Fuel Belly Tanks for Tier 4 Gens, 6,300-gal each	Insignificant per 326 IAC 2-7-1(21)(E)(iv) or Trivial per 2-7-1 (42)(C)(i)&(ii)(DD)	BT No. 1 - 234	234				0.150		Neg.	Neg.	
Diesel Fuel Belly Tanks in various sizes for Ancillary Gens	Insignificant per 326 IAC 2-7-1(21)(E)(iv) or Trivial per 2-7-1 (42)(C)(i)&(ii)(DD)	BT WTP No. 1 & 2 BT HG No. 1 - 9 BT CAB No. 1 BT LCB No. 1 BT ACB No. 1	13				0.002		Neg.	Neg.	
Total				248.85	109.60	11.85	46.40	2.08	**0.18**	**0.36**	**59,155.59**
Proposed Emission Limits				**< 249**	**See Note 1**				**< 9**	**< 24**	-
Major Title V Threshold				**100**	**100**	**100**	**100**	**100**	**10**	**25**	-
Title V Triggered?				**Yes**	**Yes**	**No**	**No**	**No**	**No**	**No**	-
PSD Threshold				**250**	**250**	**250**	**250**	**250**			-
PSD Triggered?				**No**	**No**	**No**	**No**	**No**			-

Note:

1. NO_x is the pollutant with the highest emission rate. Therefore, when NO_x emissions are limited to be no more than 249 tpy, potential emissions of other criteria pollutants are inherently below 249 tpy.

Emission Factors per Engine Type

Facility: SBN100
Address: 55001 Larrison Blvd., New Carlisle, IN 46552

Engine Information

	Number of Gens	Power Capacity	Tier Level	Model	
Number and Type of Generator/Engine Sets	234	2,750 kW ea.	Tier 2 Certified, with control to achieve Tier 4 Equivalent	Model TBD (CAT 3516e or Cummins DQLF)	0.853
	2	1,500 kW ea.	Tier 2 Certified	3512C Gens	
	9	750 kW ea.	Tier 2 Certified	Model TBD (C18 Gens or Cummins DQFAA)	
	2	400 kW ea.	Tier 3 Certified	C15 Gens, 400 kW ea.	
	1	250 kW ea.	Tier 3 Certified	C9 Gen, 250 kW	

Engine Specifications

Table B.3 - Engine Power Output by Load

Engine Type	Power Output - (bhp)					
	10% Load	25% Load	50% Load	75% Load	Full Standby	
2,750 kW Tier 4 Equivalent	507	1,086	2,052	3,017	4,021	Cummins
	549	1,131	2,102	3,072	4,043	CAT
1,500 kW Tier 2 Certified	312	632	1,144	1,662	2,206	
750 kW Tier 2 Certified	130	287	549	811	1,073	Cummins
	155	315	575	840	1,112	CAT
400 kW Tier 3 Certified	92	179	319	467	619	
250 kW Tier 3 Certified	69	124	211	302	398	

Table B.4 - Engine Fuel Consumption and Heat Input by Load

Engine Type	Diesel Fuel Consumption[2] - (gal/hr/gen)					Heat Input - (MMBtu/hr/Gen)					
	10% Load	25% Load	50% Load	75% Load	Full Standby	10% Load	25% Load	50% Load	75% Load	Full Standby	
2,750 kW Tier 4 Equivalent	38.0	61.0	106.0	147.0	187.0	5.21	8.36	14.53	20.14	25.62	Cummins
	36.1	62.9	107.5	147.3	192.2	4.95	8.62	14.73	20.18	26.34	CAT
1,500 kW Tier 2 Certified	19.5	33.5	57.3	81.0	103.2	2.67	4.59	7.85	11.10	14.14	
750 kW Tier 2 Certified	9.0	16.0	27.0	39.0	51.0	1.23	2.19	3.70	5.34	6.99	Cummins
	9.5	16.6	28.4	42.8	53.6	1.30	2.27	3.89	5.86	7.34	CAT
400 kW Tier 3 Certified	6.5	10.7	18.7	25.4	31.3	0.89	1.47	2.56	3.48	4.29	
250 kW Tier 3 Certified	4.3	7.2	11.4	15.3	19.1	0.59	0.99	1.56	2.10	2.62	

Notes:

1. Per the manufacturer specification sheets and performance data for each engine model.

2. Diesel fuel consumption was converted to heat input based on the diesel high heating value from the USEPA's AP-42, Section 3.4, Large Stationary Diesel and All Stationary Dual-fuel Engines, Table 3.4-1, footnote a (October 1996):

Diesel HHV = 0.137 MMBtu/gal 137030

NO_x, CO, VOC, and Filterable PM Emission Factors

Table B.5.a - 2,750 kW Uncontrolled Emission Factors in g/bhp-hr

Pollutant	2,750 kW Hourly Uncontrolled Emission Factors (g/bhp-hr)[1] - Cummins						2,750 kW Hourly Uncontrolled Emission Factors (g/bhp-hr)[1] - CAT					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
Criteria Pollutants												
NO_x	8.81	4.78	4.41	5.80	8.51	**8.81**	8.51	3.73	3.65	4.83	6.00	**8.51**
CO	2.30	0.88	0.38	0.50	1.25	**2.30**	3.43	1.68	0.57	0.56	1.16	**3.43**
VOC	1.00	0.56	0.29	0.18	0.13	**1.00**	0.46	0.29	0.17	0.12	0.10	**0.46**
Filt. PM	0.29	0.16	0.09	0.10	0.13	**0.29**	0.21	0.15	0.07	0.05	0.07	**0.21**

Table B.5.b - 1,500 kW Uncontrolled Emission Factors in g/bhp-hr

Pollutant	1,500 kW Hourly Uncontrolled Emission Factors (g/bhp-hr)[1]					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
Criteria Pollutants						
NO_x	8.87	5.68	4.14	4.28	6.38	**8.87**
CO	5.95	3.04	1.42	0.69	0.84	**5.95**
VOC	1.03	0.44	0.31	0.22	0.16	**1.03**
Filt. PM	0.35	0.28	0.13	0.06	0.04	**0.35**

Table B.5.c - 750 kW Uncontrolled Emission Factors in g/bhp-hr

Pollutant	750 kW Hourly Uncontrolled Emission Factors (g/bhp-hr)[1] - Cummins						750 kW Hourly Uncontrolled Emission Factors (g/bhp-hr)[1] - CAT					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
Criteria Pollutants												
NO_x	8.39	7.32	5.77	4.94	5.02	**8.39**	5.42	4.62	3.88	4.05	5.85	**5.85**
CO	4.60	2.60	1.00	0.80	1.00	**4.60**	13.85	1.85	0.25	0.52	0.41	**13.85**
VOC	0.58	0.34	0.19	0.17	0.15	**0.58**	5.59	0.33	0.16	0.15	0.11	**5.59**
Filt. PM	0.22	0.30	0.26	0.22	0.20	**0.30**	0.93	0.16	0.07	0.08	0.06	**0.93**

Table B.5.d - 400 kW Uncontrolled Emission Factors in g/bhp-hr

Pollutant	400 kW Hourly Uncontrolled Emission Factors (g/bhp-hr)[1]					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
Criteria Pollutants						
NO_x	5.39	4.40	2.46	2.75	4.22	**5.39**
CO	5.70	3.37	5.08	2.91	0.67	**5.70**
VOC	1.23	0.37	0.28	0.15	0.08	**1.23**
Filt. PM	0.39	0.22	0.18	0.09	0.07	**0.39**

Emission Factors per Engine Type

Facility: SBN100
Address: 55001 Larrison Blvd., New Carlisle, IN 46552

Table B.5.e - 250 kW Uncontrolled Emission Factors in g/bhp-hr

Pollutant	250 kW Hourly Uncontrolled Emission Factors (g/bhp-hr) [3]					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
Criteria Pollutants						
NO_x	3.22	2.27	2.16	2.38	3.14	**3.22**
CO	3.89	2.30	1.01	0.90	0.68	**3.89**
VOC	1.03	0.57	0.44	0.29	0.17	**1.03**
Filt. PM	0.49	0.40	0.23	0.22	0.16	**0.49**

Notes:

3. Emission factors are from the manufacturer specification sheets and performance data for each engine model. The performance data sheets provide nominal emission data and potential site variation data. For a conservative estimate of the potential emissions, the potential site variation data are used in the emission calculations.

SO_2, Condensable PM, and HAPs Emission Factors

Table B.6.a - AP-42 Emission Factors [4]

Pollutant	Emission Factor for Large Gens.	HAP Emission Factors for Gens. < 600 kW
	(lb/MMBtu)	(lb/gal fuel)
SO_2 [5]	1.52E-03	0.29
Condensable PM	7.70E-04	Same as left
Benzene	7.76E-04	9.33E-04
Toluene	2.81E-04	4.09E-04
Xylene	1.93E-04	2.85E-04
Formaldehyde	7.89E-05	1.18E-03
Acetaldehyde	2.52E-05	7.67E-04
Acrolein	7.88E-06	9.25E-05
Total PAH [6]	2.12E-04	1.68E-04

Table B.6.b - GHG Emission Factors

Pollutant	Emission Factor
	lb/MMBtu
CO_2	163.05
CH_4	0.01
N_2O	0.001
CO_2e [7]	163.61

Table B.6.c - GHG Global Warming Factors

Pollutant	Global Warming Potential [8]
CO_2	1
CH_4	25
N_2O	298

Notes:

4. Emission factors were taken from AP-42, Chapter 3.4, Tables 3.4-1, 3.4-3 & 3.4-4 for engines > 600 kW and Chapter 3.3, Table 3.3-1 & 3.3-2 for engines < 600 kW.

5. The SO_2 emission factor for engines > 600 kW was calculated based on the maximum allowable diesel fuel sulfur content under NSPS Subpart IIII: Diesel Sulfur Content = 0.0015 wt.% Sulfur

6. PAH = Polycyclic Aromatic Hydrocarbons

7. Per 40 CFR 98, Subpart C, Tables C-1 and C-2 for No. 2 fuel oil combustion. The emission factors were converted from kg/MMBtu to lb/MMBtu.

8. The CO_2e emission factor was calculated as the sum of each GHG pollutant multiplied by its global warming potential, per 40 CFR 98, Subpart A, Table A-1.

Hourly Emission Rates

Table B.7.a - 2,750 kW Hourly Uncontrolled Emission Rates in lb/hr/gen

Pollutant	2,750 kW Hourly Uncontrolled Emission Factors (lb/hr/gen) [3, 10]					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
Criteria Pollutants						
NO_x - Cummins	9.85	11.44	19.95	38.58	75.44	**75.44**
NO_x - CAT	10.30	9.30	16.91	32.71	53.48	**53.48**
CO - Cummins	2.57	2.11	1.72	3.33	11.08	**11.08**
CO - CAT	4.15	4.19	2.64	3.79	10.34	**10.34**
VOC - Cummins	1.12	1.34	1.31	1.20	1.15	**1.34**
VOC - CAT	0.56	0.72	0.79	0.81	0.89	**0.89**
Filt. PM - Cummins	0.32	0.38	0.41	0.67	1.11	**1.11**
Filt. PM - CAT	0.25	0.37	0.32	0.34	0.62	**0.62**
$PM/PM_{10}/PM_{2.5}$ [12] - Cummins	0.36	0.45	0.52	0.82	1.31	**1.31**
$PM/PM_{10}/PM_{2.5}$ [12] - CAT	0.29	0.44	0.44	0.49	0.83	**0.83**
SO_2	0.008	0.013	0.022	0.031	0.040	**0.04**
Hazardous Air Pollutants (Same for Cummins and CAT)						
Benzene	4.04E-03	6.69E-03	1.14E-02	1.57E-02	2.04E-02	**2.04E-02**
Toluene	1.46E-03	2.42E-03	4.14E-03	5.67E-03	7.40E-03	**7.40E-03**
Xylenes	1.00E-03	1.66E-03	2.84E-03	3.90E-03	5.08E-03	**5.08E-03**
Formaldehyde	4.11E-04	6.80E-04	1.16E-03	1.59E-03	2.08E-03	**2.08E-03**
Acetaldehyde	1.31E-04	2.17E-04	3.71E-04	5.09E-04	6.64E-04	**6.64E-04**
Acrolein	4.10E-05	6.79E-05	1.16E-04	1.59E-04	2.08E-04	**2.08E-04**
Total PAH	1.10E-03	1.83E-03	3.12E-03	4.28E-03	5.58E-03	**5.58E-03**
Total HAP	8.20E-03	1.36E-02	2.32E-02	3.18E-02	4.15E-02	**4.15E-02**
Greenhouse Gases (Same for Cummins and CAT)						
CO_2	849.04	1405.39	2401.90	3291.16	4294.38	**4294.38**
CH_4	0.03	0.06	0.10	0.13	0.17	**0.17**
N_2O	0.01	0.01	0.02	0.03	0.03	**0.03**
CO_2e	851.96	1410.21	2410.14	3302.46	4309.11	**4309.11**

Emission Factors in lbs/gal of Fuel Input

Table B.8.a - 2,750 kW Uncontrolled Emission Factor in lbs/gal/gen

Pollutant	2,750 kW Hourly Uncontrolled Emission Factors (lb/hr/gen) [3, 10]					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
Criteria Pollutants						
NO_x - Cummins	0.259	0.188	0.188	0.262	0.403	**0.403**
NO_x - CAT	0.285	0.148	0.157	0.222	0.278	**0.285**
CO - Cummins	0.068	0.035	0.016	0.023	0.059	**0.068**
CO - CAT	0.115	0.067	0.025	0.026	0.054	**0.115**
VOC - Cummins	0.029	0.022	0.012	0.008	0.006	**0.029**
VOC - CAT	0.015	0.011	0.007	0.006	0.005	**0.015**
Filt. PM - Cummins	0.009	0.006	0.004	0.005	0.006	**0.009**
Filt. PM - CAT	0.007	0.006	0.003	0.002	0.003	**0.007**
$PM/PM_{10}/PM_{2.5}$ [12] - Cummins	0.010	0.007	0.005	0.006	0.007	**0.010**
$PM/PM_{10}/PM_{2.5}$ [12] - CAT	0.008	0.007	0.004	0.003	0.004	**0.008**
SO_2	0.0002	0.0002	0.0002	0.0002	0.0002	**0.0002**
Hazardous Air Pollutants (Same for Cummins and CAT)						
Benzene	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04	**1.06E-04**
Toluene	3.85E-05	3.85E-05	3.85E-05	3.85E-05	3.85E-05	**3.85E-05**
Xylenes	2.64E-05	2.64E-05	2.64E-05	2.64E-05	2.64E-05	**2.64E-05**
Formaldehyde	1.08E-05	1.08E-05	1.08E-05	1.08E-05	1.08E-05	**1.08E-05**
Acetaldehyde	3.45E-06	3.45E-06	3.45E-06	3.45E-06	3.45E-06	**3.45E-06**
Acrolein	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06	**1.08E-06**
Total PAH	2.91E-05	2.91E-05	2.91E-05	2.91E-05	2.91E-05	**2.91E-05**
Total HAP	2.16E-04	2.16E-04	2.16E-04	2.16E-04	2.16E-04	**2.16E-04**
Greenhouse Gases (Same for Cummins and CAT)						
CO_2	22.34	22.34	22.34	22.34	22.34	**22.34**
CH_4	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04	**9.06E-04**
N_2O	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04	**1.81E-04**
CO_2e	22.42	22.42	22.42	22.42	22.42	**22.42**

Emission Factors per Engine Type
Facility: SBN100
Address: 55001 Larrison Blvd., New Carlisle, IN 46552

Table B.7.b - 2,750 kW Hourly Controlled Emission Rates in lb/hr/gen

Pollutant	2,750 kW Hourly Controlled Emission Factors (lb/hr/gen) [1]					
	10% Load [2]	25% Load	50% Load	75% Load	Full Standby	Maximum [3]
Criteria Pollutants						
NO_X - Cummins	9.85	0.95	1.66	3.20	6.26	**6.26**
NO_X - CAT	10.30	0.77	1.40	2.72	4.44	**4.44**
CO - Cummins	2.57	0.63	0.52	1.00	3.32	**3.32**
CO - CAT	4.15	1.26	0.79	1.14	3.10	**3.10**
VOC - Cummins	1.12	0.74	0.72	0.66	0.63	**0.74**
VOC - CAT	0.56	0.40	0.43	0.45	0.49	**0.49**
Filt. PM - Cummins	0.32	0.12	0.13	0.21	0.35	**0.35**
Filt. PM - CAT	0.25	0.12	0.10	0.11	0.20	**0.20**
$PM/PM_{10}/PM_{2.5}$ [12] - Cummins	0.36	0.18	0.24	0.36	0.55	**0.55**
$PM/PM_{10}/PM_{2.5}$ [12] - CAT	0.29	0.18	0.22	0.26	0.40	**0.40**
SO_2 - Same for Cummins & CAT	0.008	0.013	0.022	0.031	0.039	**0.039**
Hazardous Air Pollutants (Same for Cummins and CAT)						
Benzene	4.04E-03	3.68E-03	6.29E-03	8.61E-03	1.12E-02	**1.12E-02**
Toluene	1.46E-03	1.33E-03	2.28E-03	3.12E-03	4.07E-03	**4.07E-03**
Xylenes	1.00E-03	9.15E-04	1.56E-03	2.14E-03	2.80E-03	**2.80E-03**
Formaldehyde	4.11E-04	3.74E-04	6.39E-04	8.76E-04	1.14E-03	**1.14E-03**
Acetaldehyde	1.31E-04	1.19E-04	2.04E-04	2.80E-04	3.65E-04	**3.65E-04**
Acrolein	4.10E-05	3.74E-05	6.38E-05	8.75E-05	1.14E-04	**1.14E-04**
Total PAH	1.10E-03	1.00E-03	1.72E-03	2.35E-03	3.07E-03	**3.07E-03**
Total HAP	8.20E-03	7.46E-03	1.28E-02	1.75E-02	2.28E-02	**2.28E-02**
Greenhouse Gases (Same for Cummins and CAT)						
CO_2	849.04	1362.94	2368.39	3284.46	4178.19	**4178.19**
CH_4	0.03	0.06	0.10	0.13	0.17	**0.17**
N_2O	0.01	0.01	0.02	0.03	0.03	**0.03**
CO_2e	851.96	1367.62	2376.51	3295.73	4192.53	**4192.53**

Table B.8.b - 2,750 kW Controlled Emission Factor in lbs/gal/gen

Pollutant	2,750 kW Hourly Controlled Emission Factors (lb/gal/gen) [1]					
	10% Load [2]	25% Load	50% Load	75% Load	Full Standby	Maximum [3]
Criteria Pollutants						
NO_X - Cummins	0.259	0.016	0.016	0.022	0.033	**0.033**
NO_X - CAT	0.285	0.012	0.013	0.018	0.023	**0.023**
CO - Cummins	0.068	0.010	0.005	0.007	0.018	**0.018**
CO - CAT	0.115	0.020	0.007	0.008	0.016	**0.020**
VOC - Cummins	0.029	0.012	0.007	0.004	0.003	**0.012**
VOC - CAT	0.015	0.006	0.004	0.003	0.003	**0.006**
Filt. PM - Cummins	0.009	0.002	0.001	0.001	0.002	**0.0020**
Filt. PM - CAT	0.007	0.002	0.001	0.001	0.001	**0.0019**
$PM/PM_{10}/PM_{2.5}$ [12] - Cummins	0.010	0.003	0.002	0.002	0.003	**0.0030**
$PM/PM_{10}/PM_{2.5}$ [12] - CAT	0.008	0.003	0.002	0.002	0.002	**0.0029**
SO_2 - Same for Cummins & CAT	0.0002	0.0002	0.0002	0.0002	0.0002	**0.0002**
Hazardous Air Pollutants (Same for Cummins and CAT)						
Benzene	1.06E-04	5.85E-05	5.85E-05	5.85E-05	5.85E-05	**5.85E-05**
Toluene	3.85E-05	2.12E-05	2.12E-05	2.12E-05	2.12E-05	**2.12E-05**
Xylenes	2.64E-05	1.45E-05	1.45E-05	1.45E-05	1.45E-05	**1.45E-05**
Formaldehyde	1.08E-05	5.95E-06	5.95E-06	5.95E-06	5.95E-06	**5.95E-06**
Acetaldehyde	3.45E-06	1.90E-06	1.90E-06	1.90E-06	1.90E-06	**1.90E-06**
Acrolein	1.08E-06	5.94E-07	5.94E-07	5.94E-07	5.94E-07	**5.94E-07**
Total PAH	2.91E-05	1.60E-05	1.60E-05	1.60E-05	1.60E-05	**1.60E-05**
Total HAP	2.16E-04	1.19E-04	1.19E-04	1.19E-04	1.19E-04	**1.19E-04**
Greenhouse Gases (Same for Cummins and CAT)						
CO_2	22.34	22.34	22.34	22.34	22.34	**22.34**
CH_4	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04	**9.06E-04**
N_2O	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04	**1.81E-04**
CO_2e	22.42	22.42	22.42	22.42	22.42	**22.42**

Table B.7.c - 1,500 kW Hourly Uncontrolled Emission Rates in lb/hr/gen

Pollutant	1,500 kW Hourly Uncontrolled Emission Factors (lb/hr/gen) [1] [4]					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
Criteria Pollutants						
NO_X	6.10	7.91	10.44	15.68	31.03	**31.03**
CO	4.09	4.24	3.58	2.53	4.09	**4.24**
VOC	0.71	0.61	0.78	0.81	0.78	**0.81**
Filt. PM	0.24	0.39	0.33	0.22	0.19	**0.39**
$PM/PM_{10}/PM_{2.5}$ [12]	0.26	0.43	0.39	0.31	0.30	**0.43**
SO_2	0.0019	0.0033	0.0056	0.0081	0.0106	**0.01**
Hazardous Air Pollutants						
Benzene	2.07E-03	3.56E-03	6.09E-03	8.61E-03	1.10E-02	**1.10E-02**
Toluene	7.51E-04	1.29E-03	2.21E-03	3.12E-03	3.97E-03	**3.97E-03**
Xylenes	5.16E-04	8.86E-04	1.52E-03	2.14E-03	2.73E-03	**2.73E-03**
Formaldehyde	2.11E-04	3.62E-04	6.20E-04	8.76E-04	1.12E-03	**1.12E-03**
Acetaldehyde	6.73E-05	1.16E-04	1.98E-04	2.80E-04	3.56E-04	**3.56E-04**
Acrolein	2.11E-05	3.62E-05	6.19E-05	8.75E-05	1.11E-04	**1.11E-04**
Total PAH	5.66E-04	9.73E-04	1.66E-03	2.35E-03	3.00E-03	**3.00E-03**
Total HAP	4.21E-03	7.23E-03	1.24E-02	1.75E-02	2.23E-02	**2.23E-02**
Greenhouse Gases						
CO_2	435.69	748.50	1280.27	1809.81	2305.83	**2305.83**
CH_4	0.02	0.03	0.05	0.07	0.09	**0.09**
N_2O	0.00	0.01	0.01	0.01	0.02	**0.02**
CO_2e	437.19	751.07	1284.66	1816.02	2313.74	**2313.74**

Table B.8.c - 1,500 kW Uncontrolled Emission Factor in lbs/gal/gen

Pollutant	1,500 kW Hourly Uncontrolled Emission Factors (lb/gal/gen) [1]					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
Criteria Pollutants						
NO_X	0.31	0.24	0.18	0.19	0.30	**0.313**
CO	0.21	0.13	0.06	0.03	0.04	**0.210**
VOC	0.036	0.018	0.014	0.010	0.008	**0.036**
Filt. PM	0.012	0.012	0.006	0.003	0.002	**0.012**
$PM/PM_{10}/PM_{2.5}$ [12]	0.013	0.013	0.007	0.004	0.003	**0.013**
SO_2	0.0001	0.0001	0.0001	0.0001	0.0001	**0.0001**
Hazardous Air Pollutants						
Benzene	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04	**1.06E-04**
Toluene	3.85E-05	3.85E-05	3.85E-05	3.85E-05	3.85E-05	**3.85E-05**
Xylenes	2.64E-05	2.64E-05	2.64E-05	2.64E-05	2.64E-05	**2.64E-05**
Formaldehyde	1.08E-05	1.08E-05	1.08E-05	1.08E-05	1.08E-05	**1.08E-05**
Acetaldehyde	3.45E-06	3.45E-06	3.45E-06	3.45E-06	3.45E-06	**3.45E-06**
Acrolein	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06	**1.08E-06**
Total PAH	2.91E-05	2.91E-05	2.91E-05	2.91E-05	2.91E-05	**2.91E-05**
Total HAP	2.16E-04	2.16E-04	2.16E-04	2.16E-04	2.16E-04	**2.16E-04**
Greenhouse Gases						
CO_2	22.34	22.34	22.34	22.34	22.34	**22.34**
CH_4	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04	**9.06E-04**
N_2O	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04	**1.81E-04**
CO_2e	22.42	22.42	22.42	22.42	22.42	**22.42**

Emission Factors per Engine Type
Facility: 5BN100
Address: 55001 Larrison Blvd., New Carlisle, IN 46552

Table B.7.d - 750 kW Hourly Uncontrolled Emission Rates in lb/hr/gen

Pollutant	750 kW Hourly Uncontrolled Emission Factors (lb/hr/gen)[9,10]					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
Criteria Pollutants						
NO_x - Cummins	2.40	4.63	6.98	8.83	11.88	**11.88**
NO_x - CAT	1.85	3.21	4.92	7.50	14.34	**14.34**
CO - Cummins	1.32	1.65	1.21	1.43	2.37	**2.37**
CO - CAT	4.73	1.28	0.32	0.96	1.01	**4.73**
VOC - Cummins	0.17	0.22	0.23	0.30	0.35	**0.35**
VOC - CAT	1.91	0.23	0.20	0.28	0.27	**1.91**
Filt. PM - Cummins	0.06	0.19	0.31	0.39	0.47	**0.47**
Filt. PM - CAT	0.32	0.11	0.09	0.15	0.15	**0.32**
$PM/PM_{10}/PM_{2.5}$[12] - Cummins	0.07	0.21	0.34	0.43	0.53	**0.53**
$PM/PM_{10}/PM_{2.5}$[12] - CAT	0.33	0.13	0.12	0.19	0.20	**0.33**
SO_2 - Same for Cummins & CAT	0.002	0.003	0.006	0.008	0.011	**0.01**
Hazardous Air Pollutants (Same for Cummins and CAT)						
Benzene	1.01E-03	1.77E-03	3.02E-03	4.55E-03	5.70E-03	**5.70E-03**
Toluene	3.66E-04	6.39E-04	1.09E-03	1.65E-03	2.06E-03	**2.06E-03**
Xylenes	2.51E-04	4.39E-04	7.51E-04	1.13E-03	1.42E-03	**1.42E-03**
Formaldehyde	1.03E-04	1.79E-04	3.07E-04	4.63E-04	5.80E-04	**5.80E-04**
Acetaldehyde	3.28E-05	5.73E-05	9.81E-05	1.48E-04	1.85E-04	**1.85E-04**
Acrolein	1.03E-05	1.79E-05	3.07E-05	4.62E-05	5.79E-05	**5.79E-05**
Total PAH	2.76E-04	4.82E-04	8.25E-04	1.24E-03	1.56E-03	**1.56E-03**
Total HAP	2.05E-03	3.58E-03	6.13E-03	9.23E-03	1.16E-02	**1.16E-02**
Greenhouse Gases (Same for Cummins and CAT)						
CO_2	212.26	370.90	634.55	956.29	1197.60	**1197.60**
CH_4	0.01	0.02	0.03	0.04	0.05	**0.05**
N_2O	0.00	0.00	0.01	0.01	0.01	**0.01**
CO_2e	212.99	372.17	636.73	959.57	1201.71	**1201.71**

Table B.8.d - 750 kW Uncontrolled Emission Factor in lbs/gal/gen

Pollutant	750 kW Hourly Uncontrolled Emission Factors (lb/gal/gen)[11]					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
Criteria Pollutants						
NO_x - Cummins	0.27	0.29	0.26	0.23	0.23	**0.289**
NO_x - CAT	0.19	0.19	0.17	0.18	0.27	**0.268**
CO - Cummins	0.15	0.10	0.04	0.04	0.05	**0.146**
CO - CAT	0.50	0.08	0.01	0.02	0.02	**0.498**
VOC - Cummins	0.018	0.013	0.009	0.008	0.007	**0.018**
VOC - CAT	0.201	0.014	0.007	0.006	0.005	**0.201**
Filt. PM - Cummins	0.007	0.012	0.012	0.010	0.009	**0.012**
Filt. PM - CAT	0.033	0.007	0.003	0.003	0.003	**0.033**
$PM/PM_{10}/PM_{2.5}$[12] - Cummins	0.008	0.013	0.013	0.011	0.010	**0.013**
$PM/PM_{10}/PM_{2.5}$[12] - CAT	0.035	0.008	0.004	0.005	0.004	**0.035**
SO_2 - Same for Cummins & CAT	0.0002	0.0002	0.0002	0.0002	0.0002	**0.0002**
Hazardous Air Pollutants (Same for Cummins and CAT)						
Benzene	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04	**1.06E-04**
Toluene	3.85E-05	3.85E-05	3.85E-05	3.85E-05	3.85E-05	**3.85E-05**
Xylenes	2.64E-05	2.64E-05	2.64E-05	2.64E-05	2.64E-05	**2.64E-05**
Formaldehyde	1.08E-05	1.08E-05	1.08E-05	1.08E-05	1.08E-05	**1.08E-05**
Acetaldehyde	3.45E-06	3.45E-06	3.45E-06	3.45E-06	3.45E-06	**3.45E-06**
Acrolein	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06	**1.08E-06**
Total PAH	2.91E-05	2.91E-05	2.91E-05	2.91E-05	2.91E-05	**2.91E-05**
Total HAP	2.16E-04	2.16E-04	2.16E-04	2.16E-04	2.16E-04	**2.16E-04**
Greenhouse Gases (Same for Cummins and CAT)						
CO_2	22.34	22.34	22.34	22.34	22.34	**22.34**
CH_4	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04	**9.06E-04**
N_2O	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04	**1.81E-04**
CO_2e	22.42	22.42	22.42	22.42	22.42	**22.42**

Table B.7.e - 400 kW Hourly Uncontrolled Emission Rates in lb/hr/gen

Pollutant	400 kW Hourly Uncontrolled Emission Factors (lb/hr/gen)[9,10]					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
Criteria Pollutants						
NO_x	1.10	1.74	1.73	2.83	5.76	**5.76**
CO	1.16	1.33	3.57	3.00	0.91	**3.57**
VOC	0.25	0.15	0.20	0.15	0.11	**0.25**
Filt. PM	0.08	0.09	0.13	0.09	0.10	**0.13**
$PM/PM_{10}/PM_{2.5}$[12]	8.61E-02	9.81E-02	1.46E-01	1.19E-01	1.29E-01	**0.15**
SO_2	2.58E-01	4.25E-01	7.43E-01	1.01E+00	1.24E+00	**1.24**
Hazardous Air Pollutants						
Benzene	8.31E-04	1.37E-03	2.39E-03	3.25E-03	4.00E-03	**4.00E-03**
Toluene	3.64E-04	6.00E-04	1.05E-03	1.42E-03	1.75E-03	**1.75E-03**
Xylenes	2.54E-04	4.18E-04	7.30E-04	9.92E-04	1.22E-03	**1.22E-03**
Formaldehyde	1.05E-03	1.73E-03	3.02E-03	4.11E-03	5.06E-03	**5.06E-03**
Acetaldehyde	6.83E-04	1.12E-03	1.97E-03	2.67E-03	3.29E-03	**3.29E-03**
Acrolein	8.24E-05	1.36E-04	2.37E-04	3.22E-04	3.97E-04	**3.97E-04**
Total PAH	1.50E-04	2.46E-04	4.30E-04	5.85E-04	7.21E-04	**7.21E-04**
Total HAP	3.42E-03	5.62E-03	9.83E-03	1.33E-02	1.64E-02	**1.64E-02**
Greenhouse Gases						
CO_2	145.23	239.07	417.82	567.52	699.34	**699.34**
CH_4	0.01	0.01	0.02	0.02	0.03	**0.03**
N_2O	0.00	0.00	0.00	0.00	0.01	**0.01**
CO_2e	145.73	239.89	419.25	569.47	701.74	**701.74**

Table B.8.e - 400 kW Uncontrolled Emission Factor in lbs/gal/gen

Pollutant	400 kW Hourly Uncontrolled Emission Factors (lb/gal/gen)[11]					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
Criteria Pollutants						
NO_x	0.17	0.16	0.09	0.11	0.18	**0.184**
CO	0.18	0.12	0.19	0.12	0.03	**0.191**
VOC	3.85E-02	1.36E-02	1.05E-02	6.08E-03	3.49E-03	**0.038**
Filt. PM	1.22E-02	8.11E-03	6.77E-03	3.65E-03	3.05E-03	**1.22E-02**
$PM/PM_{10}/PM_{2.5}$[12]	1.33E-02	9.17E-03	7.82E-03	4.70E-03	4.11E-03	**1.33E-02**
SO_2	3.97E-02	3.97E-02	3.97E-02	3.97E-02	3.97E-02	**3.97E-02**
Hazardous Air Pollutants						
Benzene	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04	**1.06E-04**
Toluene	3.85E-05	3.85E-05	3.85E-05	3.85E-05	3.85E-05	**3.85E-05**
Xylenes	2.64E-05	2.64E-05	2.64E-05	2.64E-05	2.64E-05	**2.64E-05**
Formaldehyde	1.08E-05	1.08E-05	1.08E-05	1.08E-05	1.08E-05	**1.08E-05**
Acetaldehyde	3.45E-06	3.45E-06	3.45E-06	3.45E-06	3.45E-06	**3.45E-06**
Acrolein	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06	**1.08E-06**
Total PAH	2.91E-05	2.91E-05	2.91E-05	2.91E-05	2.91E-05	**2.91E-05**
Total HAP	2.16E-04	2.16E-04	2.16E-04	2.16E-04	2.16E-04	**2.16E-04**
Greenhouse Gases						
CO_2	22.34	22.34	22.34	22.34	22.34	**22.34**
CH_4	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04	**9.06E-04**
N_2O	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04	**1.81E-04**
CO_2e	22.42	22.42	22.42	22.42	22.42	**22.42**

Emission Factors per Engine Type

Facility: SBN100
Address: 55001 Larrison Blvd., New Carlisle, IN 46552

Table B.7.f - 250 kW Hourly Uncontrolled Emission Rates in lb/hr/gen

Pollutant	250 kW Hourly Uncontrolled Emission Factors (lb/hr/gen)[9,10]					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
Criteria Pollutants						
NO_X	0.49	0.62	1.00	1.58	2.76	**2.76**
CO	0.59	0.63	0.47	0.60	0.60	**0.63**
VOC	0.16	0.16	0.20	0.19	0.15	**0.20**
Filt. PM	0.07	0.11	0.11	0.15	0.14	**0.15**
$PM/PM_{10}/PM_{2.5}$[12]	7.90E-02	1.17E-01	1.19E-01	1.63E-01	1.61E-01	**0.16**
SO_2	1.71E-01	2.86E-01	4.53E-01	6.08E-01	7.59E-01	**7.59E-01**
Hazardous Air Pollutants						
Benzene	5.50E-04	9.21E-04	1.46E-03	1.96E-03	2.44E-03	**2.44E-03**
Toluene	2.41E-04	4.04E-04	6.39E-04	8.57E-04	1.07E-03	**1.07E-03**
Xylenes	1.68E-04	2.81E-04	4.45E-04	5.98E-04	7.46E-04	**7.46E-04**
Formaldehyde	6.95E-04	1.16E-03	1.84E-03	2.47E-03	3.09E-03	**3.09E-03**
Acetaldehyde	4.52E-04	7.57E-04	1.20E-03	1.61E-03	2.01E-03	**2.01E-03**
Acrolein	5.45E-05	9.13E-05	1.44E-04	1.94E-04	2.42E-04	**2.42E-04**
Total PAH	9.90E-05	1.66E-04	2.62E-04	3.52E-04	4.40E-04	**4.40E-04**
Total HAP	2.26E-03	3.78E-03	5.99E-03	8.04E-03	1.00E-02	**1.00E-02**
Greenhouse Gases						
CO_2	96.08	160.87	254.71	341.85	426.76	**426.76**
CH_4	0.00	0.01	0.01	0.01	0.02	**0.02**
N_2O	0.00	0.00	0.00	0.00	0.00	**0.00**
CO_2e	96.41	161.42	255.59	343.03	428.22	**428.22**

Table B.8.f - 250 kW Uncontrolled Emission Factor in lbs/gal/gen

Pollutant	250 kW Hourly Uncontrolled Emission Factors (lb/gal/gen)[11]					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
Criteria Pollutants						
NO_X	0.11	0.09	0.09	0.10	0.14	**0.144**
CO	0.14	0.09	0.04	0.04	0.03	**0.137**
VOC	3.64E-02	2.16E-02	1.80E-02	1.26E-02	7.81E-03	**0.036**
Filt. PM	1.73E-02	1.52E-02	9.39E-03	9.57E-03	7.35E-03	**1.73E-02**
$PM/PM_{10}/PM_{2.5}$[12]	1.84E-02	1.62E-02	1.04E-02	1.06E-02	8.41E-03	**1.84E-02**
SO_2	3.97E-02	3.97E-02	3.97E-02	3.97E-02	3.97E-02	**3.97E-02**
Hazardous Air Pollutants						
Benzene	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04	**1.06E-04**
Toluene	3.85E-05	3.85E-05	3.85E-05	3.85E-05	3.85E-05	**3.85E-05**
Xylenes	2.64E-05	2.64E-05	2.64E-05	2.64E-05	2.64E-05	**2.64E-05**
Formaldehyde	1.08E-05	1.08E-05	1.08E-05	1.08E-05	1.08E-05	**1.08E-05**
Acetaldehyde	3.45E-06	3.45E-06	3.45E-06	3.45E-06	3.45E-06	**3.45E-06**
Acrolein	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06	**1.08E-06**
Total PAH	2.91E-05	2.91E-05	2.91E-05	2.91E-05	2.91E-05	**2.91E-05**
Total HAP	2.16E-04	2.16E-04	2.16E-04	2.16E-04	2.16E-04	**2.16E-04**
Greenhouse Gases						
CO_2	22.34	22.34	22.34	22.34	22.34	**22.34**
CH_4	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04	**9.06E-04**
N_2O	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04	**1.81E-04**
CO_2e	22.42	22.42	22.42	22.42	22.42	**22.42**

Notes:

9. For engine-specific emission factors:
Hourly Emissions at Load X (lb/hr/gen) = Emission Factor at Load X (g/hp-hr) x Engine Power at Load X (bhp/gen) / (453.6 g/lb)

10. For AP-42 & GHG emission factors:
Hourly Emissions at Load X (lb/hr/gen) = Emission Factor (lb/MMBtu) x Heat Input at Load X (MMBtu/hr/gen)

11. Fuel Emission Factors at Load X in lb/gal/gen:
For NOx, CO, VOC, and PM: lb/gal/gen at Load X = Hourly Emissions at Load X (lb/hr/gen) / Fuel Usage at Load X (gal/hr)
For AP-42 & GHG: lb/gal/gen = Emission Factor (lb/Mmbtu) x Diesel HHV (0.137 MMBtu/gal)

12. Total $PM/PM_{10}/PM_{2.5}$ is the sum of filterable $PM/PM_{10}/PM_{2.5}$ and condensable PM.

13. Two sets of control systems, manufactured by Miratech and Safety Power, respectively, have been chosen for the critical gens. It has not been determined which brand will be used for final installation. Based on the manufacturer provided specification sheets, the Miratech control system has lower control efficiencies than Safety Power's. For a conservative estimate of the post-controlled emissions from CEG 1 - 234, the Tier 4 level controls (SCR, DOC, DPF) are assumed based on the Miratech's control efficiencies, as listed below:

NO_X	91.7%
CO	70.0%
VOC	45.0%
Filterable PM	68.6%

14. SCR (control) does not function when engines run at 10% load. Therefore, emergency runs at 10% load are counted towards uncontrolled run times.

Estimated Fuel Usage and Potential Emissions - Tier 4 Generators

Facility: **SBN100**

Address: **55001 Larrison Blvd., New Carlisle, IN 46552**

Number of Critical (Tier 4) Emergency Engines

Gens	Number of Tier 4 Engines
CEG No. 1 - 234	234

Fuel Consumption by Load (taken from Table B.4)

Gens	Diesel Fuel Consumption (gal/hr/engine) [1]				
	10% Load	25% Load	50% Load	75% Load	Full Standby
CEG No. 1 - 234 -- Cummins	38.0	61.0	106.0	147.0	187.0
CEG No. 1 - 234 -- CAT	36.1	62.9	107.5	147.3	192.2
Maximum	38.0	62.9	107.5	147.3	192.2

Notes:

1. Per the manufacturer specification sheets and performance data for Cummins DQLF and CAT 3516E, respectively.

Table B.9 - Estimated Annual Total Fuel Usage by Tier 4 Gens [2, 3, 4]

Limit	Value	Units
Estimated Uncontrolled Diesel Fuel Usage by Tier 4 Gens	**809,546**	gal/yr (all Tier 4 gens)
Estimated Controlled Diesel Fuel Usage by Tier 4 Gens	**4,390,454**	gal/yr (all Tier 4 gens)
Estimated Total Diesel Fuel Usage by Tier 4 Gens [All Purposes]	**5,200,000**	gal/yr (all Tier 4 gens)

Note: These fuel usage values are estimated for calculating potential emissions. However, the Site is not requesting to set these estimated fuel usage values as permit limits. The site will comply with emissions limits by tracking generator operation and calculating 12-month rolling emissions.

Table B.10 - PTE of All Tier 4 Gens

Pollutant	Tier 4 Gens Emission Factors [5] (lb/gal)		Potential Emissions - All Tier 4 Gens Combined [6] (tpy)		
	Uncontrolled Maximum	Controlled Maximum	Uncontrolled	Controlled	Total
Criteria Pollutants					
NO_X	0.403	0.033	163.293	73.504	**236.80**
CO	0.115	0.020	46.548	43.859	**90.41**
VOC	0.029	0.012	11.906	26.538	**38.44**
Filt. PM	0.009	0.002	3.453	4.329	**7.78**
$PM/PM_{10}/PM_{2.5}$	0.010	0.003	3.880	6.645	**10.52**
SO_2	0.00022	0.00021	0.088	0.456	**0.54**
Hazardous Air Pollutants					
Benzene	1.06E-04	5.85E-05	0.043	0.128	**0.171**
Toluene	3.85E-05	2.12E-05	0.016	0.046	**0.062**
Xylenes	2.64E-05	1.45E-05	0.011	0.032	**0.043**
Formaldehyde	1.08E-05	5.95E-06	0.004	0.013	**0.017**
Acetaldehyde	3.45E-06	1.90E-06	0.001	0.004	**0.006**
Acrolein	1.08E-06	5.94E-07	0.000	0.001	**0.002**
Total PAH	2.91E-05	1.60E-05	0.012	0.035	**0.047**
Total HAP	2.16E-04	1.19E-04	0.087	0.260	**0.348**
Greenhouse Gases					
CO_2	22.34	22.34	9,043.959	49,048.555	**58,092.514**
CH_4	9.06E-04	9.06E-04	0.367	1.990	**2.356**
N_2O	1.81E-04	1.81E-04	0.073	0.398	**0.471**
CO_2e	22.42	22.42	9,074.994	49,216.869	**58,291.863**

Notes:

2. SCR (control) does not function when engines run at 10% load. Therefore, emergency generator runs between 0% and 10% load are captured under uncontrolled runtime and fuel usage.

3. Commissioning is not included in emergency runtime calculations.

4. The estimated fuel consumptions, uncontrolled and controlled, are based on the maximum fuel consumption rate (gal/gen/hr) at full standby load for a conservative estimate.

5. See Tables B.8.a and B.8.b for uncontrolled and controlled Tier 4 gens emission factors in lbs/gal. For each pollutant, the higher emission factor in lbs/gal between Cummins and CAT is selected for the conservative estimate of the PTE.

6. Uncontrolled Emissions (tpy) = Uncontrolled Emission Factor (lbs/gal) x Total Uncontrolled Diesel Fuel Usage (gal/yr)

Controlled Emissions (tpy) = Controlled Emission Factor (lbs/gal) x Total Controlled Diesel Fuel Usage (gal/yr)

Total Emissions (tpy) = Uncontrolled Emissions (tpy) + Controlled Emissions (tpy)

Estimated Fuel Usage and Potential Emissions - All Support Generators

Facility: SBN100

Address: 55001 Larrison Blvd., New Carlisle, IN 46552

Fuel Consumption by Load (taken from Table B.4)

Engine Type	Diesel Fuel Consumption (gal/hr/gen)					Number of Gens
	10% Load	25% Load	50% Load	75% Load	Full Standby	
1,500 kW Tier 2 Certified	19.5	33.5	57.3	81.0	103.2	2
750 kW Tier 2 Certified	9.5	16.6	28.4	42.8	53.6	9
400 kW Tier 3 Certified	6.5	10.7	18.7	25.4	31.3	2
250 kW Tier 3 Certified	4.3	7.2	11.4	15.3	19.1	1

Estimated Total Fuel Usage for All Support Gens = **77,050** gal/yr for all support gens

Table B.11 - Maximum Emission Factors in lbs/gal per Engine Type (taken from Tables B.3.c - f)

Engine Type	NO_x Emission Factor (lb/gal)	CO Emission Factor (lb/gal)	VOC Emission Factor (lb/gal)	$PM/PM_{10}/PM_{2.5}$ Emission Factor (lb/gal)	SO_2 Emission Factor (lb/gal)
1,500 kW Tier 2 Certified	0.31	0.21	0.0363	0.0134	0.00010
750 kW Tier 2 Certified [1]	0.29	0.50	0.2011	0.0345	0.00021
400 kW Tier 3 Certified	0.18	0.19	0.0385	0.0133	0.03974
250 kW Tier 3 Certified	0.14	0.14	0.0364	0.0184	0.03974

Note:

1. For each pollutant emitted from the 750 kW Gens, the higher emission factor in lbs/gal between Cummins and CAT is selected for a conservative estimate of the PTE.

Table B.12 - Criteria Pollutants PTE (assuming 93,782 gal/yr of fuel is all consumed by each engine type)

Engine Type	NO_x Emissions (tpy)	CO Emissions (tpy)	VOC Emissions (tpy)	$PM/PM_{10}/PM_{2.5}$ Emissions (tpy)	SO_2 Emissions (tpy)
1,500 kW Tier 2 Certified	12.05	8.09	1.40	0.52	0.00
750 kW Tier 2 Certified	11.15	19.19	7.75	1.33	0.01
400 kW Tier 3 Certified	7.09	7.36	1.48	0.51	1.53
250 kW Tier 3 Certified	5.56	5.29	1.40	0.71	1.53
Maximum	**12.05**	**19.19**	**7.75**	**1.33**	**1.53**

Table B.13 - HAPs and GHG PTE

Pollutant	Maximum Emission Factor (lbs/gal/gen)	Potential Emissions (tpy)
Hazardous Air Pollutants		
Benzene	1.06E-04	4.10E-03
Toluene	3.85E-05	1.48E-03
Xylenes	2.64E-05	1.02E-03
Formaldehyde	1.08E-05	4.17E-04
Acetaldehyde	3.45E-06	1.33E-04
Acrolein	1.08E-06	4.16E-05
Total PAH	2.91E-05	1.12E-03
Total HAP	2.16E-04	8.31E-03
Greenhouse Gases		
CO_2	22.34	860.77
CH_4	9.06E-04	3.49E-02
N_2O	1.81E-04	6.98E-03
CO_2e	22.42	863.73

Potential Emissions - Diesel Fuel Storage Tanks

Facility: SBN100
Address: 55001 Larrison Blvd., New Carlisle, IN 46552

Table B.14 - VOC Emission Calculations for Diesel Fuel Storage Tanks

Parameter Description[1]	Source/Equation	Belly Tanks for CBG Nos. 1 - 224	Belly Tanks for WTP Skids Nos. 1 & 2	Belly Tanks for Hauler Skids HS Nos. 1 - 3	Belly Tanks for CBG and CLD Cans	Belly Tank for ACM Can	12,000-Gal Storage Tank
		Potential	Potential	Potential	Potential	Potential	Potential
		6,300-gal	5,000-gal	1,500-gal	1,000-gal	1,000-gal	12,000-gal
Material Stored	Facility Information	Diesel Fuel	Diesel Fuel	Diesel Fuel	Diesel Fuel	Diesel Fuel	Diesel Fuel
Location	Facility Information	Indoors	Indoors	Indoors	Indoors	Indoors	Outdoors
Tank Type	Facility Information	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Roof Type	Facility Information	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Bottom Type	Facility Information	Flat	Flat	Flat	Flat	Flat	Flat
Tank Color	Facility Information	Grey - Med	Grey - Med	Grey - Med	Grey - Med	Grey - Med	White
Roof Color	Facility Information	Grey - Med	Grey - Med	Grey - Med	Grey - Med	Grey - Med	White
Paint Condition	Facility Information	Average	Average	Average	Average	Average	Average
Heated	Facility Information	No	No	No	No	No	No
Tank Diameter (D), ft	Facility Information	N/A	N/A	N/A	N/A	N/A	8.00
Bottom Height (H_C), ft	Facility Information	N/A	N/A	N/A	N/A	N/A	N/A
Tank Width (W), ft	Facility Information	14.00	11.00	6.42	5.00	5.00	N/A
Tank Length (L), ft	Facility Information	36.10	31.04	15.00	12.83	12.83	31.92
Tank Shell Radius (R_S), ft	$R_S = D/2$ Rectangular Tank: N/A	Not needed for rectangular tank	Not needed for rectangular tank	Not needed for rectangular tank	Not needed for rectangular tank	Not needed for rectangular tank	4
Effective Diameter (D_E), ft	Horizontal tank: $D_E = (LD/(\pi/4))^{1/2}$						18.03
Tank Dome Roof Radius (R_R), ft	Flat Roof: N/A						N/A
Tank Shell Height (H_S), ft	Facility Information	1.67	1.96	2.08	2.08	2.08	N/A
Effective Height (H_E), ft	Rectangular tank: $H_S = H_E$ Horizontal tank: $H_E = (\pi/4)D$	1.67	1.96	2.08	2.08	2.08	6.28
Tank Volume (V), ft^3	Horizontal tank: $V = \pi R_S^2 L$ Rectangular tank: $V = WLH_S$	842	669	201	134	134	1604
Tank Volume (V), gal	$V = ft^3 * 7.48\ gal/ft^3$	6,300	5,002	1,500	1,000	1,000	12,000
Liquid Height (H_L), ft	Horizontal & rectangular tank: Assumed $H_L = 0.5H_S$	0.83	0.98	1.04	1.04	1.04	3.14
Tank Cone Roof Slope (S_R), ft/ft	Flat Roof: $S_R = 0$	0	0	0	0	0	0
Tank Roof Height (H_R), ft	Flat Roof: $H_R = S_R R_S$	0	0	0	0	0	0
Roof Outage (H_{RO}), ft	Flat Roof: $H_{RO} = 0$	0	1	0	0	0	0
Vapor Space Outage (H_{VO}), ft	Horizontal tank: $H_{VO} = 1/2H_E$	0.83	0.98	1.04	1.04	1.04	3.14
Vapor Space Volume (V_V), ft^3	Horizontal tank: $V_V = \pi/4(D_E^2 H_{VO})$ Rectangular tank: $H_{VO}WL$	421.13	334.34	100.26	66.84	66.84	802.15
Ideal Gas Constant (R), psia ft^3/lb-mole R	Constant	10.731	10.731	10.731	10.731	10.731	10.731
Daily Maximum Ambient Temperature (T_{AX}), R	AP-42, Table 7.1-7 (Jackson, MS)	535.0	535.0	535.0	535.0	535.0	535.0
Daily Minimum Ambient Temperature (T_{AN}), R	AP-42, Table 7.1-7 (Jackson, MS)	514.0	514.0	514.0	514.0	514.0	514.0
Daily Average Ambient Temperature (T_{AA}), R	$T_{AA} = (T_{AX} + T_{AN})/2$	524.5	524.5	524.5	524.5	524.5	524.5
Liquid Bulk Temperature (T_B), R	$T_B = T_{AA} + 0.003\alpha_s I$ Generator Belly Tanks: Assumed $T_B = T_{AA}$ since tank shell solar absorptance α_s will be zero	524.5	524.5	524.5	524.5	524.5	525.5 (Note 2)
Daily Average Liquid Surface Temperature (T_{LA}), R	$T_{LA} = 0.4T_{AA} + 0.6T_B + 0.005\ \alpha\ I$ Generator Belly Tanks: Assume shell solar absorptance is zero	524.5	524.5	524.5	524.5	524.5	526.9 (Note 2)
Vapor Molecular Weight (M_V), lb/lb-mole	AP-42, Table 7.1-2, No 2 Fuel Oil	130	130	130	130	130	130
Vapor Pressure Constant, A	AP-42, Table 7.1-2, No 2 Fuel Oil	12.101	12.101	12.101	12.101	12.101	12.101
Vapor Pressure Constant, B	AP-42, Table 7.1-2, No 2 Fuel Oil	8907	8907	8907	8907	8907	8907
Vapor Pressure at T_{LA} (P_{VA}), psia	$P_{VA} = \exp[A-(B/T_{LA})]$	0.008	0.008	0.008	0.008	0.008	0.008
Avg Vapor Temperature T_V, R	$T_V = 0.7T_{AA} + 0.3T_B + 0.009\ \alpha\ I$ Generator Belly Tanks: Assume shell solar absorptance is zero	524.5	524.5	524.5	524.5	524.5	528.0 (Note 2)
Vapor Density (W_V), lb/ft^3	$W_V = M_V P_{VA}/RT_V$	0.00018	0.00018	0.00018	0.00018	0.00018	0.00019
Daily Ambient Temperature Range (ΔT_A), R	$\Delta T_A = T_{AX} - T_{AN}$	21.0	21.0	21.0	21.0	21.0	21.0
Daily Vapor Temperature Range (ΔT_V), R	$\Delta T_V = 0.7\Delta T_A + 0.02\ \alpha\ I$ Generator Belly Tanks: Assume shell solar absorptance is zero	14.7	14.7	14.7	14.7	14.7	14.7
Vapor Pressure at T_{AN} (P_{VN}), psia	$P_{VN} = \exp[A-(B/T_{AN})]$	0.005	0.005	0.005	0.005	0.005	0.005
Vapor Pressure at T_{AX} (P_{VX}), psia	$P_{VX} = \exp[A-(B/T_{AX})]$	0.011	0.011	0.011	0.011	0.011	0.011
Daily Vapor Pressure Range (ΔP_V), psia	$\Delta P_V = P_{VX} - P_{VN}$	0.005	0.005	0.005	0.005	0.005	0.005
Breather Vent Pressure Setting Range (ΔP_B), psig	$\Delta P_B = P_{BP} - P_{BV}$ (Assumed = 0.06)	0.06	0.06	0.06	0.06	0.06	0.06
Atmospheric Pressure (P_A), psia	Constant	14.7	14.7	14.7	14.7	14.7	14.7
Vapor Space Expansion Factor (K_E), dimensionless	Outdoor Tanks: $K_E = \Delta T_V/T_{LA} + (\Delta P_V - \Delta P_B)/(P_A - P_{VA})$ Indoor Tanks: 0	0.02	0.02	0.02	0.02	0.02	0.02
Vented Vapor Saturation Factor (K_S), dimensionless	$K_S = 1/(1 + 0.053P_{VA}H_{VO})$	1.0	1.0	1.0	1.0	1.0	1.0
Number of Days/Year in Operation	Constant	365	365	365	365	365	365
Standing Storage Losses (L_S), lb/year/tank	**$L_S = 365\ W_V V_V K_E K_S$**	**0.65**	**0.52**	**0.16**	**0.10**	**0.10**	**1.33**

Potential Emissions - Diesel Fuel Storage Tanks

Facility: SBN100

Address: 55001 Larrison Blvd., New Carlisle, IN 46552

Table B.14 - VOC Emission Calculations for Diesel Fuel Storage Tanks

Parameter Description[1]	Source/Equation	Belly Tanks for CBG No. 1 - 234	Belly Tanks for WTP Gens No. 1 & 2	Belly Tanks for [illegible] Gens No. 1 - 9	Belly Tanks for CAB and CLB Gens	Belly Tank for RCB Gen	12,000-Gal Storage Tank
		Potential	Potential	Potential	Potential	Potential	Potential
		6,300-gal	5,000-gal	1,500-gal	1,000-gal	1,000-gal	12,000-gal
Maximum Throughput (Q), gal [2, 3]	Facility Information	26,667	46,230 (Note 4)	10,273 (Note 4)	46,230 (Note 4)	92,460 (Note 4)	703,607
Maximum Throughput (V_Q), ft	Conversion	3,564.8	6,180.1	1,373.3	6,180.1	12,360.1	94,058.5
Tank Maximum Liquid Volume (V_{LX}), ft	Horizontal tank: Assumed V_{LX} = 0.9V	758.0	601.8	180.5	120 3	120.3	1443.9
Turnovers (N), dimensionless	$N = V_Q/V_{LX}$	4.7	10.3	7.6	51.4	102.7	65.1
Turnover Factor (K_N), dimensionless	For $N \leq 36$ $K_N = 1$, For $N > 36$ $KN = (180 + N)/6N$	1.0	1.0	1.0	0.8	0.5	0.6
Working Loss Factor (K_P), dimensionless	For Organic Liquids, $K_P = 1$	1.0	1.0	1.0	1.0	1.0	1.0
Vent setting correction factor, K_B	For vent setting range ± 0.03 psig, $K_B = 1$	1.0	1.0	1.0	1.0	1.0	1.0
Working Losses (L_W), lb/year/tank	**$L_W = V_Q K_N K_P W_V K_B$**	**0.62**	**1.08**	**0.24**	**0.81**	**0.99**	**11.10**
Total Uncontrolled Losses (L_T), lb/year/tank	$L_T = L_S + L_W$	1.28	1.60	0.40	0.92	1.10	12.43
Total Uncontrolled Losses (L_T), lb/hr/tank	Calculated assuming 8,760 hr/yr	1.46E-04	1.83E-04	4.52E-05	1.05E-04	1.25E-04	1.42E-03
Total Uncontrolled Losses (L_T), ton/year/tank	2,000 lb/ton	6.39E-04	8.01E-04	1.98E-04	4.58E-04	5.48E-04	6.22E-03
Number of Tanks	Facility Information	234	2	9	2	1	9
Total Uncontrolled Losses (L_T), lb/hr (all tanks)	**L_T = lb/hr/tank * # tanks**	**3.41E-02**	**3.66E-04**	**4.07E-04**	**2.09E-04**	**1.25E-04**	**1.28E-02**
Total Uncontrolled Losses (L_T), ton/year (all tanks)	**L_T = ton/year/tank * # tanks**	**1.50E-01**	**1.60E-03**	**1.78E-03**	**9.16E-04**	**5.48E-04**	**5.59E-02**

Notes:

1. Emissions calculated according to the methodology presented in AP-42, Section 7.1 for fixed-roof tanks.

2. For the 12,000-gal horizontal tanks, the tank surface solar absorptance (α, dimensionless) was taken from AP-42, Section 7.1, Table 7.1-6 (average 0.25 for white color), and the average daily total insolation factor (I, Btu/(ft^2 day)) was taken from Table 7.1-7 (1434 for Jackson, MS).

3. An additional 20% safety factor is applied to each maximum annual throughput for a conservative estimate of tank emissions.

4. For the support gens' belly tanks, the potential VOC emissions were calculated assuming a total of 93,130 gal/yr diesel fuel will be consumed by each type of gens, and the maximum annual emissions were selected as the PTE from the belly tanks for support gens.

APPENDIX C
GENERATOR SPECIFICATION SHEETS:

CEG NO. 1 – 234 (2,750 KW GENERATOR):
- CATERPILLER 3516E
- CUMMINS DQLF
- MIRATECH CONTROL SYSTEM
- SAFETY POWER CONTROL SYSTEM

WTP GENS NO. 1 & 2 (1,500 KW GENERATOR):
- CATERPILLER 3512C

HOUSE GENS NO. 1 – 9 (750 KW GENERATOR):
- CATERPILLER C18

CAB AND CLB GENS (400 KW GENERATOR):
- CATERPILLER C15

ACB GEN (250 KW GENERATOR):
- CATERPILLER C9 250 KW GENERATOR

CTERPILLER 3516E 2,750 KW GENERATOR

Cat® 3516E
Diesel Generator Sets

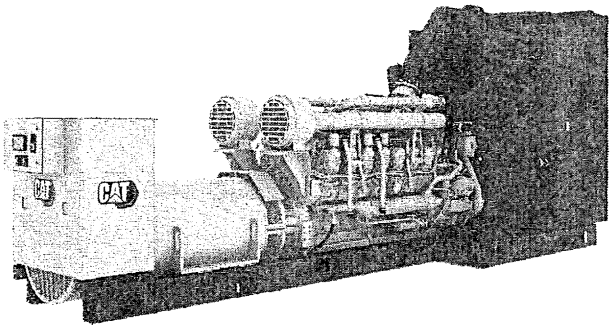


Image shown may not reflect actual configuration

Bore – mm (in)	170 (6.69)
Stroke – mm (in)	215 (8.46)
Displacement – L (in³)	78.1 (4766)
Compression Ratio	14.7:1
Aspiration	TA
Fuel System	EUI
Governor Type	ADEM™ A5

Standby 60 Hz ekW (kVA)	Mission Critical 60 Hz ekW (kVA)	Prime 60 Hz ekW (kVA)	Emissions Performance
2750 (3438)	2750 (3438)	2500 (3125)	U.S. EPA Certified for Emergency Stationary Applications (Tier 2)

Features

Cat® Diesel Engine
- Meets U.S. EPA Stationary Emergency Use Only (Tier 2) emission standards
- Reliable performance proven in thousands of applications worldwide
- Certified alternative fuels including Hydrotreated Vegetable Oil (HVO), Renewable Diesel (RD) and Hydrotreated Renewable Diesel (HRD) which meet EN 15940 or ASTM D975 can be used or blended with EN 590 diesel

Generator Set Package
- Accepts 100% block load in one step
- Meets NFPA 110 loading requirements
- Conforms to ISO 8528-5 G3 load acceptance requirements
- Reliability verified through torsional vibration, fuel consumption, oil consumption, transient performance, and endurance testing

Alternators
- Superior motor starting capability minimizes need for oversizing generator
- Designed to match performance and output characteristics of Cat diesel engines

Cooling System
- Cooling systems available to operate in ambient temperatures up to 50°C (122°F)
- Tested to ensure proper generator set cooling

Cat Energy Control System (ECS)
- User-friendly interface and navigation
- Scalable system to meet a wide range of installation requirements
- Expansion modules and site specific programming for specific customer requirements
- Graphical touchscreen display
- Easily upgradeable

Warranty
- 24 months/1000-hour warranty for standby and mission critical ratings
- 12 months/unlimited hour warranty for prime and continuous ratings
- Extended service protection is available to provide extended coverage options

Worldwide Product Support
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- Your local Cat dealer provides extensive post-sale support, including maintenance and repair agreements

Financing
- Caterpillar offers an array of financial products to help you succeed through financial service excellence
- Options include loans, finance lease, operating lease, working capital, and revolving line of credit
- Contact your local Cat dealer for availability in your region

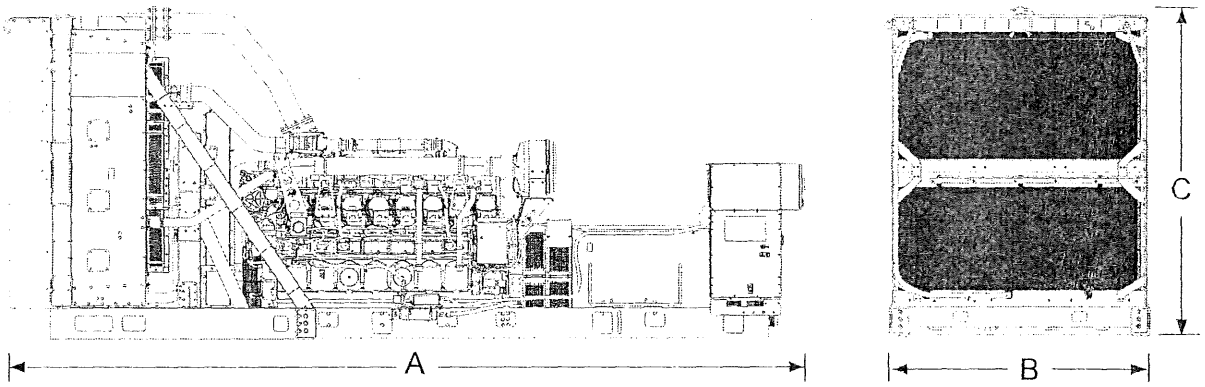
Package Performance

Performance	Standby		Mission Critical		Prime	
Frequency	60 Hz		60 Hz		60 Hz	
Gen set power rating with fan	2750 ekW		2750 ekW		2500 ekW	
Gen set power rating with fan @ 0.8 power factor	3438 kVA		3438 kVA		3125 kVA	
Emissions	EPA ESE (TIER 2)		EPA ESE (TIER 2)		EPA ESE (TIER 2)	
Performance number	EM5400-00		EM5402-00		EM5404-00	
Fuel Consumption						
100% load with fan – L/hr (gal/hr)	716.3	(189.2)	716.3	(189.2)	645.8	(170.6)
75% load with fan – L/hr (gal/hr)	547.0	(144.5)	547.0	(144.5)	505.8	(133.6)
50% load with fan – L/hr (gal/hr)	399.0	(105.4)	399.0	(105.4)	370.6	(97.9)
25% load with fan – L/hr (gal/hr)	233.5	(61.7)	233.5	(61.7)	218.7	(57.8)
Cooling System						
Radiator air flow restriction (system) – kPa (in. water)	0.12	(0.48)	0.12	(0.48)	0.12	(0.48)
Radiator air flow – m^3/min (cfm)	3026	(106862)	3026	(106862)	3026	(106862)
Engine coolant capacity – L (gal)	233.0	(61.6)	233.0	(61.6)	233.0	(61.6)
Radiator coolant capacity – L (gal)	202.0	(53.3)	202.0	(53.3)	202.0	(53.3)
Total coolant capacity – L (gal)	435.0	(114.9)	435.0	(114.9)	435.0	(114.9)
Inlet Air						
Combustion air inlet flow rate – m^3/min (cfm)	236.0	(8332.4)	236.0	(8332.4)	223.7	(7898.4)
Exhaust System						
Exhaust stack gas temperature – °C (°F)	480.0	(896.1)	480.0	(896.1)	459.3	(858.7)
Exhaust gas flow rate – m^3/min (cfm)	624.5	(22051.6)	624.5	(22051.6)	574.2	(20277.1)
Exhaust system backpressure (maximum allowable) – kPa (in. water)	6.7	(27.0)	6.7	(27.0)	6.7	(27.0)
Heat Rejection						
Heat rejection to jacket water – kW (Btu/min)	894	(50827)	894	(50827)	827	(47027)
Heat rejection to exhaust (total) – kW (Btu/min)	2849	(162025)	2849	(162025)	2514	(142941)
Heat rejection to aftercooler – kW (Btu/min)	941	(53492)	941	(53492)	844	(47998)
Heat rejection to atmosphere from engine – kW (Btu/min)	160	(9124)	160	(9124)	147	(8364)
Heat rejection from alternator – kW (Btu/min)	126	(7172)	126	(7172)	112	(6386)
Emissions* (Nominal)						
NOx mg/Nm^3 (g/hp-h)	2319.2	(5.00)	2319.2	(5.00)	2275.1	(4.82)
CO mg/Nm^3 (g/hp-h)	321.4	(0.69)	321.4	(0.69)	183.8	(0.39)
HC mg/Nm^3 (g/hp-h)	30.7	(0.08)	30.7	(0.08)	33.1	(0.08)
PM mg/Nm^3 (g/hp-h)	20.0	(0.05)	20.0	(0.05)	14.6	(0.04)
Emissions* (Potential Site Variation)						
NOx mg/Nm^3 (g/hp-h)	2783.0	(6.00)	2783.0	(6.00)	2730.1	(5.79)
CO mg/Nm^3 (g/hp-h)	536.7	(1.16)	536.7	(1.16)	307.0	(0.65)
HC mg/Nm^3 (g/hp-h)	40.8	(0.10)	40.8	(0.10)	44.1	(0.11)
PM mg/Nm^3 (g/hp-h)	28.1	(0.07)	28.1	(0.07)	20.4	(0.05)

**mg/Nm^3 levels are corrected to 5% O_2. Contact your local Cat dealer for further information.*

3516E Diesel Generator Sets
Electric Power

Weights and Dimensions



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
7922 (311.9)	2640 (104.0)	3342 (131.6)	18 480 (40,750)

Note: *For reference only. Do not use for installation design. Contact your local Cat dealer for precise weights and dimensions.*

Ratings Definitions

Standby
Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby rated ekW. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Mission Critical
Output available with varying load for the duration of the interruption of the normal source power. Average power output is 85% of the mission critical rated ekW. Typical peak demand up to 100% of rated ekW for up to 5% of the operating time. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Prime
Output available with varying load for an unlimited time. Average power output is 70% of the prime rated ekW. Typical peak demand is 100% of prime rated ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year.

Applicable Codes and Standards
AS 1359, ULC 2200 3rd edition, UL 489, UL 869A, IBC, IEC 60034-1, ISO 3046, ISO 8528, NEMA MG1-22, NEMA MG1-33, 2014/35/EU, 2006/42/EC, 2014/30/EU and facilitates compliance to NFPA 37, NFPA 70, NFPA 99, NFPA 110.

Note: Codes may not be available in all model configurations. Please consult your local Cat dealer for availability.

Data Center Applications
- All ratings Tier III/Tier IV compliant per Uptime Institute requirements.
- All ratings ANSI/TIA-942 compliant for Rated-1 through Rated-4 data centers.

Fuel Rates
Fuel consumption reported in accordance with ISO 3046-1, based on fuel oil of 35° API [16°C (60°F)] gravity having an LHV of 42,780 kJ/kg (18,390 Btu/lb) when used at 15°C (59°F) and weighing 850 g/liter (7.0936 lbs/U.S. gal.) All fuel consumption values refer to rated engine power.

www.cat.com/electricpower

3516 PGJL
LEHE1351-10 (05/23)

PERFORMANCE DATA[EM5402]

December 2, 2022

Performance Number: EM5402

Change Level: 00

SALES MODEL:	3516E	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	1,800
MACHINE SALES MODEL:		HERTZ:	60
ENGINE POWER (BHP):	4 043	FAN POWER (HP):	160.9
GEN POWER WITH FAN (EKW):	2,750.0	ASPIRATION:	TA
COMPRESSION RATIO:	14.7	AFTERCOOLER TYPE:	ATAAC
RATING LEVEL:	MISSION CRITICAL STANDBY	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
PUMP QUANTITY:	1	INLET MANIFOLD AIR TEMP (F):	122
FUEL TYPE:	DIESEL	JACKET WATER TEMP (F):	219.2
MANIFOLD TYPE:	DRY	TURBO CONFIGURATION:	PARALLEL
GOVERNOR TYPE:	ADEM5	TURBO QUANTITY:	4
ELECTRONICS TYPE:	ADEM5	TURBOCHARGER MODEL:	GTB6051N-44T-1.25
IGNITION TYPE:	CI	CERTIFICATION YEAR:	2017
INJECTOR TYPE:	EUI	CRANKCASE BLOWBY RATE (FT3/HR):	4,039.5
FUEL INJECTOR:	3920221	FUEL RATE (RATED RPM) NO LOAD (GAL/HR):	15.6
UNIT INJECTOR TIMING (IN):	64.34	PISTON SPD @ RATED ENG SPD (FT/MIN):	2,539.4
REF EXH STACK DIAMETER (IN):	12		
MAX OPERATING ALTITUDE (FT):	2,461		

INDUSTRY	SUBINDUSTRY	APPLICATION
ELECTRIC POWER	STANDARD	PACKAGED GENSET

General Performance Data

THE INLET MANIFOLD AIR TEMP LISTED IN THE HEADER, AND IN THE GENERAL PERFORMANCE DATA, IS THE AVERAGE INLET MANIFOLD TEMP FRONT TO REAR ON THE ENGINE.

THIS STANDBY RATING IS FOR A STANDBY ONLY ENGINE ARRANGEMENT. RERATING THE ENGINE TO A STANDARD PRIME OR CONTINUOUS RATING IS NOT PERMITTED.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR	LB/EKW-HR	LB/EKW-HR
2,750.0	100	4,043	373	0.338	0.332	192.9	189.2	0.498	0.488
2,475.0	90	3,655	337	0.334	0.328	172.3	169.0	0.494	0.484
2,200.0	80	3,266	302	0.338	0.331	155.6	152.6	0.502	0.492
2,062.5	75	3,072	284	0.340	0.334	147.3	144.5	0.507	0.497
1,925.0	70	2,878	266	0.343	0.336	139.1	136.5	0.513	0.503
1,650.0	60	2,490	230	0.351	0.344	123.2	120.9	0.530	0.520
1,375.0	50	2,102	194	0.363	0.356	107.5	105.4	0.554	0.544
1,100.0	40	1,714	158	0.373	0.366	90.1	88.4	0.581	0.570
825.0	30	1,325	122	0.384	0.377	71.8	70.5	0.618	0.606
687.5	25	1,131	104	0.394	0.387	62.9	61.7	0.649	0.636
550.0	20	937	87	0.409	0.402	54.1	53.1	0.698	0.684
275.0	10	549	51	0.467	0.458	36.1	35.4	0.932	0.914

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
2,750.0	100	4,043	89.7	120.9	1,247.2	69.7	896.1	96	465.2
2,475.0	90	3,655	79.9	102.0	1,177.6	61.5	857.1	86	428.6
2,200.0	80	3,266	71.9	98.5	1,145.5	54.8	848.2	77	401.0
2,062.5	75	3,072	67.8	97.4	1,131.8	51.5	846.4	73	387.5
1,925.0	70	2,878	63.6	96.2	1,118.6	48.2	844.6	69	374.0
1,650.0	60	2,490	55.3	93.9	1,093.3	42.0	841.3	60	346.7
1,375.0	50	2,102	46.9	91.1	1,067.7	36.0	838.3	51	316.6
1,100.0	40	1,714	36.6	89.9	1,032.0	28.7	832.3	40	275.0
825.0	30	1,325	25.4	88.2	974.3	21.2	811.3	28	227.7
687.5	25	1,131	20.4	87.3	934.9	17.9	791.9	23	205.6
550.0	20	937	16.0	86.6	884.2	15.0	762.1	18	185.1
275.0	10	549	8.0	84.6	714.9	9.7	636.4	10	144.3

General Performance Data (Continued)

GENSET POWER	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL	ENGINE OUTLET	WET INLET AIR	WET EXH GAS	WET EXH VOL	DRY EXH VOL

PERFORMANCE DATA[EM5402]

December 2, 2022

WITH FAN			FLOW RATE	WET EXH GAS VOL FLOW RATE	MASS FLOW RATE	MASS FLOW RATE	FLOW RATE (32 DEG F AND 29.98 IN HG)	FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
2,750.0	100	4,043	8,332.4	22,051.6	36,608.0	37,975.1	7,997.3	7,319.2
2,475.0	90	3,655	7,853.4	20,133.0	34,488.6	35,710.8	7,517.4	6,906.2
2,200.0	80	3,266	7,346.5	18,607.4	32,131.3	33,232.9	6,995.3	6,441.4
2,062.5	75	3,072	7,067.4	17,824.4	30,845.3	31,888.9	6,710.2	6,183.4
1,925.0	70	2,878	6,782.6	17,045.8	29,542.6	30,529.2	6,425.6	5,925.8
1,650.0	60	2,490	6,233.4	15,564.7	27,073.1	27,946.5	5,882.4	5,438.9
1,375.0	50	2,102	5,678.9	14,065.9	24,551.5	25,313.7	5,328.0	4,936.7
1,100.0	40	1,714	4,977.5	12,157.1	21,327.5	21,966.5	4,626.4	4,295.6
825.0	30	1,325	4,151.9	9,893.9	17,669.9	18,179.6	3,827.4	3,562.6
687.5	25	1,131	3,769.2	8,812.6	16,008.2	16,454.6	3,462.1	3,227.8
550.0	20	937	3,431.9	7,819.9	14,554.5	14,938.7	3,146.9	2,941.1
275.0	10	549	2,823.3	5,742.8	11,937.6	12,194.1	2,576.0	2,431.3

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
2,750.0	100	4,043	50,827	9,124	162,025	87,978	22,342	53,492	171,445	419,468	446,839
2,475.0	90	3,655	46,700	8,321	141,538	76,477	19,956	47,423	154,983	374,677	399,125
2,200.0	80	3,266	43,252	7,985	129,537	69,793	18,018	40,903	138,521	338,278	360,350
2,062.5	75	3,072	41,519	7,846	123,724	66,690	17,061	37,707	130,290	320,314	341,215

Emissions Data

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN		EKW	2,750.0	2,062.5	1,375.0	687.5	275.0
PERCENT LOAD		%	100	75	50	25	10
ENGINE POWER		BHP	4,043	3,072	2,102	1,131	549
TOTAL NOX (AS NO2)		G/HR	20,001	12,263	6,348	3,506	3,883
TOTAL CO		G/HR	2,776	1,017	711	1,134	1,123
TOTAL HC		G/HR	305	285	264	243	189
TOTAL CO2		KG/HR	1,954	1,489	1,082	626	359
PART MATTER		G/HR	206.9	114.2	111.5	119.5	82.4
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,319.2	1,872.1	1,335.4	1,271.3	2,728.6
TOTAL CO	(CORR 5% O2)	MG/NM3	321.4	155.3	149.5	421.2	689.5
TOTAL HC	(CORR 5% O2)	MG/NM3	30.7	37.7	48.2	77.4	97.9
PART MATTER	(CORR 5% O2)	MG/NM3	20.0	14.8	20.1	37.3	44.3
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	860.6	694.7	495.5	471.7	1,012.5
TOTAL CO	(CORR 15% O2)	MG/NM3	119.3	57.6	55.5	156.3	255.9
TOTAL HC	(CORR 15% O2)	MG/NM3	11.4	14.0	17.9	28.7	36.3
PART MATTER	(CORR 15% O2)	MG/NM3	7.4	5.5	7.5	13.8	16.4
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,130	912	650	619	1,329
TOTAL CO	(CORR 5% O2)	PPM	257	124	120	337	552
TOTAL HC	(CORR 5% O2)	PPM	57	70	90	144	183
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	419	338	241	230	493
TOTAL CO	(CORR 15% O2)	PPM	95	46	44	125	205
TOTAL HC	(CORR 15% O2)	PPM	21	26	33	54	68
TOTAL NOX (AS NO2)		G/HP-HR	5.00	4.03	3.04	3.11	7.09
TOTAL CO		G/HP-HR	0.69	0.33	0.34	1.01	2.05
TOTAL HC		G/HP-HR	0.08	0.09	0.13	0.22	0.34
PART MATTER		G/HP-HR	0.05	0.04	0.05	0.11	0.15
TOTAL NOX (AS NO2)		G/KW-HR	6.80	5.47	4.13	4.23	9.65
TOTAL CO		G/KW-HR	0.94	0.45	0.46	1.37	2.79
TOTAL HC		G/KW-HR	0.10	0.13	0.17	0.29	0.47

PART MATTER	G/KW-HR	0.07	0.05	0.07	0.14	0.20
TOTAL NOX (AS NO2)	LB/HR	44.09	27.03	13.99	7.73	8.56
TOTAL CO	LB/HR	6.12	2.24	1.57	2.50	2.48
TOTAL HC	LB/HR	0.67	0.63	0.58	0.54	0.42
TOTAL CO2	LB/HR	4,307	3,282	2,386	1,381	792
PART MATTER	LB/HR	0.46	0.25	0.25	0.26	0.18
OXYGEN IN EXH	%	9.7	10.7	11.5	12.4	14.4
DRY SMOKE OPACITY	%	2.7	1.8	2.1	3.0	2.3
BOSCH SMOKE NUMBER		0.98	0.58	0.70	1.07	0.75

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN		**EKW**	**2,750.0**	**2,062.5**	**1,375.0**	**687.5**	**275.0**
PERCENT LOAD		**%**	**100**	**75**	**50**	**25**	**10**
ENGINE POWER		**BHP**	**4,043**	**3,072**	**2,102**	**1,131**	**549**
TOTAL NOX (AS NO2)		G/HR	24,002	14,715	7,618	4,207	4,659
TOTAL CO		G/HR	4,637	1,698	1,187	1,894	1,876
TOTAL HC		G/HR	405	379	352	324	251
PART MATTER		G/HR	289.7	159.8	156.1	167.3	115.3
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,783.0	2,246.6	1,602.5	1,525.6	3,274.4
TOTAL CO	(CORR 5% O2)	MG/NM3	536.7	259.4	249.6	703.4	1,151.5
TOTAL HC	(CORR 5% O2)	MG/NM3	40.8	50.1	64.1	102.9	130.2
PART MATTER	(CORR 5% O2)	MG/NM3	28.1	20.7	28.2	52.2	62.0
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	1,032.7	833.6	594.6	566.1	1,215.0
TOTAL CO	(CORR 15% O2)	MG/NM3	199.2	96.3	92.6	261.0	427.3
TOTAL HC	(CORR 15% O2)	MG/NM3	15.1	18.6	23.8	38.2	48.3
PART MATTER	(CORR 15% O2)	MG/NM3	10.4	7.7	10.5	19.4	23.0
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,356	1,094	781	743	1,595
TOTAL CO	(CORR 5% O2)	PPM	429	208	200	563	921
TOTAL HC	(CORR 5% O2)	PPM	76	94	120	192	243
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	503	406	290	276	592
TOTAL CO	(CORR 15% O2)	PPM	159	77	74	209	342
TOTAL HC	(CORR 15% O2)	PPM	28	35	44	71	90
TOTAL NOX (AS NO2)		G/HP-HR	6.00	4.83	3.65	3.73	8.51
TOTAL CO		G/HP-HR	1.16	0.56	0.57	1.68	3.43
TOTAL HC		G/HP-HR	0.10	0.12	0.17	0.29	0.46
PART MATTER		G/HP-HR	0.07	0.05	0.07	0.15	0.21
TOTAL NOX (AS NO2)		G/KW-HR	8.16	6.57	4.96	5.08	11.57
TOTAL CO		G/KW-HR	1.58	0.76	0.77	2.28	4.66
TOTAL HC		G/KW-HR	0.14	0.17	0.23	0.39	0.62
PART MATTER		G/KW-HR	0.10	0.07	0.10	0.20	0.29
TOTAL NOX (AS NO2)		LB/HR	52.91	32.44	16.79	9.27	10.27
TOTAL CO		LB/HR	10.22	3.74	2.62	4.17	4.13
TOTAL HC		LB/HR	0.89	0.84	0.78	0.71	0.55
PART MATTER		LB/HR	0.64	0.35	0.34	0.37	0.25

Regulatory Information

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: 6.4 PM: 0.20

Altitude Derate Data

THE TEMPERATURES LISTED IN THE CHART ARE AMBIENT TEMPERATURES. THE FOLLOWING DERATE CHART WAS CALCULATED ASSUMING A 5 DEG C RISE IN AIR TEMPERATURE BETWEEN AMBIENT AND THE TURBOCHARGER INLET.

STANDARD

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	4,043	4,043	4,043	4,043	4,043	4,043	4,043	4,043	4,043	4,043	4,043	3,991	4,043
1,000	4,043	4,043	4,043	4,043	4,043	4,043	4,043	4,043	4,043	4,043	4,016	3,914	4,043
2,000	4,043	4,043	4,043	4,043	4,043	4,043	4,043	4,043	4,043	3,988	3,874	3,729	4,043
3,000	3,907	3,906	3,905	3,904	3,904	3,901	3,809	3,675	3,532	3,458	3,456	3,453	3,904
4,000	3,786	3,784	3,783	3,781	3,780	3,742	3,629	3,483	3,375	3,346	3,343	3,340	3,781
5,000	3,679	3,678	3,675	3,673	3,671	3,628	3,511	3,386	3,276	3,251	3,249	3,246	3,673
6,000	3,572	3,570	3,568	3,566	3,564	3,515	3,415	3,289	3,164	3,135	3,131	3,128	3,567
7,000	3,451	3,449	3,447	3,445	3,443	3,398	3,295	3,141	2,983	2,960	2,957	2,954	3,446
8,000	3,333	3,331	3,329	3,327	3,325	3,275	3,140	2,951	2,795	2,780	2,777	2,774	3,329
9,000	3,201	3,199	3,197	3,195	3,193	3,115	2,957	2,770	2,630	2,622	2,620	2,617	3,198
10,000	3,051	3,049	3,047	3,045	3,043	2,957	2,798	2,623	2,486	2,483	2,481	2,478	3,048
11,000	2,943	2,941	2,939	2,937	2,935	2,842	2,693	2,514	2,399	2,397	2,395	2,392	2,941
12,000	2,839	2,837	2,835	2,834	2,832	2,741	2,589	2,417	2,347	2,346	2,344	2,342	2,838
13,000	2,748	2,747	2,746	2,744	2,742	2,643	2,486	2,363	2,293	2,292	2,290	2,289	2,748
14,000	2,634	2,634	2,632	2,631	2,630	2,523	2,398	2,289	2,217	2,216	2,216	2,214	2,635
15,000	2,485	2,484	2,483	2,482	2,481	2,408	2,306	2,182	2,091	2,090	2,090	2,089	2,485

Cross Reference

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
5644208	LL2333	5898066	PG266	-	JD700379	

Performance Parameter Reference

Parameters Reference:DM9600-14
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.
On 3500 and C175 engines, at speeds below Peak Torque 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 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 15 deg C (59 deg F), where the density is 850 G/Liter (7.0936 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 out put 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.
Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.
EMISSION CYCLE LIMITS:
Cycle emissions Max Limits apply to cycle-weighted averages only. Emissions at individual load points may exceed the cycle-weighted limit.
WET & DRY EXHAUST/EMISSIONS DESCRIPTION:
Wet - Total exhaust flow or concentration of total exhaust flow

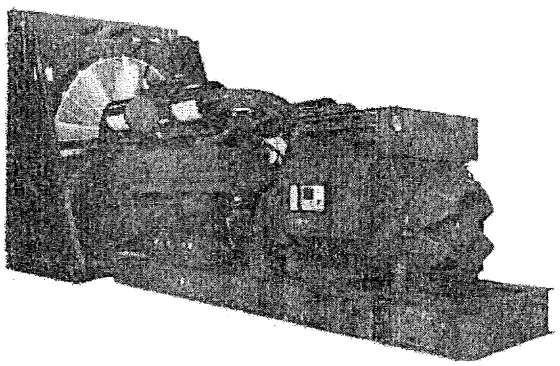
PERFORMANCE DATA[EM5402]

Dry - Total exhaust flow minus water vapor or concentration of exhaust flow with water vapor excluded
EMISSIONS DEFINITIONS:
Emissions : DM1176
EMISSION CYCLE DEFINITIONS
1. For constant-speed marine engines for ship main propulsion, including,diesel-electric drive, test cycle E2 shall be applied, for controllable-pitch propeller sets
test cycle E2 shall be applied.
2. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied.
3. For constant-speed auxiliary engines test cycle D2 shall be applied.
4. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied.
HEAT REJECTION DEFINITIONS:
Diesel Circuit Type and HHV Balance : DM9500
HIGH DISPLACEMENT (HD) DEFINITIONS:
3500: EM1500
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
SOUND DEFINITIONS:
Sound Power : DM8702
Sound Pressure : TM7080
Date Released : 10/27/21

CUMMINS DQLF 2,750KW GENERATOR

Specification sheet

Diesel generator set QS□78 series engine



EPA emissions
2000 kW - 2750 kW 60 Hz

Description

Cummins® commercial generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary Standby, Prime Power and Continuous duty power applications.

Features

Cummins heavy-duty engine - Rugged 4-cycle, industrial diesel delivers reliable power, low emissions and fast response to load changes.

Alternator - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings, low waveform distortion with non-linear loads and fault clearing short-circuit capability.

Permanent Magnet Generator (PMG) - Offers enhanced motor starting and fault clearing short circuit capability.

Control system - The PowerCommand® electronic control is standard equipment and provides total genset system integration including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, AmpSentry™ protection, output metering, auto-shutdown at fault detection and NFPA 110 Level 1 compliance.

Cooling system - Standard and enhanced integral set-mounted radiator systems, designed and tested for rated ambient temperatures to simplify the facility design requirements for rejected heat.

Warranty and service - Backed by a comprehensive warranty and worldwide distributor network.

NFPA - The generator set accepts full rated load in a single step in accordance with NFPA 110 Level 1 systems.

	Standby rating	Prime rating	Continuous rating	Data sheets
Model	60 H□ kW (k□A)	60 H□ kW (k□A)	60 H□ kW (k□A)	60 H□
DQLE	2500 (3125)	2275 (2844)	2000 (2500)	D-3507
DQLF	2750 (3438)	2500 (3125)	2100 (2625)	D-3518

Generator set specifications

Performance class	Genset models have been tested in accordance with ISO 8528-5. Consult factory for transient performance information.
Steady state voltage regulation, no load to full load	± 1.0%
Random voltage variation	± 1.0%
Frequency regulation	Isochronous
Steady state frequency band	± 0.5%
Radio frequency emissions compliance	BS EN61000-6-4:2001 emissions-industrial
Electromagnet Compatibility Performance	Emissions to EN 61000-6-2:2005 Immunity to EN 61000-6-4:2007+A1:2011

Engine specifications

Bore	170.0 mm (6.69 in)
Stroke	190.0 mm (7.48 in)
Displacement	77.6 litres (4735 in^3)
Configuration	Cast iron, V 18 cylinder
Battery capacity	2200 amps minimum at ambient temperature of -18 °C to 0 °C (0 °F to 32 °F)
Battery charging alternator	55 amps
Starting voltage	24 volt, negative ground
Fuel system	Direct injection: number 2 diesel fuel, fuel filter, automatic electric fuel shutoff
Fuel filter	Triple element, 10 micron filtration, spin-on fuel filter with water separator
Air cleaner type	Dry replaceable element standard; heavy duty optional
Lube oil filter type(s)	Six spin-on, combination full flow filter and bypass filters; Eliminator™ option available
Standard cooling system	High ambient cooling system

Alternator specifications

Design	Brushless, 4 pole, drip proof, revolving field
Stator	2/3 pitch
Rotor	Two bearing, flexible coupling
Insulation system	Class H on low voltage and medium, Class F on high voltage
Standard temperature rise	125 °C Standby at 40 °C ambient
Exciter type	Permanent Magnet Generator (PMG)
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan
AC waveform Total Harmonic Distortion (THDV)	< 5% no load to full linear load, < 3% for any single harmonic

Available voltages

60 H□Line-Neutral/Line-Line

• 380	• 480	• 4160	• 13200
• 440	• 600	• 12470	• 13800

Note: Consult factory for other voltages.

Generator set options and accessories

Engine

- 208/240/480 V coolant heater for ambient above 4.5 °C (40 °F) - 10,000 W max.
- 208/240/480 V coolant heater for ambient below 4.5 °C (40 °F) - 12,840 W max.

Cooling system

- Remote radiator
- High ambient air temperature (ship loose)
- Enhanced high ambient air temperature (ship loose)

Control panel

- Multiple language support
- Right or left facing mounting
- Floor mounted
- 3 phase differential CTs (3x or 6x CTs)
- Masterless load demand
- Warning high bearing temperature

Generator set options and accessories (continued)

Control panel

- Alternator temperature monitoring
- Exhaust gas temperature monitoring
- 6x user-configurable relays
- 120/240 V Heater control cabinet
- Mechanical hour meter
- 2x digital input/output

Exhaust system

- Residential grade exhaust silencer
- Critical grade exhaust silencer

Generator set

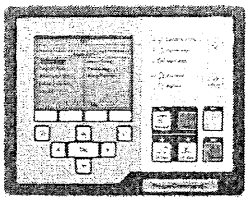
- Battery
- Battery rack with hold-down - floor standing
- PowerCommand network
- Remote annunciator panel
- Vibration isolators
- 2 year warranty
- 5 year warranty
- 10 year major components warranty
- IBC and HCAI Certification

Alternator

- 80 °C rise
- 105 °C rise
- 125 °C rise
- 150 °C rise
- 120/240 V 300 W anti-condensation heater
- Temperature sensor - RTDs, 2/phase
- Temperature sensor – alternator bearing RTD
- Differential current transformers

Note: Some options may not be available on all models - consult factory for availability.

PowerCommand 3.3 – control system



The PowerCommand control system is an integrated microprocessor based generator set control system providing voltage regulation, engine protection, alternator protection, operator interface and isochronous governing.

AmpSentry – Includes integral AmpSentry protection, which provides a full range of alternator protection functions that are matched to the alternator provided.

Power management – Control function provides battery monitoring and testing features and smart starting control system.

Advanced control methodology – Three phase sensing, full wave rectified voltage regulation, with a PWM output for stable operation with all load types.

Communications interface – Control comes standard with PCCNet and Modbus interface.

Service - InPower™ PC-based service tool available for detailed diagnostics, setup, data logging and fault simulation.

Reliable design – The control system is designed for reliable operation in harsh environment.

Multi-language support

Operator panel features

Operator panel features – The operator panel, in addition to the alternator, displays the Utility/AC bus data.

Operator/display functions

- 320 x 240 pixels graphic LED backlight LCD
- Auto, manual, start, stop, fault reset and lamp test/panel lamp switches
- Alpha-numeric display with pushbuttons
- LED lamps indicating genset running, remote start, not in auto, common shutdown, common warning, manual run mode, auto mode and stop.

Paralleling control functions

- Digital frequency synchronization and voltage matching
- Isochronous kW and kVar load sharing controls
- Droop kW and kVar control
- Sync check
- Extended paralleling (peak shave/base load)
- Digital power transfer control (AMF) provides load transfer operation in open or closed transition or soft (ramping) transfer mode

Alternator data

- Line-to-Neutral and Line-to-Line AC volts
- 3-phase AC current
- Frequency
- kW, kVar, power factor kVA (three phase and total)

Engine data

- DC voltage
- Engine speed
- Lube oil pressure and temperature
- Coolant temperature
- Comprehensive FAE data (where applicable)

Other data

- Genset model data
- Start attempts, starts, running hours, kW hours
- Load profile (operating hours at % load in 5% increments)
- Fault history
- Data logging and fault simulation (requires InPower)

Standard control functions

Digital governing (optional)

- Integrated digital electronic isochronous governor
- Temperature dynamic governing

Digital voltage regulation

- Integrated digital electronic voltage regulator
- 3-phase, 4-wire Line-to-Line sensing
- Configurable torque matching

Standard control functions (continued)

AmpSentry AC protection

- AmpSentry protective relay
- Over current and short circuit shutdown
- Over current warning
- Single and three phase fault regulation
- Over and under voltage shutdown
- Over and under frequency shutdown
- Overload warning with alarm contact
- Reverse power and reverse Var shutdown
- Field overload

Engine protection

- Battery voltage monitoring, protection and testing
- Overspeed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown
- Low coolant temperature warning
- Fail to start (overcrank) shutdown
- Fail to crank shutdown
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown
- Fuel-in-rupture-basin warning or shutdown
- Full authority electronic engine protection

Control functions

- Time delay start and cool down
- Real time clock for fault and event time stamping
- Exerciser clock and time of day start/stop
- Data logging
- Cycle cranking
- Load shed
- Configurable inputs and outputs (4)
- Remote emergency stop

Options

- Auxiliary output relays (2)

Ratings definitions

Emergency Standby Power (ESP):

Applicable for supplying power continuously to varying electrical loads for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528 and ISO 3046-1, obtained and corrected in accordance with ISO 15550).

Limited-Time Running Power (LTP):

Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.

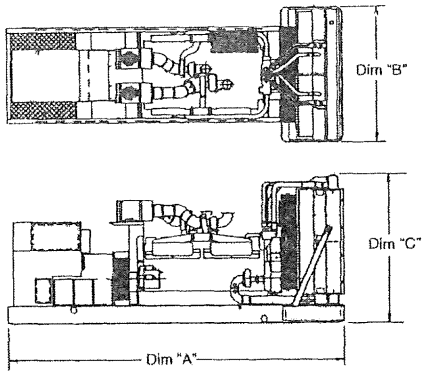
Prime Power (PRP):

Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046-1. Data shown above represents gross engine performance and capabilities as per ISO 3046-1, obtained and corrected in accordance with ISO 15550.

Base Load (Continuous) Power (COP):

Applicable for supplying power continuously to a constant load up to the full output rating for unlimited hours. No sustained overload capability is available for this rating. Consult authorized distributor for rating. (Equivalent to Continuous Power in accordance with ISO 8528 and ISO 3046-1, obtained and corrected in accordance with ISO 15550).

This rating is not applicable to all generator set models.



This outline drawing is for reference only. See respective model data sheet for specific model outline drawing number.

Do not use for installation design

Model	Dim "A" mm (in.)	Dim "B" mm (in.)	Dim "C" mm (in.)	Set weight□ dry kg (lbs)	Set weight□ wet kg (lbs)
DQLE□	7138 (281)	2750 (108.3)	3387 (133.3)	22824 (50318)	23603 (52036)
DQLF□	7138 (281)	2750 (108.3)	3387 (133.3)	22824 (50318)	23603 (52036)

Notes: * With standard features and P80X alternator. See outline drawings for other configurations.

Codes and standards

Codes or standards compliance may not be available with all model configurations – consult factory for availability.

ISO 9001 ISO 14001 ISO 45001	This product was manufactured in a facility whose quality management system is certified to ISO 9001 and its Health Safety Environmental Management Systems certified to ISO 14001 and ISO 45001.	U.S. EPA	Engine certified to Stationary Emergency U.S. EPA New Source Performance Standards, 40 CFR 60 subpart IIII Tier 2 exhaust emission levels. U.S. applications must be applied per this EPA regulation.
	All genset models are available as CSA certified to CSA C22.2 No.100.	International Building Code	The generator set package is available certified for seismic application in accordance with International Building Code.
LISTED	This product is listed to UL 2200, Stationary Engine Generator Assemblies.		The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Cummins products bearing the PTS symbol meet the prototype test requirements of NFPA 110 for Level 1 systems.

For more information contact your local Cummins distributor or visit power.cummins.com

Our energy working for you.™

S-1640 (07/22)

March 30th, 2022

To Whom It May Concern:

With regards to Cummins Power Systems (CPS) manufactured diesel generator set model **DQLF** rated for 60 Hz operation and equipped with Cummins **QSK78-G12** engine:

When tested under the following conditions:

Table 1	
Fuel Specification:	ASTM D975 No. 2-D S15 diesel fuel with 0.0015% sulfur content (by weight), and 42-48 cetane number.
Air Inlet Temperature:	77 °F
Fuel Inlet Temperature:	104 °F (at fuel pump inlet)
Barometric Pressure:	29.53 in. Hg
Humidity:	NOx measurement corrected to 75 grains H2O/lb. dry air

Based on engine emissions validation testing, the table below represents the nominal performance and exhaust emissions data for the generator set listed above:

	Standby Nominal / NTE (Calc'd)				
PERFORMANCE DATA	**10%**	**25%**	**50%**	**75%**	**100%**
BHP @ 1800 RPM (60 Hz)	507	1086	2052	3017	4021
Power Output (kWe)	275	688	1375	2063	2750
Fuel Consumption US Gal/Hr	38	61	106	147	187
Exhaust Gas Flow CFM	5719	8804	13797	17334	20138
Exhaust Gas Temperature °F	631	788	847	879	902
		Nominal / NTE (Calc'd)			
NMHC (Nonmethane Hydrocarbons)	0.80 / 1.0	0.45 / 0.56	0.23 / 0.29	0.14 / 0.18	0.10 / 0.13
NOx (Oxides of Nitrogen)	7.05 / 8.81	3.82 / 4.78	3.53 / 4.41	4.64 / 5.8	6.81 / 8.51
CO (Carbon Monoxide)	1.8 / 2.3	0.7 / 0.88	0.3 / 0.38	0.4 / 0.5	1.0 / 1.25
PM (Particulate Matter)	0.23 / 0.29	0.13 / 0.16	0.07 / 0.09	0.08 / 0.1	0.10 / 0.125
All emissions values above are cited as g/bhp-hr					

The Exhaust data for 0% load is, 4347 CFM for Exhaust Gas Flow and 478°F for Exhaust Gas Temperature.

Steady-State emissions recorded per ISO8178-1 during operation at rated engine speed (+/-2%) and stated constant load (+/-2%) with engine temperatures, pressures and emission rates stabilized.

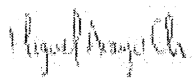
The NOx, HC, CO, and PM emission data tabulated here are representative of test data taken from a single engine under the test conditions shown above. Data for the other components are estimated. This data is subject to instrumentation and engine-to-engine variability. Field emissions test data is not guaranteed to these levels. Actual

field test results may vary due to test ambient, site conditions, installation, fuel specification, test procedures, instrumentation and ambient correction factors. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.

The data and information provided in this letter is for informational purposes to assist customers in making purchasing decisions appropriate for their site-specific compliance needs. Owners/operators of compression ignition internal combustion engines are responsible for ensuring compliance with applicable local, state, and federal standards when CI engines are installed at the owner/operator site. The data and information contained herein regarding site variation values in particular should be considered as part of a site-specific compliance evaluation.

This letter does not supersede any of the commercial terms of sale, including, but not limited to, warranty coverage and compliance with law obligations. THE INFORMATION IN THIS LETTER IS PROVIDED "AS IS" AND WITH ALL FAULTS AND DEFECTS. CUMMINS DOES NOT WARRANT THE ACCURACY OF THE INFORMATION PROVIDED AND THIS LETTER SHOULD NOT BE SHARED WITH THIRD PARTIES WITHOUT CUMMINS PRIOR WRITTEN CONSENT. For further questions on this product or application, please contact the local Cummins Sales and Service representative.

Best Regards,



Miguel Araujo
Application Engineer – Strategic Accounts (Data Center)
Cummins Power Generation

Exhaust emission data sheet
2750DQLF
60 H□ Diesel generator set
EPA emission

Engine information:			
Model:	Cummins Inc. QSK78-G12	Bore:	6.69 in. (170 mm)
Type:	4 Cycle, 60° V, 18 cylinder diesel	Stroke:	7.48 in. (190 mm)
Aspiration:	Turbocharged and low temperature after-cooled	Displacement:	4735 cu. in. (77.6 liters)
Compression ratio:	15.5:1		
Emission control device:	Turbocharger and after-cooled		

Performance data	1/4 Standby	1/2 Standby	3/4 Standby	Full Standby	Full Prime	Full Continuous
BHP @ 1800 RPM (60 Hz)	1015	2030	3045	4060	3670	3045
Fuel consumption (Gal/Hr)	59.7	107.2	145.8	186.9	169.0	145.8
Exhaust gas flow (CFM)	8409	13364	16965	20134	18784	16965
Exhaust gas temperature (°F)	761	811	827	879	850	827
Exhaust emission data						
HC (Total unburned hydrocarbons)	0.43	0.23	0.15	0.12	0.13	0.15
NOx (Oxides of nitrogen as NO2)	3.35	3.40	4.40	6.40	5.60	4.60
CO (Carbon monoxide)	0.59	0.45	0.54	1.18	0.93	0.54
PM (Particular matter)	0.08	0.08	0.09	0.10	0.10	0.09
SO2 (Sulfur dioxide)	0.13	0.12	0.10	0.10	0.10	0.10
Smoke (Bosch)	0.28	0.37	0.46	0.59	0.54	0.46

All values are Grams/HP-Hour, Smoke is Bosch #

Test conditions

Data is representative of steady-state engine speed (± 36 RPM) at designated genset loads. Pressures, temperatures, and emission rates were stabilized.

Fuel specification:	ASTM D975 No. 2-D diesel fuel with 0.03-0.05% sulfur content (by weight), and 40-60 cetane number.
Fuel temperature	104 ± 9 °F (at fuel pump inlet)
Intake air temperature:	77 ± 9 °F
Barometric pressure:	29.6 ± 1 in. Hg
Humidity:	NOx measurement corrected to 75 grains H2O/lb dry air
Reference standard:	ISO 8178

The NOx, HC, CO and PM emission data tabulated here are representative of test data taken from a single engine under the test conditions shown above. Data for the other components are estimated. These data are subjected to instrumentation and engine-to-engine variability. Field emission test data are not guaranteed to these levels. Actual field test results may vary due to test site conditions, installation, fuel specification, test procedures and instrumentation. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may results in elevated emission levels.

2023 EPA Tier 2 Exhaust Emission Compliance Statement 2750DQLF Stationary Emergency

60 H□Diesel Generator Set

Compliance Information:

The engine used in this generator set complies with Tier 2 emissions limit of U.S. EPA New Source Performance Standards for stationary emergency engines under the provisions of 40 CFR 60 Subpart IIII when tested per ISO8178 D2.

Engine Manufacturer:	Cummins Inc.
EPA Certificate Number:	PCEXL060.AAD-001
Effective Date:	04/13/2022
Date Issued:	04/13/2022
EPA Engine Family (Cummins Emissions Family):	PCEXL060.AAD

Engine Information:

Model:	QSK78-G12	Bore:	6.69 in. (170 mm)
Engine Nameplate HP:	4060	Stroke:	7.48 in. (190 mm)
Type:	4 cycle, 60°V, 18 Cylinder Diesel	Displacement:	4735 cu. in. (77.6 liters)
Aspiration:	Turbocharged and Low Temperature Aftercooled	Compression Ratio:	15.5:1
Emission Control Device:	Turbocharged and Low Temperature Aftercooled	Exhaust Stack Diameter:	2 - 14 in.

Diesel Fuel Emissions Limits

D2 Cycle Exhaust Emissions	Grams per BHP-hr			Grams per kW_m-hr		
	NO_x □ NMHC	CO	PM	NO_x	CO	PM
EPA Emissions Limit	4.8	2.6	0.15	6.4	3.5	0.20

Test methods: EPA emissions recorded per 40 CFR Part 60, 89, 1039, 1065 and weighted at load points prescribed in the regulations for constant speed engines.

Diesel fuel specifications: Cetane number: 40-50. Reference: ASTM D975 No. 2-D, 7-15 ppm Sulphur

Reference conditions: Air inlet temperature: 25°C (77°F), Fuel inlet temperature: 40°C (104°F). Barometric pressure: 100 kPa (29.53 in Hg), Humidity: 10.7 g/kg (75 grains H2O/lb) of dry air; required for NOx correction, Restrictions: Intake restriction set to a maximum allowable limit for clean filter; Exhaust back pressure set to a maximum allowable limit.

Tests conducted using alternate test methods, instrumentation, fuel or reference conditions can yield different results.
Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.

Generator Set Data Sheet

Model:	DQLF
Frequency:	60 Hz
Fuel Type:	Diesel
kW Rating:	2750 Standby
	2500 Prime
	2100 Continuous
Emissions level:	EPA NSPS Stationary Emergency Tier 2

Exhaust emission data sheet:	EDS-1125
Exhaust emission compliance sheet:	EPA-1174
Sound performance data sheet:	MSP-1103
Cooling performance data sheet:	MCP-211
Prototype test summary data sheet:	PTS-299
Remote radiator cooling outline:	A050R323
High ambient cooling system outline (ship loose):	A050R319
Enhanced high ambient cooling system outline (ship loose):	A050R321

Fuel Consumption	Standby				Prime				Continuous
	kW (kVA)				kW (kVA)				kW (kVA)
Ratings	2750 (3438)				2500 (3125)				2100 (2625)
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full	Full
US gph	63.3	103.4	143.4	183.4	59.7	96.1	132.5	168.9	145.5
L/hr	239	391	542	694	226	364	501	639	551

Engine	Standby rating	Prime rating	Continuous rating
Engine manufacturer	Cummins Inc.		
Engine model	QSK78-G12		
Configuration	Cast Iron, V 18 cylinder		
Aspiration	Turbocharged and low temperature after-cooled		
Gross engine power output, kWm (bhp)	3028 (4060)	2737 (3670)	2271 (3045)
BMEP at set rated load, kPa (psi)	2599 (377)	2351 (341)	1951 (283)
Bore, mm (in.)	170.0 (6.69)		
Stroke, mm (in.)	190.0 (7.48)		
Rated speed, rpm	1800		
Piston speed, m/s (ft/min)	11.4 (2243)		
Compression ratio	15.5:1		
Lube oil capacity, L (qt)	413 (436)		
Overspeed limit, rpm	2100		
Regenerative power, kW	266		

Fuel Flow	Standby rating	Prime rating	Continuous rating
Maximum fuel flow, L/hr (US gph)	2234 (590)		
Maximum fuel inlet restriction, kPa (in Hg)	17 (5)		
Maximum fuel inlet temperature, °C (°F)	71 (160)		

Air			
Combustion air, m^3/min (scfm)	239 (8451)	227 (8003)	207 (7302)
Maximum air cleaner restriction, kPa (in H_2O)	3.7 (15)		
Alternator cooling air, m^3/min (cfm)	270 (9535)		

Exhaust			
Exhaust flow at set rated load, m^3/min (cfm)	570 (20134)	532 (18784)	480 (16965)
Exhaust temperature, °C (°F)	471 (879)	454 (850)	442 (827)
Maximum back pressure, kPa (in H_2O)	7 (28)		

High Ambient Cooling System (ship loose)			
Ambient design, °C (°F)	43 (109)	40 (104)	44 (111)
Fan load, kW_m (HP)	90 (121)		
Coolant capacity (with radiator), L (US gal)	738 (195)		
Cooling system air flow, m^3/min (scfm)	3060 (108000)		
Total heat rejection, MJ/min (Btu/min)	103.6 (98257)	94.6 (89618)	82.0 (77746)
Maximum cooling air flow static restriction, kPa (in H_2O)	0.12 (0.5)		

Enhanced High Ambient Cooling System (ship loose)			
Ambient design, °C (°F)	51 (124)	49 (120)	50 (122)
Fan load, kW_m (HP)	107 (144)		
Coolant capacity (with radiator), L (US gal)	1061 (280)		
Cooling system air flow, m^3/min (scfm)	4560 (161000)		
Total heat rejection, MJ/min (Btu/min)	103.6 (98257)	94.6 (89618)	82.0 (77746)
Maximum cooling air flow static restriction, kPa (in H_2O)	0.12 (0.5)		

Remote Radiator Cooling at 25C, 110M[1]			
Set coolant capacity, L (US gal)	223 (59)		
Max flow rate at max friction head, jacket water circuit, L/min (US gal/min)	2222 (587)		
Max flow rate at max friction head, aftercooler circuit, L/min (US gal/min)	988 (261)		
Heat rejected, jacket water circuit, MJ/min (Btu/min)	55.1 (52234)	51.1 (48459)	45.5 (43158)
Heat rejected, aftercooler circuit, MJ/min (Btu/min)	45.9 (43523)	40.8 (38659)	33.9 (32088)
Heat rejected, fuel circuit, MJ/min (Btu/min)	2.6 (2500)		
Total heat radiated to room, MJ/min (Btu/min)	23.4 (22179)	21.4 (20341)	18.3 (17400)
Maximum friction head, jacket water circuit, kPa (psi)	69 (10)		
Maximum friction head, aftercooler circuit, kPa (psi)	48 (7)		
Maximum static head, jacket water circuit, m (ft)	18.3 (60)		
Maximum static head, aftercooler circuit, m (ft)	18.3 (60)		
Maximum jacket water outlet temp, °C (°F)	104 (220)	100 (212)	100 (212)
Maximum aftercooler inlet temp at 25 °C (77 °F) ambient, °C (°F)	49 (120)		
Maximum aftercooler inlet temp, °C (°F)	71 (160)	66 (150)	
Maximum fuel flow, L/hr (US gph)	2234 (590)		
Maximum fuel return line restriction, kPa (in Hg)	34 (10)		

Weights[2]

Unit dry weight kgs (lbs)	23210 (51166)
Unit wet weight kgs (lbs)	24238 (53433)

[1] For non-standard remote installations contact your local Cummins representative.

[2] Weights represent a set with standard features. See outline drawing for weights of other configurations.

Derating Factors

Standby	**Standard Cooling System**: Full genset power available up to 740 m (2428 ft) at ambient temperatures up to 40 °C (104 °F). Above these conditions, derate at 7.8% per 305 m (1000 ft) and 21% per 10 °C (18 °F). **Enhanced Cooling System**: Genset is de-rated by 1.3% at sea level (0 m) at ambient temperatures up to 50 °C (122 °F). Above these conditions, derate at 7.9% per 305 m (1000 ft) and 21% per 10 °C (18 °F).
Prime	**Standard Cooling System**: Full genset power available up to 410 m (1345 ft) at ambient temperatures up to 40 °C (104 °F). Above these conditions, derate at 8.6% per 305 m (1000 ft) and 24% per 10 °C (18 °F). **Enhanced Cooling System**: Genset is de-rated by 11.9% at sea level (0 m) at ambient temperatures up to 50 °C (122 °F). Above these conditions, derate at 8.7% per 305 m (1000 ft) and 24% per 10 °C (18 °F).
Continuous	**Standard Cooling System**: Genset is de-rated by 2.0% at sea level (0 m) at ambient temperatures up to 40 °C (104 °F). Above these conditions, derate at 10.2% per 305 m (1000 ft) and 28.8% per 10 °C (18 °F). **Enhanced Cooling System**: Genset is de-rated by 28.8% at sea level (0 m) at ambient temperatures up to 50 °C (122 °F). Above these conditions, derate at 10.2% per 305 m (1000 ft) and 28.8% per 10 °C (18 °F).

Ratings Definitions

Emergency Standby Power (ESP):	Limited-Time Running Power (LTP):	Prime Power (PRP):	Base Load (Continuous) Power (COP):
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.	Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) is in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.

Alternator Data

Voltage	Connection[1]	Temp rise degrees C	Duty[2]	Single phase factor[3]	Max surge kVA[4]	Winding No.	Alternator data sheet	Feature code
220/380	Wye	125	S		N/A	13	ADS-531	B407-2
380	Wye	150	S		7944	13	ADS-516	B814-2
440	Wye	150	S/P/C		9719	12	ADS-517	B813-2
380	Wye	125	P		7944	13	ADS-516	B815-2
380	Wye	80	C		N/A	13	ADS-517	B800-2
220/380	Wye	105	C		7944	13	ADS-516	B597-2
380	Wye	105	P		10049	13	ADS-517	B840-2
440	Wye	125	S/P/C		13024	12	ADS-531	B663-2
440	Wye	105	S/P		13024	12	ADS-531	B664-2
480	Wye	150	S		8412	12	ADS-516	B816-2
277/480	Wye	125	P		8412	12	ADS-516	B718-2
480	Wye	125	S/P/C		9719	12	ADS-517	B801-2
480	Wye	105	S		13024	12	ADS-531	B280-2
480	Wye	80	S		14781	12	ADS-532	B601-2
480	Wye	80	P		13024	12	ADS-531	B694-2
480	Wye	105	C		7267	12	ADS-515	B583-2
600	Wye	150	S		8189	7	ADS-516	B817-2

Notes:

[1] Single phase power can be taken from three phase generator sets at up to the value listed in the single phase factor column for the generator set nameplate kW rating at unity power factor.

[2] Standby (S), Prime (P) and Continuous ratings (C).

[3] Factor for the *single phase output from three phase alternator* formula listed below.

[4] Maximum rated starting kVA that results in a minimum of 90% of rated sustained voltage during starting.

Alternator Data (continued)

Voltage	Connection[1]	Temp rise degrees C	Duty[2]	Single phase factor[3]	Max surge kVA[4]	Winding No.	Alternator data sheet	Feature code
347/600	Wye	125	P		8189	7	ADS-516	B720-2
347/600	Wye	80	S		N/A	7	ADS-532	B604-2
600	Wye	80	P		12426	7	ADS-531	B604-2
347/600	Wye	105	C		7233	7	ADS-515	B582-2
347/600	Wye	105	S		12426	7	ADS-531	B839-2
2400/4160	Wye	105	P/C		7295	51	ADS-519	B571-2
13200-13800	Wye	125	P		6800	91	ADS-522	B804-2
13200	Wye	105	C		6800	91	ADS-522	B805-2
13200	Wye	125	S/P		11213	91	ADS-533	B819-2
13200	Wye	105	S		11213	91	ADS-533	B501-2
13200	Wye	80	P		13438	91	ADS-534	B566-2
13200	Wye	80	S		13438	91	ADS-534	B807-2
13200	Wye	80	C		11213	91	ADS-533	B808-2
13800	Wye	125	S		7993	91	ADS-523	B820-2
13800	Wye	105	P		7993	91	ADS-523	B821-2
13800	Wye	105	C		6800	91	ADS-522	B460-2
13800	Wye	80	S		13438	91	ADS-534	B610-2
13800	Wye	80	P		11213	91	ADS-533	B809-2
13800	Wye	80	C		6800	91	ADS-522	B565-2
12470	Wye	125	S		11213	91	ADS-533	B822-2
12470	Wye	105	P		11213	91	ADS-533	B823-2
12470	Wye	105	S		13438	91	ADS-534	B568-2
12470	Wye	80	P		13438	91	ADS-534	B812-2
12470	Wye	105	C		6800	91	ADS-522	B569-2
12470	Wye	80	C		11213	91	ADS-533	B570-2
13800	Wye	105	S		11213	91	ADS-533	B895-2
2400/4160	Wye	105	S		8752	51	ADS-520	B933-2
2400/4160	Wye	80	S		11185	51	ADS-545	B935-2
2400/4160	Wye	150	S/P/C		7295	51	ADS-519	B938-2
2400/4160	Wye	125	S		7295	51	ADS-519	B940-2
600	Wye	80	C		8189	7	ADS-516	B589-2
2400/4160	Wye	80	P		8752	51	ADS-520	B939-2

Notes:

1 Single phase power can be taken from three phase generator sets at up to the value listed in the single phase factor column for the generator set nameplate kW rating at unity power factor.

2 Standby (S), Prime (P) and Continuous ratings (C).

3 Factor for the *single phase output from three phase alternator* formula listed below.

4 Maximum rated starting kVA that results in a minimum of 90% of rated sustained voltage during starting.

Formulas for Calculating Full Load Currents:

Three phase output	Single phase output
$\frac{kW \times 1000}{Voltage \times 1.73 \times 0.8}$	$\frac{kW \times SinglePhaseFactor \times 1000}{Voltage}$

Warning: Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

For more information contact your local Cummins distributor or visit cummins.com

Our energy working for you.™

D-3518 (11/20)

MIRATECH CONTROL SYSTEM

Application & Performance Warranty Data

Project Information

Site Location:	VA
Project Name:	ADS IAD107ROMP01 - 12
Application:	Standby Power
Number Of Engines:	26
Operating Hours per Year:	100

Engine Specifications

Engine Manufacturer:	Caterpillar
Model Number:	3516E
Rated Speed:	1800 RPM
Type of Fuel:	Ultra-Low Sulfur Diesel (ULSD)
Type of Lube Oil:	1 wt% sulfated ash or less
Lube Oil Consumption:	0.1 % Fuel Consumption
Number of Exhaust Manifolds:	1

Engine Cycle Data

Load	Speed	Power	Exhaust Flow	Exhaust Temp.	Fuel Cons.	NO_x	CO	NMHC	NMNEHC	PM_{10}	O_2	H_2O
%		bhp	acfm (cfm)	° F	gal/hr	g/bhp-hr	g/bhp-hr	g/bhp-hr	g/bhp-hr	g/bhp-hr	%	%
100	Rated	4,043	22,051.6	897	191.8	6	1.16	0.14	0.1	0.07	9.4	10

Emission Data (100% Load)

Emission	Raw Engine Emissions						Target Outlet Emissions						Calculated Reduction
	g/bhp-hr	tons/yr	ppmvd @ 15% O_2	ppmvd	g/kW-hr	lb/MW-hr	g/bhp-hr	tons/yr	ppmvd @ 15% O_2	ppmvd	g/kW-hr	lb/MW-hr	
NO_x*	6	2.67	496	966	8.046	17.74	0.5	0.22	41	81	0.671	1.48	91.7%
CO	1.16	0.52	157	307	1.556	3.43	0.35	0.16	47	92	0.467	1.03	70%
NMHC**	0.14	0.06	33	65	0.188	0.41	0.07	0.03	17	32	0.094	0.21	50%
PM_{10}	0.07	0.03	22	43	0.094	0.21	0.02	0.01	7	14	0.03	0.07	68.6%

* MW referenced as NO_2

** MW referenced as CH_4. Propane in the exhaust shall not exceed 15% by volume of the NMHC compounds in the exhaust, excluding aldehydes. The 15% (vol.) shall be established on a wet basis, reported on a methane molecular weight basis. The measurement of exhaust NMHC composition shall be based upon EPA method 320 (FTIR), and shall exclude formaldehyde.

SAFETY POWER CONTROL SYSTEM

DESIGN PARAMETERS

The design of the Safety Power emissions reduction system is based on the following conditions. Note: NOx is calculated as NO_2.

Table 1 – Engine Data

Engine Type:	CAT 3516E
Application	Stand-by
Engine Power	2,750 ekW
Exhaust Temperature	897 °F
Design Exhaust Flow Rate	21,724 (CFM)
Fuel Type	Diesel

Table 2 – Emissions Data at Full Engine Load

Engine Option	Emissions	Not to Exceed Catalyst Inlet (g/bhp-h)	Emissions Requirement (g/bhp-h)	Catalyst Outlet (g/bhp-hr)	Catalyst Outlet (g/kwh)	Catalyst Outlet (lbs/MW-h)	Catalyst Outlet (ppmvd at 15%O2)	Catalyst Outlet (% reduction)
CAT 3516E (2,750 ekW)	NOx	6.0	0.50	0.50	0.67	1.62	40	91.9
	CO *	1.16	2.60	0.23	0.31	0.75	31	80.0
	VOC *	0.14	0.14	0.06	0.08	0.18	5	60.0
	PM	0.07	0.022	0.022	0.03	0.07	***	75.6

* Reductions assume an exhaust temp of 662 degF (350 degC) or more.

*** Particulate matter is a mass quantity and must be determined and reported gravimetrically. As per EPA Method 5 measurement method, PM emissions should not be reported in ppmvd. We would always advise that PM measurements to be taken with front half as this is the most appropriate for this application.

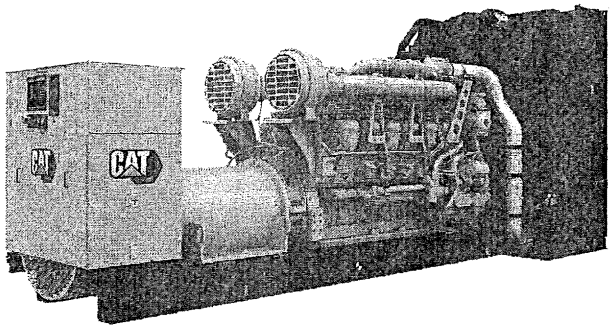
Notes: (1) The EPA does not treat methane and ethane as VOC's. Safety Power can achieve a stated reduction of VOC's based on the EPA definition assuming that the VOC's manifest themselves as propene. (2) all emissions reductions are based on an average at steady state using SCAQMD method 100.1 for NOx and SCAQMD/EPA methods 25.1/25.3 for CO and VOC's or mutually agreed test method approved in writing. (3) if NMHC/VOC data isn't provided 0.6 g/hp-hr is to be assumed (unless otherwise stated).

Table 3 – SCR System Data

Engine Option	CAT 3516E (2,750 ekW)
Max. Ammonia Slip □ 15% O2	8 ppm
Urea Consumption - 32.5% solution (□/- 15%)	10.3 USG/hr
System Pressure Loss	19.5" WC
System Inlet/Outlet ANSI Flange Inches	28/28

CATERPILLER 3512C 1,500 KW GENERATOR

Cat® 3512C
Diesel Generator Sets



Bore – mm (in)	170 (6.69)
Stroke – mm (in)	190 (7.48)
Displacement – L (in³)	51.8 (3161.03)
Compression Ratio	14.7:1
Aspiration	TA
Fuel System	EUI
Governor Type	ADEM™ A3

Image shown may not reflect actual configuration

Standby 60 Hz ekW (kVA)	Mission Critical 60 Hz ekW (kVA)	Prime 60 Hz ekW (kVA)	Continuous 60 Hz ekW (kVA)	Emissions Performance
1500 (1875)	1500 (1875)	1360 (1700)	1230 (1537)	U.S. EPA Stationary Emergency Use Only. (Tier 2)

Features

Cat® Diesel Engine
- Meets U.S. EPA Stationary Emergency Use Only (Tier 2) emission standards
- Reliable performance proven in thousands of applications worldwide

Generator Set Package
- Accepts 100% block load in one step and meets NFPA 110 loading requirements
- Conforms to ISO 8528-5 G3 load acceptance requirements
- Reliability verified through torsional vibration, fuel consumption, oil consumption, transient performance, and endurance testing

Alternators
- Superior motor starting capability minimizes need for oversizing generator
- Designed to match performance and output characteristics of Cat diesel engines

Cooling System
- Cooling systems available to operate in ambient temperatures up to 50°C (122°F)
- Tested to ensure proper generator set cooling

EMCP 4 Control Panels
- User-friendly interface and navigation
- Scalable system to meet a wide range of installation requirements
- Expansion modules and site specific programming for specific customer requirements

Warranty
- 24 months/1000-hour warranty for standby and mission critical ratings
- 12 months/unlimited hour warranty for prime and continuous ratings
- Extended service protection is available to provide extended coverage options

Worldwide Product Support
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- Your local Cat dealer provides extensive post-sale support, including maintenance and repair agreements

Financing
- Caterpillar offers an array of financial products to help you succeed through financial service excellence
- Options include loans, finance lease, operating lease, working capital, and revolving line of credit
- Contact your local Cat dealer for availability in your region

Standard and Optional Equipment

Engine

Air Cleaner

- ■ Single element
- ❑ Dual element
- ❑ Heavy duty

Muffler

- ❑ Industrial grade (15 dB)

Starting

- ❑ Standard batteries
- ■ Oversized batteries
- ❑ Standard electric starter(s)
- ■ Dual electric starter(s)
- ❑ Air starter(s)
- ■ Jacket water heater

Alternator

Output voltage

- ❑ 380V ❑ 6600V
- ❑ 440V ❑ 6900V
- ■ 480V ❑ 12470V
- ❑ 600V ❑ 13200V
- ❑ 4160V ❑ 13800V
- ❑ 6300V

Temperature Rise (over 40°C ambient)

- ❑ 150°C
- ■ 125°C/130°C
- ❑ 105°C
- ❑ 80°C

Winding type

- ❑ Random wound
- ■ Form wound

Excitation

- ❑ Internal excitation (IE)
- ■ Permanent magnet (PM)

Attachments

- ■ Anti-condensation heater
- ❑ Stator and bearing temperature monitoring and protection

Power Termination

Type

- ❑ Bus bar
- ❑ Circuit breaker
- ❑ 1600A ■ 2000A
- ❑ 2500A ❑ 3200A
- ❑ 3000A
- ❑ UL ❑ IEC
- ■ 3-pole ❑ 4-pole
- ■ Manually operated
- ❑ Electrically operated

Trip Unit

- ❑ LSI ❑ LSI-G
- ■ LSIG-P

Control System

Controller

- ■ EMCP 4.2B
- ❑ EMCP 4.3
- ❑ EMCP 4.4

Attachments

- ■ Local annunciator module
- ■ Remote annunciator module
- ■ Expansion I/O module
- ❑ Remote monitoring software

Charging

- ❑ Battery charger – 10A
- ■ Battery charger – 20A
- ❑ Battery charger – 35A

Vibration Isolators

- ■ Spring
- ❑ Seismic rated

Cat Connect

Connectivity

- ❑ Ethernet
- ❑ Cellular

Extended Service Options

Terms

- ❑ 2 year (prime)
- ❑ 3 year
- ❑ 5 year
- ❑ 10 year

Coverage

- ❑ Silver
- ❑ Gold
- ❑ Platinum
- ❑ Platinum Plus

Ancillary Equipment

- ❑ Automatic transfer switch (ATS)
- ❑ Paralleling switchgear
- ❑ Paralleling controls

Certifications

- ■ UL 2200 Listed
- ❑ CSA
- ■ IBC seismic certification
- ❑ OSHPD pre-approval

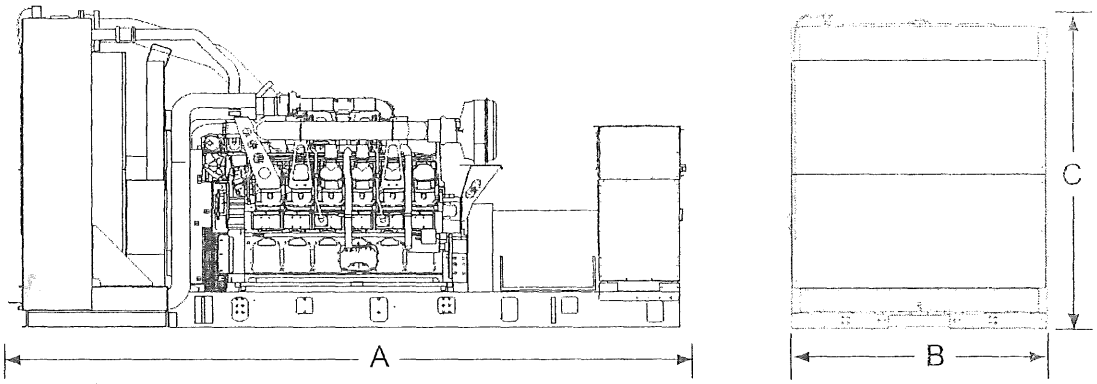
Note: *Some options may not be available on all models. Certifications may not be available with all model configurations. Consult factory for availabilit .*

Package Performance

Performance	Standby		Mission Critical		Prime		Continuous	
Frequency	60 Hz		60 Hz		60 Hz		60 Hz	
Gen set power rating with fan	1500 ekW		1500 ekW		1360 ekW		1230 ekW	
Gen set power rating with fan @ 0.8 power factor	1875 kVA		1875 kVA		1700 kVA		1537 kVA	
Emissions	EPA Stationary Emergency (Tier 2)		EPA Stationary Emergency (Tier 2)		EPA Stationary Emergency (Tier 2)		EPA Stationary Emergency (Tier 2)	
Performance number	EM1898-01		EM1899-01		DM8261-05		DM8262-05	
Fuel Consumption								
100% load with fan – L/hr (gal/hr)	383.3	(101.3)	383.3	(101.3)	352.5	(93.1)	326.2	(86.2)
75% load with fan – L/hr (gal/hr)	300.6	(79.4)	300.6	(79.4)	276.7	(73.1)	253.8	(67.1)
50% load with fan – L/hr (gal/hr)	212.7	(56.2)	212.7	(56.2)	195.3	(51.6)	179.1	(47.3)
25% load with fan – L/hr (gal/hr)	124.3	(32.8)	124.3	(32.8)	115.9	(30.6)	108.1	(28.6)
Cooling System								
Radiator air flow restriction (system) – kPa (in. water)	0.12	(0.48)	0.12	(0.48)	0.12	(0.48)	0.12	(0.48)
Radiator air flow – m^3/min (cfm)	2075	(73278)	2075	(73278)	2075	(73278)	2075	(73278)
Engine coolant capacity – L (gal)	156.8	(41.4)	156.8	(41.4)	156.8	(41.4)	156.8	(41.4)
Radiator coolant capacity – L (gal)	234.0	(61.0)	234.0	(61.0)	234.0	(61.0)	234.0	(61.0)
Total coolant capacity – L (gal)	390.8	(102.4)	390.8	(102.4)	390.8	(102.4)	390.8	(102.4)
Inlet Air								
Combustion air inlet flow rate – m^3/min (cfm)	135.8	(4794.6)	135.8	(4794.6)	130.9	(4621.6)	125.8	(4441.3)
Exhaust System								
Exhaust stack gas temperature – °C (°F)	402.6	(756.6)	402.6	(756.6)	387.3	(729.2)	380.6	(717.1)
Exhaust gas flow rate – m^3/min (cfm)	323.0	(11406.4)	323.0	(11406.4)	303.5	(10715.6)	288.2	(10176.5)
Exhaust system backpressure (maximum allowable – kPa (in. water)	6.7	(27.0)	6.7	(27.0)	6.7	(27.0)	6.7	(27.0)
Heat Rejection								
Heat rejection to jacket water – kW (Btu/min)	499	(28363)	499	(28363)	471	(26784)	447	(25402)
Heat rejection to exhaust (total) – kW (Btu/min)	1431	(81392)	1431	(81392)	1316	(74821)	1231	(69985)
Heat rejection to aftercooler – kW (Btu/min)	504	(28646)	504	(28646)	463	(26343)	425	(24173)
Heat rejection to atmosphere from engine – kW (Btu/min)	125	(7084)	125	(7084)	118	(6701)	113	(6439)
Heat rejection from alternator – kW (Btu/min)	74	(4208)	74	(4208)	64	(3645)	69	(3913)
Emissions* (Nominal)								
NOx mg/Nm^3 (g/hp-h)	2303.5	(5.32)	2303.5	(5.32)	1961.1	(4.62)	1641.9	(3.93)
CO mg/Nm^3 (g/hp-h)	230.3	(0.47)	230.3	(0.47)	207.3	(0.42)	189.9	(0.40)
HC mg/Nm^3 (g/hp-h)	50.3	(0.12)	50.3	(0.12)	59.8	(0.14)	63.0	(0.15)
PM mg/Nm^3 (g/hp-h)	12.6	(0.03)	12.6	(0.03)	13.5	(0.03)	14.9	(0.04)
Emissions* (Potential Site Variation)								
NOx mg/Nm^3 (g/hp-h)	2764.3	(6.38)	2764.3	(6.38)	2353.3	(5.54)	1970.3	(4.71)
CO mg/Nm^3 (g/hp-h)	414.5	(0.84)	414.5	(0.84)	373.1	(0.76)	341.7	(0.71)
HC mg/Nm^3 (g/hp-h)	66.9	(0.16)	66.9	(0.16)	79.6	(0.19)	83.8	(0.20)
PM mg/Nm^3 (g/hp-h)	17.7	(0.04)	17.7	(0.04)	18.9	(0.05)	20.8	(0.05)

**mg/Nm^3 levels are corrected to 5% O_2. Contact your local Cat dealer for further information.*

Weights and Dimensions



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
5920 (233.1)	2281 (89.8)	2794 (110.0)	13 970 (30,790)

Note: *For reference only. Do not use for installation design. Contact your local Cat dealer for precise weights and dimensions.*

Ratings Definitions

Standby
Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby rated ekW. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Mission Critical
Output available with varying load for the duration of the interruption of the normal source power. Average power output is 85% of the mission critical rated ekW. Typical peak demand up to 100% of rated ekW for up to 5% of the operating time. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Prime
Output available with varying load for an unlimited time. Average power output is 70% of the prime rated ekW. Typical peak demand is 100% of prime rated ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year.

Continuous
Output available with non-varying load for an unlimited time. Average power output is 70-100% of the continuous rated ekW. Typical peak demand is 100% of continuous rated ekW for 100% of the operating hours.

Applicable Codes and Standards
AS 1359, CSA C22.2 No. 100-04, UL 142, UL 489, UL 869, UL 2200, IBC, IEC 60034-1, ISO 3046, ISO 8528, NEMA MG1-22, NEMA MG1-33, 2014/35/EU, 2006/42/EC, 2014/30/EU and facilitates compliance to NFPA 37, NFPA 70, NFPA 99, NFPA 110.

Note: Codes may not be available in all model configurations. Please consult your local Cat dealer for availability.

Data Center Applications
- All ratings Tier III/Tier IV compliant per Uptime Institute requirements.
- All ratings ANSI/TIA-942 compliant for Rated-1 through Rated-4 data centers.

Fuel Rates
Fuel consumption reported in accordance with ISO 3046-1, based on fuel oil of 35° API [16°C (60°F)] gravity having an LHV of 42,780 kJ/kg (18,390 Btu/lb) when used at 15°C (59°F) and weighing 850 g/liter (7.0936 lbs/U.S. gal.) All fuel consumption values refer to rated engine power.

PERFORMANCE DATA [512DRC5]

MARCH 09, 2022

For Help Desk Phone Numbers Click here

Perf No: EM1899 **Change Level: 01**

General | Heat Rejection | Sound | Emissions | Regulatory | Altitude Derate | Cross Reference | Supplementary Data | Perf Param Ref

View PDF

SALES MODEL:	3512C	**COMBUSTION:**	DIRECT INJECTION
BRAND:	CAT	**ENGINE SPEED (RPM):**	1,800
MACHINE SALES MODEL:		**HERTZ:**	60
ENGINE POWER (BHP):	2,206	**FAN POWER (HP):**	88.5
GEN POWER WITH FAN (EKW):	1,500.0	**ASPIRATION:**	TA
COMPRESSION RATIO:	14.7	**AFTERCOOLER TYPE:**	ATAAC
RATING LEVEL:	MISSION CRITICAL STANDBY	**AFTERCOOLER CIRCUIT TYPE:**	JW+OC, ATAAC
PUMP QUANTITY:	1	**INLET MANIFOLD AIR TEMP (F):**	122
FUEL TYPE:	DIESEL	**JACKET WATER TEMP (F):**	210.2
MANIFOLD TYPE:	DRY	**TURBO CONFIGURATION:**	PARALLEL
GOVERNOR TYPE:	ADEM3	**TURBO QUANTITY:**	4
ELECTRONICS TYPE:	ADEM3	**TURBOCHARGER MODEL:**	GTB4708BN-52T-0.96
CAMSHAFT TYPE:	STANDARD	**CERTIFICATION YEAR:**	2006
IGNITION TYPE:	CI	**CRANKCASE BLOWBY RATE (FT3/HR):**	2,203.4
INJECTOR TYPE:	EUI	**FUEL RATE (RATED RPM) NO LOAD (GAL/HR):**	9.8
FUEL INJECTOR:	3920220	**PISTON SPD @ RATED ENG SPD (FT/MIN):**	2,244.1
UNIT INJECTOR TIMING (IN):	64.34		
REF EXH STACK DIAMETER (IN):	10		
MAX OPERATING ALTITUDE (FT):	3,937		

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

General Performance Data Top

Note(s)

THIS STANDBY RATING IS FOR A STANDBY ONLY ENGINE ARRANGEMENT. RERATING THE ENGINE TO A PRIME OR CONTINUOUS RATING IS NOT PERMITTED.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR	LB/EKW-HR	LB/EKW-HR
1,500.0	100	2,206	307	0.332	0.326	103.2	101.3	0.488	0.479
1,350.0	90	1,983	276	0.336	0.330	94.0	92.2	0.494	0.484
1,200.0	80	1,768	246	0.343	0.336	85.5	83.8	0.505	0.496
1,125.0	75	1,662	232	0.346	0.339	81.0	79.4	0.510	0.501
1,050.0	70	1,556	217	0.348	0.341	76.4	74.9	0.516	0.506
900.0	60	1,349	188	0.352	0.346	67.0	65.7	0.528	0.518
750.0	50	1,144	159	0.355	0.349	57.3	56.2	0.542	0.532
600.0	40	940	131	0.359	0.352	47.6	46.7	0.563	0.552
450.0	30	736	103	0.368	0.361	38.1	37.4	0.601	0.590
375.0	25	632	88	0.376	0.368	33.5	32.8	0.633	0.621
300.0	20	527	73	0.388	0.380	28.8	28.3	0.681	0.668
150.0	10	312	43	0.443	0.434	19.5	19.1	0.920	0.902

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
1,500.0	100	2,206	77.5	120.9	1,145.6	74.6	756.6	82	449.8
1,350.0	90	1,983	72.2	116.1	1,102.7	68.8	727.5	77	428.8
1,200.0	80	1,768	66.9	113.2	1,069.1	63.0	713.4	71	409.0
1,125.0	75	1,662	63.4	111.5	1,052.3	59.5	706.7	68	396.6
1,050.0	70	1,556	59.7	109.8	1,035.2	55.8	700.0	64	382.6
900.0	60	1,349	51.1	107.1	1,000.5	47.6	687.3	55	350.3
750.0	50	1,144	40.6	107.5	963.6	38.4	696.7	44	309.9
600.0	40	940	30.0	108.4	921.9	29.4	702.2	33	266.6
450.0	30	736	20.9	107.1	856.0	21.9	685.3	23	224.6
375.0	25	632	16.9	106.2	809.5	18.8	664.9	19	204.3
300.0	20	527	13.3	105.2	754.5	16.0	636.4	15	184.2
150.0	10	312	7.3	103.2	609.7	11.4	540.6	9	148.8

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	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	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
1,500.0	100	2,206	4,794.6	11,406.4	21,167.1	21,899.0	4,610.8	4,188.7
1,350.0	90	1,983	4,598.6	10,640.5	20,285.8	20,952.1	4,406.6	4,013.7
1,200.0	80	1,768	4,378.0	9,981.4	19,285.7	19,892.1	4,183.4	3,822.5
1,125.0	75	1,662	4,246.6	9,595.7	18,674.6	19,249.2	4,045.1	3,700.9
1,050.0	70	1,556	4,098.2	9,181.5	17,984.1	18,526.3	3,892.6	3,565.4
900.0	60	1,349	3,753.0	8,273.8	16,379.2	16,854.4	3,546.8	3,254.6
750.0	50	1,144	3,280.4	7,230.6	14,251.7	14,658.2	3,074.4	2,822.7
600.0	40	940	2,787.5	6,155.4	12,057.0	12,394.7	2,604.7	2,394.2
450.0	30	736	2,363.4	5,134.0	10,186.4	10,456.9	2,204.7	2,032.9
375.0	25	632	2,179.8	4,645.2	9,382.2	9,619.6	2,030.9	1,877.5
300.0	20	527	2,011.4	4,165.1	8,648.1	8,852.3	1,868.3	1,733.0
150.0	10	312	1,730.9	3,244.5	7,428.8	7,566.8	1,594.8	1,494.1

Heat Rejection Data Top

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
1,500.0	100	2,206	28,363	7,084	81,392	37,320	11,956	28,646	93,547	224,476	239,123
1,350.0	90	1,983	26,596	6,665	74,128	33,028	10,882	26,053	84,110	204,315	217,647
1,200.0	80	1,768	24,935	6,360	68,257	30,111	9,897	23,350	74,958	185,825	197,950
1,125.0	75	1,662	24,035	6,215	64,979	28,563	9,376	21,735	70,466	176,039	187,526
1,050.0	70	1,556	23,095	6,074	61,624	26,950	8,845	20,016	66,004	166,069	176,905
900.0	60	1,349	21,108	5,797	54,723	23,576	7,759	16,292	57,205	145,683	155,189
750.0	50	1,144	18,963	5,518	47,678	21,085	6,636	11,959	48,509	124,586	132,716
600.0	40	940	16,710	5,240	40,505	18,108	5,512	7,849	39,882	103,489	110,241
450.0	30	736	14,361	4,818	33,056	14,499	4,416	4,829	31,201	82,917	88,327
375.0	25	632	13,131	4,577	29,249	12,494	3,876	3,681	26,809	72,772	77,520
300.0	20	527	11,848	4,331	25,396	10,418	3,336	2,726	22,353	62,628	66,715
150.0	10	312	9,052	3,821	17,619	5,853	2,253	1,342	13,214	42,301	45,061

Sound Data Top

Note(s)

SOUND PRESSURE DATA FOR THIS RATING CAN BE FOUND IN PERFORMANCE NUMBER - DM8779.

Emissions Data Top

Units Filter All Units

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN ENGINE POWER		EKW BHP	1,500.0 2,206	1,125.0 1,662	750.0 1,144	375.0 632	150.0 312
PERCENT LOAD		**%**	**100**	**75**	**50**	**25**	**10**
TOTAL NOX (AS NO2)		G/HR	11,615	5,877	3,912	2,972	2,290
TOTAL CO		G/HR	1,019	634	898	1,060	1,024
TOTAL HC		G/HR	257	278	262	207	241
TOTAL CO2		KG/HR	1,063	828	584	342	198
PART MATTER		G/HR	67.7	68.8	104.8	127.8	77.9
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,303.5	1,458.7	1,352.5	1,792.1	2,400.6
TOTAL CO	(CORR 5% O2)	MG/NM3	230.3	181.4	384.5	802.1	1,284.5
TOTAL HC	(CORR 5% O2)	MG/NM3	50.3	69.9	90.2	128.2	263.2
PART MATTER	(CORR 5% O2)	MG/NM3	12.6	16.3	37.9	76.2	80.1
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	854.8	541.3	501.9	665.0	890.8
TOTAL CO	(CORR 15% O2)	MG/NM3	85.5	67.3	142.7	297.6	476.6
TOTAL HC	(CORR 15% O2)	MG/NM3	18.7	25.9	33.5	47.6	97.7
PART MATTER	(CORR 15% O2)	MG/NM3	4.7	6.0	14.1	28.3	29.7
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,122	711	659	873	1,169
TOTAL CO	(CORR 5% O2)	PPM	184	145	308	642	1,028
TOTAL HC	(CORR 5% O2)	PPM	94	130	168	239	491
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	416	264	244	324	434
TOTAL CO	(CORR 15% O2)	PPM	68	54	114	238	381
TOTAL HC	(CORR 15% O2)	PPM	35	48	62	89	182
TOTAL NOX (AS NO2)		G/HP-HR	5.32	3.57	3.45	4.73	7.39
TOTAL CO		G/HP-HR	0.47	0.39	0.79	1.69	3.30
TOTAL HC		G/HP-HR	0.12	0.17	0.23	0.33	0.78
PART MATTER		G/HP-HR	0.03	0.04	0.09	0.20	0.25
TOTAL NOX (AS NO2)		G/KW-HR	7.23	4.85	4.69	6.43	10.05
TOTAL CO		G/KW-HR	0.63	0.52	1.08	2.29	4.49
TOTAL HC		G/KW-HR	0.16	0.23	0.31	0.45	1.06
PART MATTER		G/KW-HR	0.04	0.06	0.13	0.28	0.34
TOTAL NOX (AS NO2)		LB/HR	25.61	12.96	8.62	6.55	5.05
TOTAL CO		LB/HR	2.25	1.40	1.98	2.34	2.26
TOTAL HC		LB/HR	0.57	0.61	0.58	0.46	0.53
TOTAL CO2		LB/HR	2,344	1,825	1,289	753	436
PART MATTER		LB/HR	0.15	0.15	0.23	0.28	0.17
OXYGEN IN EXH		%	10.9	12.0	12.7	13.7	15.7
DRY SMOKE OPACITY		%	1.0	1.3	2.9	5.0	3.0
BOSCH SMOKE NUMBER			0.77	0.79	1.02	1.30	1.04

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN ENGINE POWER		EKW BHP	1,500.0 2,206	1,125.0 1,662	750.0 1,144	375.0 632	150.0 312
PERCENT LOAD		**%**	**100**	**75**	**50**	**25**	**10**
TOTAL NOX (AS NO2)		G/HR	13,938	7,053	4,695	3,567	2,748
TOTAL CO		G/HR	1,834	1,142	1,617	1,908	1,843
TOTAL HC		G/HR	341	370	348	276	320
PART MATTER		G/HR	94.8	96.4	146.7	178.9	109.0
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,764.3	1,750.5	1,623.0	2,150.5	2,880.8
TOTAL CO	(CORR 5% O2)	MG/NM3	414.5	326.5	692.0	1,443.8	2,312.1
TOTAL HC	(CORR 5% O2)	MG/NM3	66.9	93.0	119.9	170.5	350.1
PART MATTER	(CORR 5% O2)	MG/NM3	17.7	22.8	53.1	106.7	112.2
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	1,025.7	649.6	602.2	798.0	1,069.0
TOTAL CO	(CORR 15% O2)	MG/NM3	153.8	121.2	256.8	535.8	857.9
TOTAL HC	(CORR 15% O2)	MG/NM3	24.8	34.5	44.5	63.3	129.9
PART MATTER	(CORR 15% O2)	MG/NM3	6.6	8.5	19.7	39.6	41.6
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,346	853	791	1,047	1,403
TOTAL CO	(CORR 5% O2)	PPM	332	261	554	1,155	1,850
TOTAL HC	(CORR 5% O2)	PPM	125	174	224	318	654
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	500	316	293	389	521
TOTAL CO	(CORR 15% O2)	PPM	123	97	205	429	686
TOTAL HC	(CORR 15% O2)	PPM	46	64	83	118	243
TOTAL NOX (AS NO2)		G/HP-HR	6.38	4.28	4.14	5.68	8.87
TOTAL CO		G/HP-HR	0.84	0.69	1.42	3.04	5.95
TOTAL HC		G/HP-HR	0.16	0.22	0.31	0.44	1.03
PART MATTER		G/HP-HR	0.04	0.06	0.13	0.28	0.35
TOTAL NOX (AS NO2)		G/KW-HR	8.68	5.83	5.62	7.72	12.06
TOTAL CO		G/KW-HR	1.14	0.94	1.94	4.13	8.09
TOTAL HC		G/KW-HR	0.21	0.31	0.42	0.60	1.40
PART MATTER		G/KW-HR	0.06	0.08	0.18	0.39	0.48
TOTAL NOX (AS NO2)		LB/HR	30.73	15.55	10.35	7.86	6.06
TOTAL CO		LB/HR	4.04	2.52	3.56	4.21	4.06
TOTAL HC		LB/HR	0.75	0.82	0.77	0.61	0.71
PART MATTER		LB/HR	0.21	0.21	0.32	0.39	0.24

Regulatory Information Top

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: 6.4 PM: 0.20

Altitude Derate Data Top

STANDARD

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	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,096	2,206
1,000	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,162	2,074	2,206
2,000	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,176	2,118	2,007	2,206
3,000	2,206	2,206	2,206	2,206	2,206	2,206	2,206	2,173	2,135	2,098	2,052	1,919	2,206
4,000	2,201	2,201	2,201	2,201	2,201	2,171	2,132	2,094	2,057	2,021	1,963	1,831	2,201
5,000	2,129	2,129	2,129	2,129	2,129	2,092	2,054	2,017	1,982	1,947	1,875	1,743	2,129
6,000	2,059	2,059	2,059	2,059	2,053	2,015	1,978	1,943	1,909	1,876	1,765	1,677	2,059
7,000	1,992	1,992	1,992	1,992	1,976	1,940	1,904	1,870	1,838	1,787	1,677	1,588	1,992
8,000	1,927	1,927	1,927	1,927	1,902	1,867	1,833	1,800	1,769	1,699	1,610	1,522	1,927
9,000	1,865	1,865	1,865	1,865	1,831	1,797	1,764	1,733	1,699	1,610	1,522	1,412	1,865
10,000	1,805	1,805	1,805	1,795	1,761	1,729	1,697	1,667	1,610	1,522	1,368	1,279	1,805
11,000	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,434	1,324	1,213	1,125	1,522
12,000	1,478	1,478	1,478	1,478	1,478	1,478	1,478	1,390	1,279	1,169	1,081	993	1,478
13,000	1,434	1,434	1,434	1,434	1,434	1,434	1,346	1,235	1,147	1,037	971	882	1,434
14,000	1,390	1,390	1,390	1,390	1,390	1,279	1,191	1,103	1,015	927	860	794	1,390
15,000	1,346	1,346	1,346	1,346	1,235	1,147	1,059	971	882	816	772	728	1,346

Cross Reference Top

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
4577180	LL1862	5084278	GS656	LS	CT200463	
4577180	LL1862	5157729	PG242	-	LYH00001	

Supplementary Data Top

Type	Classification	Performance Number
SOUND	SOUND PRESSURE	DM8779

Performance Parameter Reference Top

Parameters Reference: DM9600 - 14

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.
On 3500 and C175 engines, at speeds below Peak Torque 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 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 15 deg C (59 deg F), where the density is 850 G/Liter (7.0936 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 out put 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.
Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.

EMISSION CYCLE LIMITS: Cycle emissions Max Limits apply to cycle-weighted averages only. Emissions at individual load points may exceed the cycle-weighted limit.

WET & DRY EXHAUST/EMISSIONS DESCRIPTION: Wet - Total exhaust flow or concentration of total exhaust flow Dry - Total exhaust flow minus water vapor or concentration of exhaust flow with water vapor excluded

EMISSIONS DEFINITIONS: Emissions : DM1176

EMISSION CYCLE DEFINITIONS
1. For constant-speed marine engines for ship main propulsion, including,diesel-electric drive, test cycle E2 shall be applied, for controllable-pitch propeller sets test cycle E2 shall be applied.
2. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied.
3. For constant-speed auxiliary engines test cycle D2 shall be applied.
4. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied.

HEAT REJECTION DEFINITIONS: Diesel Circuit Type and HHV Balance : DM9500

HIGH DISPLACEMENT (HD) DEFINITIONS: 3500: EM1500

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

SOUND DEFINITIONS: Sound Power : DM8702
Sound Pressure : TM7080

Date Released : 10/27/21

Systems Data
Reference Number: EM1899

CATERPILLAR®

March 09, 2022
For Help Desk Phone Numbers
Click Here

AIR INTAKE SYSTEM		
THE INSTALLED SYSTEM MUST COMPLY WITH THE SYSTEM LIMITS BELOW FOR ALL EMISSIONS CERTIFIED ENGINES TO ASSURE REGULATORY COMPLIANCE.		
MAXIMUM ALLOWABLE INTAKE RESTRICTION WITH CLEAN ELEMENT	15	IN-H20
MAXIMUM ALLOWABLE INTAKE RESTRICTION WITH DIRTY ELEMENT	25	IN-H20
MAXIMUM PRESSURE DROP FROM COMPRESSOR OUTLET TO MANIFOLD INLET (OR MIXER INLET FOR EGR)	4.4	IN-HG
CHARGE AIR FLOW AT RATED SPEED	337.7	LB/MIN
TURBO COMPRESSOR OUTLET TEMPERATURE AT RATED SPEED	451	DEG F
MAXIMUM ALLOWABLE STATIC WEIGHT ON AIR INLET	59.5	LB
MAXIMUM ALLOWABLE STATIC WEIGHT ON AIR INLET (AIR SHUT OFF INCLUDED)	17.6	LB
MAXIMUM ALLOWABLE STATIC BENDING MOMENT ON AIR INLET	9.6	LB-FT
MAXIMUM ALLOWABLE STATIC WEIGHT ON TURBO OUTLET CONNECTION	0	LB
MAXIMUM ALLOWABLE STATIC BENDING MOMENT ON TURBO OUTLET CONNECTION	0	LB-FT
COOLING SYSTEM		
ENGINE ONLY COOLANT CAPACITY	41.4	GAL
MAXIMUM ALLOWABLE JACKET WATER OUTLET TEMPERATURE	210	DEG F
REGULATOR LOCATION FOR JW (HT) CIRCUIT	OUTLET	
MAXIMUM UNINTERRUPTED FILL RATE	5.0	G/MIN
ENGINE SPEC SYSTEM		
CYLINDER ARRANGEMENT	VEE	
NUMBER OF CYLINDERS	12	
CYLINDER BORE DIAMETER	6.7	IN
PISTON STROKE	7.5	IN
TOTAL CYLINDER DISPLACEMENT	3161	CU IN
STANDARD CRANKSHAFT ROTATION FROM FLYWHEEL END	CCW	
STANDARD CYLINDER FIRING ORDER	1-12-9-4-5-8-11-2-3-10-7-6	
NUMBER 1 CYLINDER LOCATION	RIGHT FRONT	
STROKES/COMBUSTION CYCLE	4	
EXHAUST SYSTEM		
THE INSTALLED SYSTEM MUST COMPLY WITH THE SYSTEM LIMITS BELOW FOR ALL EMISSIONS CERTIFIED ENGINES TO ASSURE REGULATORY COMPLIANCE.		
MAXIMUM ALLOWABLE SYSTEM BACK PRESSURE	27	IN-H20
MANIFOLD TYPE	DRY	
MAXIMUM ALLOWABLE STATIC WEIGHT ON EXHAUST CONNECTION	63.9	LB
MAXIMUM ALLOWABLE STATIC BENDING MOMENT ON EXHAUST CONNECTION	31.7	LB-FT

FUEL SYSTEM		
MAXIMUM FUEL FLOW FROM TRANSFER PUMP TO ENGINE	332.9	G/HR
MAXIMUM ALLOWABLE FUEL SUPPLY LINE RESTRICTION	8.9	IN-HG
MAXIMUM ALLOWABLE FUEL TEMPERATURE AT TRANSFER PUMP INLET	151	DEG F
MAXIMUM FUEL FLOW TO RETURN LINE FROM ENGINE	322.3	G/HR
MAXIMUM ALLOWABLE FUEL RETURN LINE RESTRICTION	8.0	IN-HG
NORMAL FUEL PRESSURE IN A CLEAN SYSTEM	60.2	PSI
FUEL SYSTEM TYPE	EUI	
MAXIMUM TRANSFER PUMP PRIMING LIFT WITHOUT PRIMING PUMP	12.1	FT
MAXIMUM HEAT REJECTION TO FUEL	540	BTU/MIN
LUBE SYSTEM		
CRANKCASE VENTILATION TYPE	TO ATM	
MOUNTING SYSTEM		
CENTER OF GRAVITY LOCATION - X DIMENSION - FROM REAR FACE OF BLOCK - (REFERENCE TM7077)	37.4	IN
CENTER OF GRAVITY LOCATION - Y DIMENSION - FROM CENTERLINE OF CRANKSHAFT - (REFERENCE TM7077)	9.8	IN
CENTER OF GRAVITY LOCATION - Z DIMENSION - FROM CENTERLINE OF CRANKSHAFT - (REFERENCE TM7077)	0.0	IN
MASS MOMENT OF INERTIA - X AXIS	8851	LB IN SEC2
MASS MOMENT OF INERTIA - Y AXIS	61955	LB IN SEC2
MASS MOMENT OF INERTIA - Z AXIS	61955	LB IN SEC2
STARTING SYSTEM		
MINIMUM CRANKING SPEED REQUIRED FOR START	120	RPM

CATERPILLER C18 750 KW GENERATOR

Cat® C18 DIESEL GENERATOR SETS

Standby & Prime: 60Hz

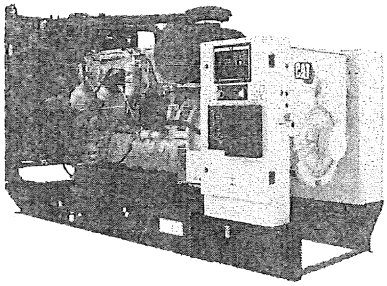


Image shown might not reflect actual configuration

Engine Model	Cat® C18 ATAAC™ In-line 6, 4-cycle diesel
Bore x Stroke	145mm x 183mm (5.7in x 7.2in)
Displacement	18.13 L (1106.3 in³)
Compression Ratio	14:1
Aspiration	Turbocharged Air-to-Air Aftercooled
Fuel Injection System	Electronic Unit Injection
Governor	Electronic ADEM™ A4

Model	Standby	Prime	Emission Strategy
C18	750 ekW, 938 kVA	680 ekW, 850 kVA	EPA TIER II

PACKAGE PERFORMANCE

Performance	Standby	Prime
Frequency	60 Hz	
Genset Power Rating	938 kVA	850 kVA
Genset power rating with fan @ 0.8 power factor	750 ekW	680 ekW
Emissions	EPA TIER II	
Performance Number	EM3842	EM3843
Fuel Consumption		
100% load with fan, L/hr (gal/hr)	205.5 (54.2)	188.5 (49.7)
75% load with fan, L/hr (gal/hr)	164.3 (43.4)	146.3 (38.6)
50% load with fan, L/hr (gal/hr)	108.9 (28.7)	100.3 (26.5)
25% load with fan, L/hr (gal/hr)	63.5 (16.7)	59.4 (15.6)
Cooling System[1]		
Radiator air flow restriction (system), kPa (in. Water)	0.12 (0.48)	0.12 (0.48)
Radiator air flow, m³/min (cfm)	900 (31783)	900 (31783)
Engine coolant capacity, L (gal)	20.8 (5.5)	20.8 (5.5)
Radiator coolant capacity, L (gal)	77 (20.3)	77 (20.3)
Total coolant capacity, L (gal)	97.8 (25.8)	97.8 (25.8)
Inlet Air		
Combustion air inlet flow rate, m³/min (cfm)	67.3 (2376)	65.6 (2316)
Max. Allowable Combustion Air Inlet Temp, °C (°F)	49 (120)	49 (120)
Exhaust System		
Exhaust stack gas temperature, °C (°F)	452.9 (847.2)	432.9 (811.2)
Exhaust gas flow rate, m³/min (cfm)	170.7 (6028)	161 (5686)
Exhaust system backpressure (maximum allowable) kPa (in. water)	10.0 (40.0)	10.0 (40.0)
Heat Rejection		
Heat rejection to jacket water, kW (Btu/min)	225 (12795)	208 (11828)
Heat rejection to exhaust (total) kW (Btu/min)	714 (40604)	664 (37761)
Heat rejection to aftercooler, kW (Btu/min)	272 (15468)	253 (14387)
Heat rejection to atmosphere from engine, kW (Btu/min)	142 (8075)	123 (6995)

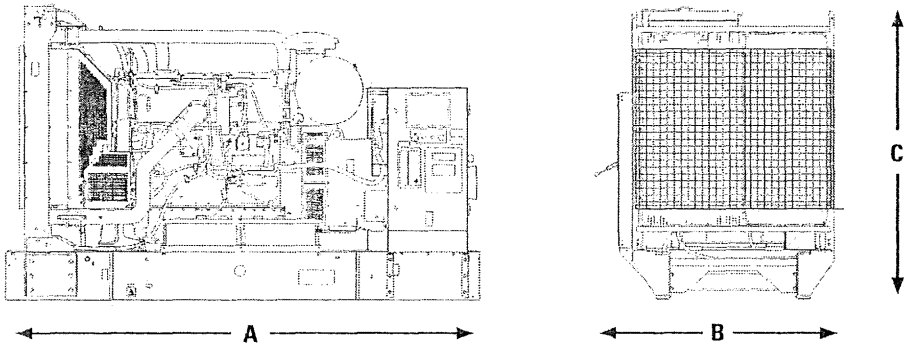
Cat® C18 DIESEL GENERATOR SETS

CAT®

Emissions (Nominal)[2]	Standby	Prime
NOx, mg/Nm³ (g/hp-hr)	2468 (5.42)	2213 (4.91)
CO, mg/Nm³ (g/hp-hr)	100.1 (0.22)	75.6 (0.17)
HC, mg/Nm³ (g/hp-hr)	23.5 (0.06)	24.1 (0.06)
PM, mg/Nm³ (g/hp-hr)	11.7 (0.03)	10.6 (0.03)

Alternator[3]					
Voltages	**208V**	**220V**	**240V**	**480V**	**600V**
Motor starting capability @ 30% Voltage Dip	1917 skVA	2129 skVA	2501 skVA	2512 skVA	2512 skVA
Current	2602.2 amps	2460.3 amps	2512 amps	1127.6 amps	902.1 amps
Frame Size	LC7224N	LC7224L	LC7224L	LC7224L	LC7224L
Excitation	AREP	AREP	AREP	AREP	AREP
Temperature Rise	130 °C	130 °C	130 °C	105 °C	130 °C

WEIGHTS & DIMENSIONS



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
3512 (138)	**1746 (69)**	**2322 (92)**	**4863 (10721)**

APPLICABLE CODES AND STANDARDS:

AS1359, CSA C22.2 No100-04, UL142, UL489, UL869, UL2200, NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG1-22, NEMA MG1-33, 2006/95/EC, 2006/42/EC, 2004/108/EC.
Note: Codes may not be available in all model configurations. Please consult your local Cat Dealer representative for availability.

STANDBY: Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

PRIME: Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand is 100% of prime rated ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year

RATINGS: Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

DEFINITIONS AND CONDITIONS

[1] For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

[2] Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77° F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 BTU/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

[3] UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics. Generator temperature rise is based on a 40° C ambient per NEMA MG1-32.

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LEHE1772-04 (05/20)

PERFORMANCE DATA[EM3842]

February 8, 2023

Performance Number: EM3842

Change Level: 02

SALES MODEL:	C18	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	1,800
MACHINE SALES MODEL:		HERTZ:	60
ENGINE POWER (BHP):	1,112	FAN POWER (HP):	42.2
GEN POWER WITH FAN (EKW):	750.0	ADDITIONAL PARASITICS (HP):	3.4
COMPRESSION RATIO:	14	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:	PARALLEL
CAMSHAFT TYPE:	STANDARD	TURBO QUANTITY:	2
IGNITION TYPE:	CI	TURBOCHARGER MODEL:	GTD5008 0.75 A/R
INJECTOR TYPE:	EUI	CERTIFICATION YEAR:	2018
REF EXH STACK DIAMETER (IN):	6	PISTON SPD @ RATED ENG SPD (FT/MIN):	2,161.4
MAX OPERATING ALTITUDE (FT):	3,553		

INDUSTRY	SUBINDUSTRY	APPLICATION
ELECTRIC POWER	STANDARD	PACKAGED GENSET

General Performance Data

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR	LB/EKW-HR	LB/EKW-HR
750.0	100	1,112	442	0.342	0.337	53.6	52.8	0.507	0.497
675.0	90	1,002	399	0.345	0.340	48.8	48.1	0.513	0.503
600.0	80	894	356	0.355	0.350	44.8	44.1	0.529	0.519
562.5	75	840	334	0.362	0.356	42.8	42.2	0.540	0.530
525.0	70	787	313	0.357	0.352	39.6	39.0	0.535	0.525
450.0	60	680	271	0.347	0.342	33.3	32.8	0.524	0.514
375.0	50	575	229	0.350	0.345	28.4	28.0	0.537	0.527
300.0	40	471	187	0.356	0.351	23.6	23.3	0.559	0.548
225.0	30	367	146	0.365	0.360	18.9	18.6	0.596	0.585
187.5	25	315	125	0.373	0.368	16.6	16.3	0.627	0.615
150.0	20	262	104	0.384	0.379	14.2	14.0	0.672	0.660
75.0	10	155	62	0.436	0.430	9.5	9.4	0.903	0.886

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
750.0	100	1,112	99.6	120.6	1,297.4	91.1	847.3	106	491.8
675.0	90	1,002	94.8	116.3	1,237.8	85.6	808.8	101	471.6
600.0	80	894	90.6	110.2	1,190.8	81.2	779.6	97	456.4
562.5	75	840	88.9	106.0	1,168.7	79.4	765.3	95	449.8
525.0	70	787	83.3	102.6	1,123.3	73.0	732.9	89	427.8
450.0	60	680	70.0	97.1	1,044.2	59.2	681.5	75	378.6
375.0	50	575	58.7	92.6	995.6	48.8	659.1	63	343.0
300.0	40	471	46.1	89.2	946.5	38.8	636.5	50	296.8
225.0	30	367	33.0	85.9	891.7	28.9	613.3	36	248.4
187.5	25	315	26.7	84.2	861.7	23.9	601.4	30	224.2
150.0	20	262	20.9	82.5	823.8	19.2	583.1	23	199.8
75.0	10	155	10.7	79.1	696.6	12.2	500.0	13	150.3

General Performance Data (Continued)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	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	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
750.0	100	1,112	2,375.0	6,028.4	10,393.9	10,773.8	2,267.8	2,078.6

675.0	90	1,002	2,311.8	5,661.5	10,079.7	10,425.9	2,194.5	2,019.7
600.0	80	894	2,255.1	5,366.3	9,808.9	10,125.6	2,129.1	1,967.2
562.5	75	840	2,232.7	5,242.8	9,695.0	9,998.8	2,104.4	1,948.0
525.0	70	787	2,128.6	4,886.8	9,201.8	9,479.4	2,014.8	1,868.9
450.0	60	680	1,924.5	4,154.8	8,250.4	8,484.5	1,790.1	1,665.9
375.0	50	575	1,724.0	3,614.1	7,338.5	7,539.3	1,588.3	1,481.3
300.0	40	471	1,496.1	3,059.1	6,324.6	6,492.2	1,372.1	1,282.4
225.0	30	367	1,252.4	2,494.4	5,258.7	5,392.8	1,143.0	1,070.6
187.5	25	315	1,129.6	2,211.4	4,728.5	4,845.9	1,024.7	960.8
150.0	20	262	1,009.9	1,930.2	4,215.5	4,316.3	910.1	854.6
75.0	10	155	782.1	1,374.8	3,253.5	3,321.2	704.3	665.3

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
750.0	100	1,112	12,818	8,047	40,603	22,636	6,204	15,452	47,163	116,484	124,084
675.0	90	1,002	11,743	6,958	37,522	20,109	5,654	14,340	42,509	106,146	113,072
600.0	80	894	10,952	6,200	35,048	18,214	5,186	13,597	37,916	97,360	103,713
562.5	75	840	10,640	5,836	33,785	17,352	4,962	13,346	35,638	93,166	99,245
525.0	70	787	9,859	5,705	30,827	15,116	4,587	11,983	33,363	86,117	91,736
450.0	60	680	8,318	5,623	24,979	11,650	3,854	9,300	28,853	72,352	77,073
375.0	50	575	7,503	5,062	21,470	9,629	3,289	7,357	24,380	61,743	65,772
300.0	40	471	6,805	4,763	17,924	7,664	2,736	5,257	19,977	51,373	54,726
225.0	30	367	6,315	4,137	14,360	5,834	2,190	3,423	15,572	41,123	43,806
187.5	25	315	6,146	3,592	12,622	4,998	1,918	2,650	13,357	36,017	38,367
150.0	20	262	5,811	3,166	10,852	4,120	1,647	1,979	11,122	30,914	32,931
75.0	10	155	4,464	2,714	7,429	2,021	1,106	928	6,579	20,759	22,114

Emissions Data

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN		**EKW**	**750.0**	**562.5**	**375.0**	**187.5**	**75.0**
PERCENT LOAD		**%**	**100**	**75**	**50**	**25**	**10**
ENGINE POWER		**BHP**	**1,112**	**840**	**575**	**315**	**155**
TOTAL NOX (AS NO2)		G/HR	5,965	3,126	2,054	1,344	778
TOTAL CO		G/HR	243	232	76	312	1,148
TOTAL HC		G/HR	66	67	47	55	458
TOTAL CO2		KG/HR	552	441	292	172	96
PART MATTER		G/HR	33.7	34.4	21.3	25.5	73.8
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,468.0	1,615.7	1,594.0	1,789.0	1,769.3
TOTAL CO	(CORR 5% O2)	MG/NM3	100.1	120.0	57.8	462.4	3,203.4
TOTAL HC	(CORR 5% O2)	MG/NM3	23.5	29.8	32.1	65.0	1,156.1
PART MATTER	(CORR 5% O2)	MG/NM3	11.7	15.2	14.2	30.4	185.1
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	915.8	599.5	591.5	663.9	656.5
TOTAL CO	(CORR 15% O2)	MG/NM3	37.1	44.5	21.4	171.6	1,188.7
TOTAL HC	(CORR 15% O2)	MG/NM3	8.7	11.1	11.9	24.1	429.0
PART MATTER	(CORR 15% O2)	MG/NM3	4.3	5.7	5.3	11.3	68.7
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,202	787	776	871	862
TOTAL CO	(CORR 5% O2)	PPM	80	96	46	370	2,563
TOTAL HC	(CORR 5% O2)	PPM	44	56	60	121	2,158
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	446	292	288	323	320
TOTAL CO	(CORR 15% O2)	PPM	30	36	17	137	951
TOTAL HC	(CORR 15% O2)	PPM	16	21	22	45	801
TOTAL NOX (AS NO2)		G/HP-HR	5.42	3.75	3.59	4.27	5.02
TOTAL CO		G/HP-HR	0.22	0.28	0.13	0.99	7.41
TOTAL HC		G/HP-HR	0.06	0.08	0.08	0.17	2.96
PART MATTER		G/HP-HR	0.03	0.04	0.04	0.08	0.48

TOTAL NOX (AS NO2)	G/KW-HR	7.37	5.09	4.88	5.81	8.83
TOTAL CO	G/KW-HR	0.30	0.38	0.18	1.35	10.07
TOTAL HC	G/KW-HR	0.08	0.11	0.11	0.24	4.02
PART MATTER	G/KW-HR	0.04	0.06	0.05	0.11	0.65
TOTAL NOX (AS NO2)	LB/HR	13.15	6.89	4.53	2.96	1.72
TOTAL CO	LB/HR	0.54	0.51	0.17	0.69	2.53
TOTAL HC	LB/HR	0.14	0.15	0.10	0.12	1.01
TOTAL CO2	LB/HR	1,217	971	644	380	211
PART MATTER	LB/HR	0.07	0.08	0.05	0.06	0.16
OXYGEN IN EXH	%	9.8	11.5	12.7	13.5	14.9
DRY SMOKE OPACITY	%	0.5	0.8	0.5	1.0	0.5
BOSCH SMOKE NUMBER		0.71	0.79	0.71	0.86	0.71

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN		**EKW**	**750.0**	**562.5**	**375.0**	**187.5**	**75.0**
PERCENT LOAD		**%**	**100**	**75**	**50**	**25**	**10**
ENGINE POWER		**BHP**	**1,112**	**840**	**575**	**315**	**155**
TOTAL NOX (AS NO2)		G/HR	6,442	3,376	2,219	1,451	840
TOTAL CO		G/HR	454	434	142	583	2,147
TOTAL HC		G/HR	124	126	89	103	866
PART MATTER		G/HR	65.6	67.1	41.6	49.7	144.0
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,665.4	1,745.0	1,721.5	1,932.2	1,910.9
TOTAL CO	(CORR 5% O2)	MG/NM3	187.1	224.5	108.1	864.7	5,990.4
TOTAL HC	(CORR 5% O2)	MG/NM3	44.4	56.3	60.6	122.9	2,185.0
PART MATTER	(CORR 5% O2)	MG/NM3	22.8	29.7	27.7	59.3	361.0
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	989.1	647.5	638.8	717.0	709.1
TOTAL CO	(CORR 15% O2)	MG/NM3	69.4	83.3	40.1	320.9	2,222.8
TOTAL HC	(CORR 15% O2)	MG/NM3	16.5	20.9	22.5	45.6	810.8
PART MATTER	(CORR 15% O2)	MG/NM3	8.4	11.0	10.3	22.0	134.0
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,298	850	839	941	931
TOTAL CO	(CORR 5% O2)	PPM	150	180	86	692	4,792
TOTAL HC	(CORR 5% O2)	PPM	83	105	113	229	4,079
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	482	315	311	349	345
TOTAL CO	(CORR 15% O2)	PPM	56	67	32	257	1,778
TOTAL HC	(CORR 15% O2)	PPM	31	39	42	85	1,513
TOTAL NOX (AS NO2)		G/HP-HR	5.85	4.05	3.88	4.62	5.42
TOTAL CO		G/HP-HR	0.41	0.52	0.25	1.85	13.85
TOTAL HC		G/HP-HR	0.11	0.15	0.16	0.33	5.59
PART MATTER		G/HP-HR	0.06	0.08	0.07	0.16	0.93
TOTAL NOX (AS NO2)		G/KW-HR	7.95	5.50	5.27	6.28	7.37
TOTAL CO		G/KW-HR	0.56	0.71	0.34	2.52	18.83
TOTAL HC		G/KW-HR	0.15	0.21	0.21	0.45	7.60
PART MATTER		G/KW-HR	0.08	0.11	0.10	0.22	1.26
TOTAL NOX (AS NO2)		LB/HR	14.20	7.44	4.89	3.20	1.85
TOTAL CO		LB/HR	1.00	0.96	0.31	1.28	4.73
TOTAL HC		LB/HR	0.27	0.28	0.20	0.23	1.91
PART MATTER		LB/HR	0.14	0.15	0.09	0.11	0.32

Regulatory Information

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: 6.4 PM: 0.20

Altitude Derate Data

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)											
0	1,112	1,112	1,112	1,111	1,106	1,101	1,096	1,089	1,054	987	1,112
1,000	1,112	1,112	1,112	1,107	1,102	1,097	1,092	1,066	1,006	957	1,110
2,000	1,112	1,111	1,106	1,101	1,096	1,091	1,063	1,002	956	916	1,105
3,000	1,110	1,105	1,100	1,095	1,088	1,058	996	954	915	854	1,101
4,000	1,103	1,097	1,082	1,069	1,051	990	950	912	852	793	1,090
5,000	1,067	1,045	1,023	1,002	981	944	907	845	792	739	1,043
6,000	1,039	1,013	993	975	955	918	862	805	776	696	1,020
7,000	1,020	1,000	984	969	943	900	835	793	757	680	1,013
8,000	999	982	967	954	923	867	808	764	723	670	999
9,000	973	958	944	932	898	826	769	720	703	665	979
10,000	944	930	917	906	851	795	748	720	698	670	956
11,000	912	898	886	875	817	772	736	710	685	654	928
12,000	879	867	856	845	791	753	722	690	657	621	899
13,000	843	832	822	811	772	733	694	656	618	590	864
14,000	800	791	781	772	730	688	648	610	587	567	825
15,000	754	744	733	714	672	635	602	583	564	544	780

Cross Reference

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
4581998	PP7270	5365365	GS668	-	LTH00001	
4582018	PP7585	5407425	EE563	-	LT400001	
4582018	PP7585	5407426	EE563	-	LT400001	
4581998	PP7270	5411973	GS668	-	LTH00001	

Performance Parameter Reference

Parameters Reference:DM9600-14

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.
On 3500 and C175 engines, at speeds below Peak Torque 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%

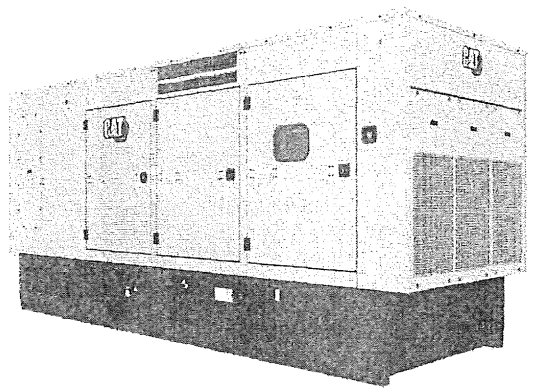
Heat rejection to Atmosphere +/- 50%
Heat rejection to Lube Oil +/- 20%
Heat rejection to Aftercooler +/- 5%
TEST CELL TRANSDUCER TOLERANCE FACTORS:
Torque +/- 0.5%
Speed +/- 0.2%
Fuel flow +/- 1.0%
Temperature +/- 2.0 C degrees
Intake manifold pressure +/- 0.1 kPa
OBSERVED ENGINE PERFORMANCE IS CORRECTED 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 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 15 deg C (59 deg F), where the density is 850 G/Liter (7.0936 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 out put 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.
Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.
EMISSION CYCLE LIMITS:
Cycle emissions Max Limits apply to cycle-weighted averages only. Emissions at individual load points may exceed the cycle-weighted limit.

PERFORMANCE DATA[EM3842]

WET & DRY EXHAUST/EMISSIONS DESCRIPTION:
Wet - Total exhaust flow or concentration of total exhaust flow
Dry - Total exhaust flow minus water vapor or concentration of exhaust flow with water vapor excluded
EMISSIONS DEFINITIONS:
Emissions : DM1176
EMISSION CYCLE DEFINITIONS
1. For constant-speed marine engines for ship main propulsion, including,diesel-electric drive, test cycle E2 shall be applied, for controllable-pitch propeller sets test cycle E2 shall be applied.
2. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied.
3. For constant-speed auxiliary engines test cycle D2 shall be applied.
4. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied.
HEAT REJECTION DEFINITIONS:
Diesel Circuit Type and HHV Balance : DM9500
HIGH DISPLACEMENT (HD) DEFINITIONS:
3500: EM1500
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
SOUND DEFINITIONS:
Sound Power : DM8702
Sound Pressure : TM7080
Date Released : 10/27/21

AIR INTAKE SYSTEM		
THE INSTALLED SYSTEM MUST COMPLY WITH THE SYSTEM LIMITS BELOW FOR ALL EMISSIONS CERTIFIED ENGINES TO ASSURE REGULATORY COMPLIANCE.		
MAXIMUM ALLOWABLE INTAKE RESTRICTION WITH CLEAN ELEMENT	15	IN-H20
MAXIMUM ALLOWABLE INTAKE RESTRICTION WITH DIRTY ELEMENT	25	IN-H20
MAXIMUM ATAAC OUTLET TEMPERATURE (25C/77F DAY)	120	DEG F
MAXIMUM PRESSURE DROP FROM COMPRESSOR OUTLET TO MANIFOLD INLET (OR MIXER INLET FOR EGR)	6.2	IN-HG
MAXIMUM ALLOWABLE STATIC WEIGHT ON AIR INLET	3.7	LB
MAXIMUM ALLOWABLE STATIC BENDING MOMENT ON AIR INLET	1.3	LB-FT
MAXIMUM ALLOWABLE STATIC WEIGHT ON TURBO OUTLET CONNECTION	1.5	LB
MAXIMUM ALLOWABLE STATIC BENDING MOMENT ON TURBO OUTLET CONNECTION	0.3	LB-FT
COOLING SYSTEM		
ENGINE ONLY COOLANT CAPACITY	5.5	GAL
MAXIMUM ALLOWABLE JACKET WATER OUTLET TEMPERATURE	207	DEG F
REGULATOR LOCATION FOR JW (HT) CIRCUIT	OUTLET	
MAXIMUM UNINTERRUPTED FILL RATE	5.0	G/MIN
MAXIMUM UNINTERRUPTED FILL RATE	5.0	G/MIN
MINIMUM COOLANT LOSS WITHOUT IMPACTING RADIATOR PERFORMANCE (PERCENT OF TOTAL)	12	PERCENT
COOLANT LOSS-MAXIMUM PERCENTAGE OF PUMP PRESSURE RISE LOSS	10	PERCENT
CHARGE AIR TEMPERATURE CONTROL TYPE	FLOATING	
ENGINE SPEC SYSTEM		
CYLINDER ARRANGEMENT	INLINE	
CYLINDER ARRANGEMENT	INLINE	
NUMBER OF CYLINDERS	6	
NUMBER OF CYLINDERS	6	
CYLINDER BORE DIAMETER	5.7	IN
PISTON STROKE	7.2	IN
TOTAL CYLINDER DISPLACEMENT	1105	CU IN
STANDARD CRANKSHAFT ROTATION FROM FLYWHEEL END	CCW	
STANDARD CYLINDER FIRING ORDER	1-5-3-6-2-4	
NUMBER 1 CYLINDER LOCATION	FRONT	
NUMBER 1 CYLINDER LOCATION	FRONT	
STROKES/COMBUSTION CYCLE	4	
STROKES/COMBUSTION CYCLE	4	
EXHAUST SYSTEM		
THE INSTALLED SYSTEM MUST COMPLY WITH THE SYSTEM LIMITS BELOW FOR ALL EMISSIONS CERTIFIED ENGINES TO ASSURE REGULATORY COMPLIANCE.		
MAXIMUM ALLOWABLE SYSTEM BACK PRESSURE	40	IN-H20

MANIFOLD TYPE	DRY	
EXHAUST PIPE DIAMETER AFTER TC	5.5	IN
FUEL SYSTEM		
MAXIMUM FUEL FLOW FROM TRANSFER PUMP TO ENGINE	111.0	G/HR
MAXIMUM ALLOWABLE FUEL SUPPLY LINE RESTRICTION	8.0	IN-HG
MAXIMUM ALLOWABLE FUEL TEMPERATURE AT TRANSFER PUMP INLET	174	DEG F
MAXIMUM FUEL FLOW TO RETURN LINE FROM ENGINE	103.0	G/HR
MAXIMUM ALLOWABLE FUEL RETURN LINE RESTRICTION	14.8	IN-HG
NORMAL FUEL PRESSURE IN A CLEAN SYSTEM	101.5	PSI
FUEL SYSTEM TYPE	MEUI	
MAXIMUM TRANSFER PUMP PRIMING LIFT WITHOUT PRIMING PUMP	12.1	FT
LUBE SYSTEM		
LUBE SYSTEM OIL COOLER TYPE	SHELL & TUBE	
CRANKCASE VENTILATION TYPE	TO ATMOSPHERE	
MOUNTING SYSTEM		
DRY WEIGHT - ENGINE ONLY (REFERENCE VALUE)	3803	LB
LENGTH - ENGINE ONLY (REFERENCE VALUE)	67	IN
HEIGHT - ENGINE ONLY (REFERENCE VALUE)	50	IN
WIDTH - ENGINE ONLY (REFERENCE VALUE)	37	IN
STARTING SYSTEM		
MINIMUM CRANKING SPEED REQUIRED FOR START	100	RPM
LOWEST AMBIENT START TEMPERATURE WITHOUT AIDS	32	DEG F



Picture shown may not reflect actual configuration

C13/C15/C18
SOUND ATTENUATED ENCLOSURES

US Sourced
Diesel Generator Set
350 - 750 ekW 60 Hz

Features

Robust/Highly Corrosion Resistant Construction
- Factory installed on skid base
- Environmentally friendly, polyester powder baked paint
- 14 gauge steel
- Interior zinc plated fasteners
- Exterior stainless steel fasteners
- Internally mounted exhaust silencing system
- Designed and tested to comply with UL 2200 Listed generator set package
- Compression door latches providing solid door seal

Excellent Access
- Large cable entry area for installation ease
- Accommodates side mounted single or multiple breakers
- Three doors on both sides
- Vertically hinged allow 180° opening rotation and retention with door stays
- Lube oil and coolant drains piped to the exterior of the enclosure base
- Radiator fill cover

Security and Safety
- Lockable access doors which give full access to control panel and breaker
- Cooling fan and battery charging alternator fully guarded
- Fuel fill, oil fill and battery can only be reached via lockable access
- Externally mounted emergency stop button
- Designed for spreader bar lifting to ensure safety
- Stub-up area is rodent proof

Transportability
These enclosures are of extremely rugged construction to withstand outdoor exposure and rough handling common on many construction sites.

Options
- Enclosure constructed with 14 gauge steel
- Enclosure constructed with 12 gauge aluminum (5052 grade)
- Caterpillar yellow or white paint
- Control panel viewing window
- UL Listed integral fuel tank with 670, 400, and 300 gallon capacities
- UL Listed sub base fuel tank with 660, 1000, 1900, and 2200 gallon capacities.
- Seismic certification per applicable building codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012, IBC 2015 CBC 2007, CBC 2010
- IBC Certification for 150 mph wind loading
- AC/DC lighting package
- 5 kW Canopy space heater to facilitate compliance with NFPA 110
- Motorized louvers and gravity discharge damper
- 125A Load Center
- GFCI outlets

*Not available with aluminum enclosures.

Level 1 Sound Attenuated Enclosure (Steel) Sound Levels

Model	Standby eKW	Cooling Air Flow Rate		Ambient Capability*		Sound Pressure Levels (dBA) at 7m (23 ft)
		m^3/s	cfm	°C	°F	100% Load
C13	350	8.5	18010	57	135	74
	400	8.5	18010	56	133	75
C15	350	10.4	22072	59	138	73
	400	10.4	22072	51	124	73
	450	10.4	22072	46	115	74
	500	12.5	26415	48	118	75
C18	550	8.1	17234	45	113	75
	600	8.1	17234	43	109	75
	650	12.7	26909	51	123	75
	700	12.7	26909	48	118	75
	750	12.7	26909	48	118	75

Sound Attenuated Enclosure (Aluminum) Sound Levels

Model	Standby eKW	Cooling Air Flow Rate		Ambient Capability*		Sound Pressure Levels (dBA) at 7m (23 ft)
		m^3/s	cfm	°C	°F	100% Load
C13	350	8.5	-	57	135	75
	400	8.5	-	56	133	75
C15	350	10.4	22072	59	138	72
	400	10.4	22072	51	124	73
	450	10.4	22072	46	115	74
	500	12.5	26415	48	118	75
C18	550	8.1	17234	45	113	76
	600	8.1	17234	43	109	76
	650	12.7	26909	51	123	76
	700	12.7	26909	48	118	76
	750	12.7	26909	48	118	76

Level 2 Sound Attenuated Enclosure (Steel) Sound Levels

Model	Standby eKW	Cooling Air Flow Rate		Ambient Capability*		Sound Pressure Levels (dBA) at 7m (23 ft)
		m^3/s	cfm	°C	°F	100% Load
C13	350	7.2	15256	50	122	70
	400	7.2	15256	50	122	70
C15	350	10.4	22071	50	122	72
	400	10.4	22071	50	122	72
	450	10.4	22071	50	122	72
	500	12.5	26415	50	122	72

*Cooling system performance at sea level. Consult your Cat® dealer for site specific ambient and altitude capabilities.

Note: Sound level measurements are subject to instrumentation, installation and manufacturing variability, as well as ambient site conditions.

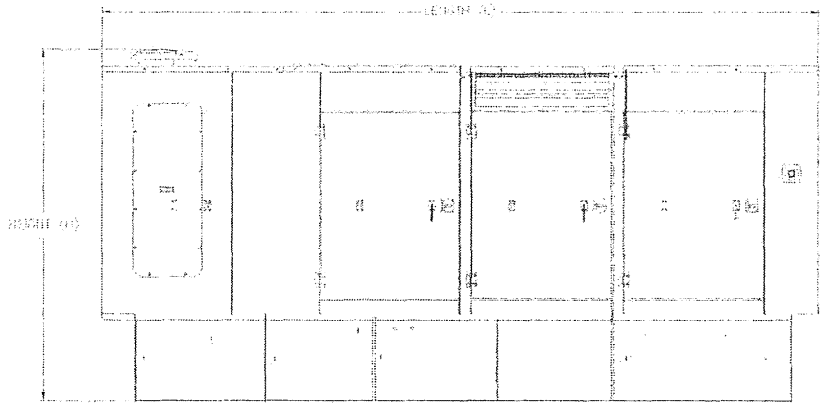
Component Weights to Calculate Package Weight

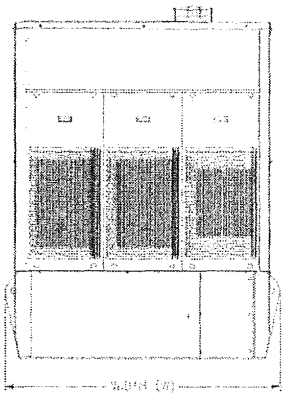
Model	Standby eKW	Narrow Skid Base		Wide Skid Base		Sound Attenuated Enclosure (Steel)		Sound Attenuated Enclosure (Aluminum)	
		kg	lb	kg	lb	kg	lb	kg	lb
C13	350	253	578	579	1276	1245	2745	765	1687
	400								
C15	350	273	602	465	1025	1245	2745	765	1687
	400								
	450								
	500								
C18	550	301	664	466	1027	1301	2868	817	1801
	600								
	650	286	630	637	1404	1393	3071	887	1955
	700								
	750								

Sound Attenuated Enclosure on Skid Base

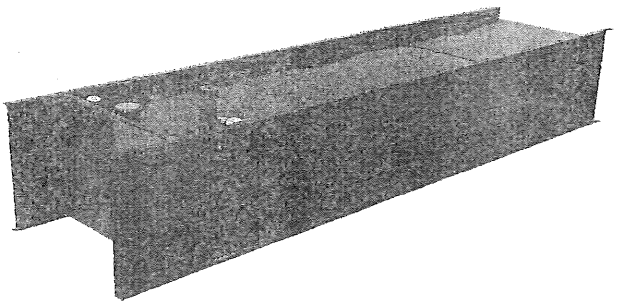
Model	Standby eKW	Length "L"		Width "W"		Height "H"	
		mm	in	mm	in	mm	in
C13	350	4948	194.8	2014	79.3	2320	91.3
	400						
C15	350	4948	194.8	2014	79.3	2320	91.3
	400						
	450						
	500						
C18	550	5183	204.0	2014	79.3	2262	89.0
	600						
	650	5230	205.9	2315	91.1	2253	88.7
	700						
	750						

Sound Attenuated Enclosure on a UL Listed Integral Fuel Tank Base





Model	Standby eKW	Length "L"		Width "W"		Height "H"	
		mm	in	mm	in	mm	in
C13	350	5461	215.0	2014	79.3	2743	108.0
	400						
C15	350	4948	194.8	2014	79.3	2619	103.0
	400						
	450						
	500						
C18	550	5187	204.2	2014	79.3	2561	101.0
	600						
	650	6977	274.7	2315	91.1	2675	105.3
	700						
	750						



C13 / C15 / C18 Integral and Sub-Base Fuel Tanks

US Sourced
Diesel Generator Set
350 – 750 ekW 60 Hz

Picture shown may not represent actual package.

Features

- UL Listed for United States (UL 142) and Canada (CAN/ULC S601)
- Facilitates compliance with NFPA 30 code, NFPA 37 and 110 standards and CSA C282 code
- Dual wall
- Lockable fuel fill cap, 4" (101.6 mm) NPT
- Low fuel level warning standard, customer configurable warning or shutdown
- Primary tank leak detection switch in containment basin
- Tank design provides capacity for thermal expansion of fuel
- Fuel supply dip tube is positioned so as not to pick up fuel sediment
- Fuel return and supply dip tube is separated by an internal baffle to prevent immediate re-supply of heated return fuel
- Pressure washed with an iron phosphate solution
- Interior tank surfaces coated with a solvent-based thin-film rust preventative
- Heavy gauge steel gussets with internal lifting rings
- Primary and secondary tanks are leak tested at 20.7 kPa (3 psi) minimum
- Compatible with open packages and enclosures
- Gloss black polyester alkyd enamel exterior paint
- Welded steel containment basin (minimum of 110% of primary tank capacity)
- Direct reading fuel gauge with variable electrical output
- Emergency vents on primary and secondary tanks are sized in accordance with NFPA 30

Sub-Base

- The Sub-Base fuel tank mounts below the generator set wide base

Integral

- Integral diesel fuel tank is incorporated into the generator set base frame
- Robust base design includes linear vibration isolators between tank base and engine generator

Options

- Audio/visual fuel level alarm panel
- 5 gal (18.9 L) spill containment
- 5 gal (18.9 L) spill containment with fuel fill drop tube with in 6" (152 mm) from bottom of tank
- 5 gal (18.9 L) spill containment with overfill prevention valve and fuel fill drop tube with in 6" (152 mm) from bottom of tank
- ULC Listed 7.5 gal (28.4 L) spill containment with vent extensions, vent whistle, and drop tube facilitating compliance with CSA B139-09
- ULC Listed 7.5 gal (28.4 L) spill containment with overfill prevention valve, vent extensions, vent whistle and drop tube facilitating compliance with CSA B139-09

Integral & Sub-Base Fuel Tank Base Useable Capacities with Fuel Tank Dimensions & Weights

Integral - Width(W) 2014 mm (79.3 in)
Sub-base - Width(W) 2056 mm (81 in)
Integral* - Width(W) 2315 mm (91.2 in)
Sub-base*-Width(W) 2357 mm (92.7in)

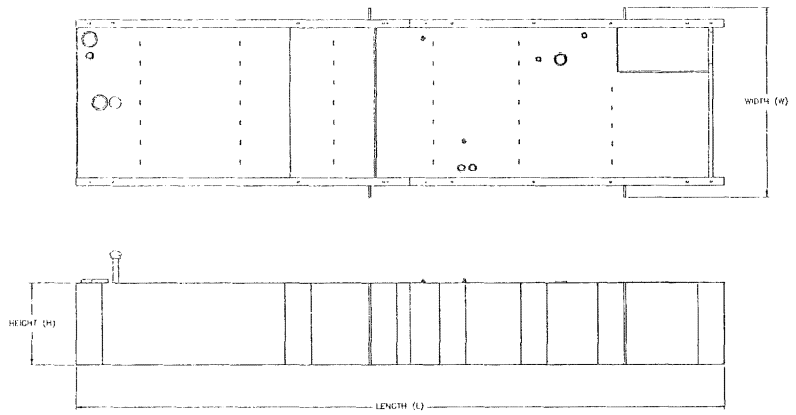
Sound Attenuated Enclosure

C13 Tank Design	Feature Code	Total Capacity		Useable Capacity		Tank Only						Overall Package Height with Tank			
						Dry Weight		Height 'H'		Length 'L'		Open		Enclosure	
		Liter	Gallon	Liter	Gallon	kg	lb	mm	in	mm	in	mm	in	mm	in
Integral	FTDW013	2646	699	2540	671	1569	3450	762	30.0	5461	215.0	NA	NA	2743	108.0
Sub-Base	FTDW005 / FTDW016	3941	1041	3876	1024	1659	3657	635	25.0	5550	218.5	NA	NA	2955	116.3
Sub-Base	FTDW006	6980	1844	6818	1801	2033	4483	889	35.0	6184	243.5	NA	NA	3209	126.3
Sub-Base	FTDW007	8339	2203	8244	2178	2292	5052	889	35.0	7074	278.5	NA	NA	3209	126.3
Sub-Base	FTDW011	2476	654	2435	643	1468	3236	635	25.0	3810	150.0	NA	NA	2955	116.3

C15 Tank Design	Feature Code	Total Capacity		Useable Capacity		Tank Only						Overall Package Height with Tank			
						Dry Weight		Height 'H'		Length 'L'		Open		Enclosure	
		Liter	Gallon	Liter	Gallon	kg	lb	mm	in	mm	in	mm	in	mm	in
Integral	FTDW001	1283	339	1262	333	1015	2237	639	25.0	4746	186.9	NA	NA	2619	103.0
Sub-Base	FTDW005 / FTDW016	3941	1041	3876	1024	1659	3657	635	25.0	5550	218.5	NA	NA	2955	116.3
Sub-Base	FTDW006	6980	1844	6818	1801	2228	4912	889	35.0	6184	243.5	NA	NA	3209	126.3
Sub-Base	FTDW011	2476	654	2435	643	1468	3236	635	25.0	3810	150.0	NA	NA	2955	116.3
Sub-Base	FTDW034	10887	2876	9899	2615	2847	6277	914	36	7747	305	NA	NA	3233	127.3

C18 Tank Design	Feature Code	Total Capacity		Useable Capacity		Tank Only						Overall Package Height with Tank			
						Dry Weight		Height 'H'		Length 'L'		Open		Enclosure	
		Liter	Gallon	Liter	Gallon	kg	lb	mm	in	mm	in	mm	in	mm	in
Integral	FTDW003	1446	382	1422	376	1015	2237	635	25.0	3814	150.1	NA	NA	2560	100.8
Integral*	FTDW030	2498	660	2381	629	1681	3703	762	30.0	4995	196.6	2670	105	2675	105.3
Integral*	FTDW031	5175	1367	4997	1320	2046	4510	762	30.0	6737	265.3	NA	NA	2675	105.3
Sub-Base	FTDW005 / FTDW016	3941	1041	3876	1024	1659	3657	635	25.0	5550	218.5	NA	NA	2905	114.3
Sub-Base	FTDW007	8339	2203	8244	2178	2150	4134	889	35.0	7074	278.5	NA	NA	3209	126.3
Sub-Base	FTDW011	2476	654	2435	643	1468	3236	635	25.0	3810	150.0	NA	NA	2905	114.3
Sub-Base*	FTDW032	10228	2702	9994	2640	2638	5816	889	35.0	7368	290	NA	NA	3132	123.3

*For Ratings 650, 700 &750 ekW only



The heights listed above do not include lumber used during manufacturing and shipping.

Estimated Run Times (Hours) at 100% Load

C13 Tank Design	Feature Code	Standby Ratings (ekW)				Prime Ratings (ekW)			
		400	350	–	–	350	320	–	–
Integral Tank	FTDW013	24	27	–	–	25	29	–	–
Sub-Base	FTDW005 / FTDW016	36	41	–	–	38	43	–	–
Sub-Base	FTDW006	65	72	–	–	72	77	–	–
Sub-Base	FTDW007	77	87	–	–	81	93	–	–
Sub-Base	FTDW011	23	25	–	–	24	27	–	–

C15 Tank Design	Feature Code	Standby Ratings (ekW)				Prime Ratings (ekW)			
		500	450	400	350	455	410	365	320
Integral Tank	FTDW001 / FTDW002	9	9	11	11	10	10	11	12
Sub-Base	FTDW005 / FTDW016	28	29	32	36	30	31	35	38
Sub-Base	FTDW006	50	52	57	63	54	56	62	67
Sub-Base	FTDW008 / FTDW011	17	18	20	22	19	20	22	24
Sub-Base	FTDW034	72	75	82	91	78	81	90	97

C18 Tank Design	Feature Code	Standby Ratings (ekW)					Prime Ratings (ekW)				
		750	700	650	600	550	680	635	600	545	500
Integral	FTDW003 / FTDW004	–	–	–	8	9	–	–	–	9	10
Integral*	FTDW030	11	12	13	–	–	12	13	14	–	–
Integral*	FTDW031	24	25	27	–	–	26	27	29	33	36
Sub-Base	FTDW005 / FTDW016	–	–	–	24	25	–	–	–	25	27
Sub-Base	FTDW007	–	–	–	51	54	–	–	–	54	59
Sub-Base	FTDW008 / FTDW011	–	–	–	15	16	–	–	–	16	17
Sub-Base*	FTDW032	49	51	54	–	–	53	55	58	–	–

*For Ratings 650, 700 &750 ekW only

Tanks with full electrical stub-up area include removable end channel. Tanks with RH stub-up include stub- up area directly below the circuit breaker or power terminal strips. Dimensions include weather-protective enclosure exhaust system.

Dual wall sub-base tanks are UL Listed and constructed in accordance with UL Standard for Safety UL 142, Steel Aboveground Tanks for Flammable and Combustible Liquids and Canada CAN/ULC S601, Standard for Shop Fabricated Steel Aboveground Horizontal Tanks for Flammable and Combustible Liquids.

Fuel tanks and applicable options facilitate compliance with the following United States NFPA Code and Standards:

NFPA 30: Flammable and Combustible Liquids Code
NFPA 37: Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines
NFPA 110: Standard for Emergency and Standby Power Systems

Fuel tanks and applicable options facilitate compliance with the following Canadian Standard and Code:
CSA C282 – Emergency Electrical Power Supply for Buildings
CSA B139-09 - Installation Code for Oil-Burning Equipment

The following sub-base fuel tanks meet Chicago code for containment and labelling:

FTDW005
FTDW008
FTDW011

Integral Tanks (continued)

C18 Integral Tanks FTDW031			
Inches of Fuel on Dipstick	Measured Gallons	Inches of Fuel on Dipstick	Measured Gallons
0.5	31.4	11.5	722.6
1	62.8	12	754
1.5	94.3	12.5	785.4
2	125.7	13	816.9
2.5	157.1	13.5	848.3
3	188.5	14	879.7
3.5	219.9	14.5	911.1
4	251.3	15	942.5
4.5	282.8	15.5	974
5	314.2	16	1005.4
5.5	345.6	16.5	1036.8
6	377	17	1068.2
6.5	408.4	17.5	1099.6
7	439.9	18	1131
7.5	471.3	18.5	1162.5
8	502.7	19	1193.9
8.5	534.1	19.5	1225.3
9	565.5	20	1256.7
9.5	596.9	20.5	1288.1
10	628.4	21	1319.6
10.5	659.8	21.5	1351
11	691.2	22	1382.4

CUMMINS DQFAA 750KW GENERATOR

SSE 2023_018 V4

April 21st, 2023

To Whom It May Concern:

With regards to Cummins Power Systems (CPS) manufactured diesel generator set model **DQFAA** rated for 60Hz operation and equipped with Cummins **QST30-G5** engine:

When tested under the following conditions:

Table 1	
Fuel Specification:	ASTM D975 No. 2-D S15 diesel fuel with 0.0015% sulfur content (by weight), and 42-48 cetane number.
Air Inlet Temperature:	77 °F
Fuel Inlet Temperature:	104 °F (at fuel pump inlet)
Barometric Pressure:	29.53 in. Hg
Humidity:	NOx measurement corrected to 75 grains H2O/lb. dry air

Based on engine emissions validation testing, the table below represents the nominal performance and exhaust emissions data for the generator set listed above:

	Standby					
PERFORMANCE DATA	**10%**	**25%**	**50%**	**75%**	**80%**	**100%**
Power Output (kWe)	75	188	375	563	600	750
BHP @ 1800 RPM (60 Hz)	130	287	549	811	863	1073
Fuel Consumption (US Gal/Hr)	9	16	27	39	41	51
Exhaust Gas Flow (CFM)	1812	2422	3618	4920	5179	6221
Exhaust Gas Temperature (°F)	423	553	684	768	776	807
NOx (Oxides of Nitrogen)	6.61	5.76	4.54	3.89	3.90	3.95
NMHC (Nonmethane Hydrocarbons)	0.34	0.20	0.11	0.10	0.10	0.09
CO (Carbon Monoxide)	2.3	1.3	0.5	0.4	0.4	0.5
PM (Particulate Matter)	0.11	0.15	0.13	0.11	0.11	0.10
All emissions values above are cited as g/bhp-hr						

Steady-State emissions recorded per ISO8178-1 during operation at rated engine speed (+/-2%) and stated constant load (+/-2%) with engine temperatures, pressures and emission rates stabilized.

The NOx, HC, CO, and PM emission data tabulated here are representative of test data taken from a single engine under the test conditions shown above. Data for the other components are estimated. This data is subject to instrumentation and engine-to-engine variability. Field emissions test data is not guaranteed to these levels. Actual field test results may vary due to test ambient, site conditions, installation, fuel specification, test procedures, instrumentation and ambient correction factors. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.

Values provided in the table below are representative of "Potential Site Variation" for the AWS IAD124 site in Aldie, VA. These values account for variances as indicated above without consideration of improper generator set maintenance.

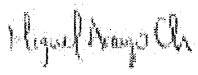
	Standby					
PERFORMANCE DATA	**10%**	**25%**	**50%**	**75%**	**80%**	**100%**
Power Output (kWe)	75	188	375	563	600	750
BHP @ 1800 RPM (60 Hz)	130	287	549	811	863	1073
NOx (Oxides of Nitrogen)	8.39	7.32	5.77	4.94	4.95	5.02
NMHC (Nonmethane Hydrocarbons)	0.58	0.34	0.19	0.17	0.17	0.15
CO (Carbon Monoxide)	4.6	2.6	1.0	0.8	0.8	1.0
PM (Particulate Matter)	0.22	0.30	0.26	0.22	0.22	0.20
All emissions values above are cited as g/bhp-hr						
Potential Site variation values provided above are accounted for Engine, Ambient variation and measurement with no correction factors.						

The values in this letter are applicable for engines operating on ASTM D975 DF2 and paraffinic fuels conforming to EN15940, including Hydrotreated Vegetable Oil (HVO). Please consult Fluids for Cummins Engines bulletin # 3379001 for more information on the applicability of HVO.

The data and information provided in this letter is for informational purposes to assist customers in making purchasing decisions appropriate for their site-specific compliance needs. Owners/operators of compression ignition internal combustion engines are responsible for ensuring compliance with applicable local, state, and federal standards when CI engines are installed at the owner/operator site. The data and information contained herein regarding site variation values in particular should be considered as part of a site-specific compliance evaluation.

This letter does not supersede any of the commercial terms of sale, including, but not limited to, warranty coverage and compliance with law obligations. THE INFORMATION IN THIS LETTER IS PROVIDED "AS IS" AND WITH ALL FAULTS AND DEFECTS. CUMMINS DOES NOT WARRANT THE ACCURACY OF THE INFORMATION PROVIDED AND THIS LETTER SHOULD NOT BE SHARED WITH THIRD PARTIES WITHOUT CUMMINS PRIOR WRITTEN CONSENT. For further questions on this product or application, please contact the local Cummins Sales and Service representative.

Best Regards,



Miguel Araujo
Application Engineer – Strategic Accounts (Data Center)
Cummins Power Generation

CATERPILLER C15 400 KW GENERATOR

Cat® C15 DIESEL GENERATOR SETS

CAT®

Standby & Prime: 60Hz

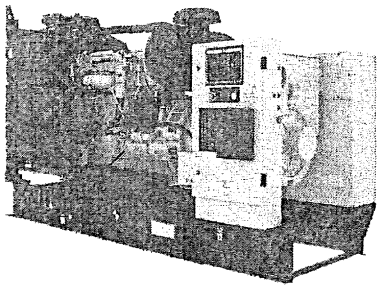


Image shown may not reflect actual configuration

Engine Model	Cat® C15 ACERT™ In-line 6, 4-cycle diesel
Bore x Stroke	137mm x 171mm (5.4in x 6.8in)
Displacement	15.2 L (928 in³)
Compression Ratio	16.1:1
Aspiration	Turbocharged Air-to-Air Aftercooled
Fuel Injection System	MEUI
Governor	Electronic ADEM™ A4

Model	Standby	Prime	Emission Strategy
C15	400 ekW, 500 kVA	365 ekW, 456 kVA	TIER III Non-Road

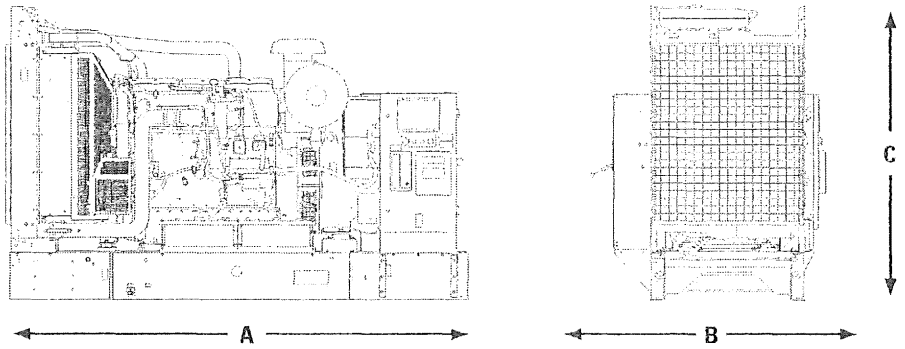
PACKAGE PERFORMANCE

Performance	Standby	Prime
Frequency	60 Hz	
Genset Power Rating	500 kVA	456 kVA
Genset power rating with fan @ 0.8 power factor	400 ekW	365 ekW
Emissions	TIER III Non-Road	
Performance Number	DM8151-03	DM8150-05
Fuel Consumption		
100% load with fan, L/hr (gal/hr)	120.0 (31.7)	110.3 (29.1)
75% load with fan, L/hr (gal/hr)	97.3 (25.7)	91.0 (24.0)
50% load with fan, L/hr (gal/hr)	71.9 (19.0)	66.2 (17.5)
25% load with fan, L/hr (gal/hr)	41.0 (10.8)	38.3 (10.1)
Cooling System[1]		
Radiator air flow restriction (system), kPa (in. Water)	0.12 (0.48)	0.12 (0.48)
Radiator air flow, m3/min (cfm)	720 (25426)	720 (25426)
Engine coolant capacity, L (gal)	20.8 (5.5)	20.8 (5.5)
Radiator coolant capacity, L (gal)	54 (14)	54 (14)
Total coolant capacity, L (gal)	75 (20)	75 (20)
Inlet Air		
Combustion air inlet flow rate, m³/min (cfm)	38.8 (1370.6)	36.9 (1303.2)
Max. Allowable Combustion Air Inlet Temp, °C (°F)	49 (120)	48 (119)
Exhaust System		
Exhaust stack gas temperature, °C (°F)	487.0 (908.6)	479.4 (894.9)
Exhaust gas flow rate, m³/min (cfm)	102.8 (3629.1)	96.2 (3395.2)
Exhaust system backpressure (maximum allowable) kPa (in. water)	10.0 (40.0)	10.0 (40.0)
Heat Rejection		
Heat rejection to jacket water, kW (Btu/min)	165 (9356)	155 (8819)
Heat rejection to exhaust (total) kW (Btu/min)	462 (26284)	429 (24376)
Heat rejection to aftercooler, kW (Btu/min)	111 (6340)	98 (5578)
Heat rejection to atmosphere from engine, kW (Btu/min)	75 (4272)	69 (3937)

Cat® C15 DIESEL GENERATOR SETS

Emissions (Nominal)[2]	Standby		Prime	
NOx, mg/Nm³ (g/hp-hr)	1578.5 (3.5)		1455.3 (3.2)	
CO, mg/Nm³ (g/hp-hr)	162.5 (0.4)		272.0 (0.6)	
HC, mg/Nm³ (g/hp-hr)	17.3 (0.04)		19.5 (0.05)	
PM, mg/Nm³ (g/hp-hr)	13.9 (0.04)		16.3 (0.04)	
Alternator[3]				
Voltages	480V	600V	480V	600V
Motor starting capability @ 30% Voltage Dip	880 skVA	1057 skVA	880 skVA	1057 skVA
Current	601 amps	481 amps	549 amps	439 amps
Frame Size	LC6114B	LC6124B	LC6114B	LC6124B
Excitation	SE	AR	SE	AR
Temperature Rise	150 ° C	150 ° C	125 ° C	125 ° C

WEIGHTS & DIMENSIONS



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
3476 (137)	1628 (64)	2128 (84)	4066 (8963)

APPLICABLE CODES AND STANDARDS:

AS1359, CSA C22.2 No100-04, UL142, UL489, UL869, UL2200, NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG1-22, NEMA MG1-33, 2006/95/EC, 2006/42/EC, 2004/108/EC.
Note: Codes may not be available in all model configurations. Please consult your local Cat Dealer representative for availability.

STANDBY: Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

PRIME: Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand is 100% of prime rated ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year

RATINGS: Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

DEFINITIONS AND CONDITIONS

[1] For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

[2] Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77° F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 BTU/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

[3] UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics. Generator temperature rise is based on a 40° C ambient per NEMA MG1-32.

LET'S DO THE WORK.™

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LEHE1576-02 (05/20)

PERFORMANCE DATA[DM8151]

December 28, 2023

Performance Number: DM8151

Change Level: 04

SALES MODEL:	C15	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	1,800
MACHINE SALES MODEL:		HERTZ:	60
ENGINE POWER (BHP):	619	FAN POWER (HP):	31.4
GEN POWER WITH FAN (EKW):	400.0	ASPIRATION:	TA
COMPRESSION RATIO:	16.1	AFTERCOOLER TYPE:	ATAAC
RATING LEVEL:	STANDBY	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
PUMP QUANTITY:	1	INLET MANIFOLD AIR TEMP (F):	120
FUEL TYPE:	DIESEL	JACKET WATER TEMP (F):	192.2
MANIFOLD TYPE:	DRY	TURBO CONFIGURATION:	SINGLE
GOVERNOR TYPE:	ELEC	TURBO QUANTITY:	1
CAMSHAFT TYPE:	STANDARD	TURBOCHARGER MODEL:	GTA5518BS-56T-1.58
IGNITION TYPE:	CI	CERTIFICATION YEAR:	2006
INJECTOR TYPE:	EUI	PISTON SPD @ RATED ENG SPD (FT/MIN):	2,025.0
REF EXH STACK DIAMETER (IN):	6		
MAX OPERATING ALTITUDE (FT):	6,562		

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)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR	LB/EKW-HR	LB/EKW-HR
400.0	100	619	294	0.359	0.354	31.3	30.8	0.555	0.544
360.0	90	557	264	0.363	0.358	28.5	28.1	0.562	0.551
320.0	80	497	236	0.378	0.372	26.5	26.1	0.586	0.575
300.0	75	467	221	0.385	0.380	25.4	25.0	0.600	0.588
280.0	70	437	207	0.392	0.387	24.2	23.8	0.612	0.600
240.0	60	378	179	0.405	0.399	21.6	21.3	0.637	0.625
200.0	50	319	152	0.416	0.410	18.7	18.5	0.665	0.652
160.0	40	263	125	0.418	0.412	15.5	15.3	0.688	0.675
120.0	30	208	98	0.420	0.414	12.3	12.1	0.726	0.712
100.0	25	179	85	0.423	0.417	10.7	10.5	0.759	0.744
80.0	20	151	72	0.433	0.427	9.2	9.1	0.817	0.802
40.0	10	92.2	44	0.501	0.494	6.5	6.4	1.155	1.133

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
400.0	100	619	65.6	119.6	1,209.5	46.1	908.6	69	385.1
360.0	90	557	60.9	118.8	1,178.8	41.3	893.5	63	364.0
320.0	80	497	57.6	116.5	1,153.7	39.1	879.9	60	353.5
300.0	75	467	55.3	114.7	1,140.9	37.6	873.1	58	346.5
280.0	70	437	52.4	112.8	1,126.7	35.5	866.2	55	336.4
240.0	60	378	45.6	108.3	1,094.2	30.9	852.2	48	311.2
200.0	50	319	37.4	103.2	1,055.6	25.7	837.7	40	278.4
160.0	40	263	26.7	96.9	995.2	19.3	808.5	29	230.5
120.0	30	208	16.4	91.2	915.4	13.4	764.8	18	182.8
100.0	25	179	11.9	88.8	867.9	10.7	737.3	14	160.9
80.0	20	151	8.3	87.1	812.7	8.6	701.0	10	142.7
40.0	10	92.2	3.9	85.6	674.5	6.0	593.1	5	117.3

General Performance Data (Continued)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	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	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN

400.0	100	619	1,370.6	3,629.1	5,963.6	5,185.6	1,304.1	1,192.5
360.0	90	557	1,298.7	3,379.0	5,631.7	5,834.1	1,227.7	1,125.4
320.0	80	497	1,265.1	3,249.5	5,479.3	5,667.0	1,192.7	1,096.8
300.0	75	467	1,241.1	3,168.3	5,370.2	5,550.2	1,168.8	1,076.4
280.0	70	437	1,206.1	3,058.6	5,211.4	5,382.8	1,134.3	1,046.0
240.0	60	378	1,118.6	2,796.7	4,818.9	4,972.0	1,048.1	969.0
200.0	50	319	1,005.9	2,472.7	4,318.1	4,451.2	937.1	868.2
160.0	40	263	845.4	2,033.6	3,618.1	3,728.2	788.4	731.9
120.0	30	208	688.4	1,596.0	2,936.4	3,023.5	640.8	596.0
100.0	25	179	618.2	1,393.0	2,632.1	2,708.0	572.2	532.6
80.0	20	151	561.7	1,219.0	2,387.9	2,453.3	516.4	481.6
40.0	10	92.2	490.4	957.1	2,080.5	2,126.7	447.0	421.0

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
400.0	100	619	9,356	4,272	26,284	14,668	3,625	6,340	26,246	68,058	72,499
360.0	90	557	8,773	3,911	24,231	13,431	3,304	5,531	23,635	62,033	66,081
320.0	80	497	8,344	3,685	22,984	12,687	3,064	5,202	21,066	57,528	61,282
300.0	75	467	8,120	3,607	22,252	12,251	2,938	4,984	19,795	55,159	58,758
280.0	70	437	7,871	3,539	21,338	11,710	2,797	4,668	18,527	52,517	55,944
240.0	60	378	7,340	3,401	19,275	10,502	2,498	3,915	16,022	46,893	49,953
200.0	50	319	6,749	3,223	16,871	9,112	2,171	3,030	13,547	40,761	43,420
160.0	40	263	6,057	3,171	13,607	7,154	1,797	1,936	11,169	33,738	35,940
120.0	30	208	5,351	2,804	10,399	5,228	1,422	1,077	8,800	26,690	28,431
100.0	25	179	5,003	2,471	8,941	4,361	1,239	760	7,608	23,266	24,784
80.0	20	151	4,542	2,241	7,636	3,566	1,067	532	6,398	20,041	21,349
40.0	10	92.2	3,608	1,907	5,399	2,113	755	265	3,911	14,167	15,091

Emissions Data

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN		EKW	400.0	300.0	200.0	100.0	40.0
PERCENT LOAD		%	100	75	50	25	10
ENGINE POWER		BHP	619	467	319	179	92.2
TOTAL NOX (AS NO2)		G/HR	2,141	1,054	646	649	409
TOTAL CO		G/HR	220	722	863	322	280
TOTAL HC		G/HR	27	38	47	35	60
TOTAL CO2		KG/HR	313	253	186	105	63
PART MATTER		G/HR	22.3	21.6	28.8	20.6	18.3
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	1,578.5	945.1	808.6	1,454.5	1,344.7
TOTAL CO	(CORR 5% O2)	MG/NM3	162.5	658.4	1,052.1	639.2	1,134.3
TOTAL HC	(CORR 5% O2)	MG/NM3	17.3	30.1	51.0	71.1	208.4
PART MATTER	(CORR 5% O2)	MG/NM3	13.9	16.8	30.5	39.3	60.5
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	585.7	350.7	300.0	539.7	499.0
TOTAL CO	(CORR 15% O2)	MG/NM3	60.3	244.3	390.4	237.2	420.9
TOTAL HC	(CORR 15% O2)	MG/NM3	6.4	11.2	18.9	26.4	77.3
PART MATTER	(CORR 15% O2)	MG/NM3	5.2	6.2	11.3	14.6	22.4
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	769	460	394	708	655
TOTAL CO	(CORR 5% O2)	PPM	130	527	842	511	907
TOTAL HC	(CORR 5% O2)	PPM	32	56	95	133	389
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	285	171	146	263	243
TOTAL CO	(CORR 15% O2)	PPM	48	195	312	190	337
TOTAL HC	(CORR 15% O2)	PPM	12	21	35	49	144
TOTAL NOX (AS NO2)		G/HP-HR	3.49	2.27	2.03	3.63	4.45
TOTAL CO		G/HP-HR	0.36	1.56	2.72	1.80	3.05
TOTAL HC		G/HP-HR	0.04	0.08	0.15	0.19	0.65

PART MATTER	G/HP-HR	0.04	0.05	0.09	0.12	0.20
TOTAL NOX (AS NO2)	G/KW-HR	4.74	3.09	2.76	4.94	6.05
TOTAL CO	G/KW-HR	0.49	2.12	3.69	2.45	4.14
TOTAL HC	G/KW-HR	0.06	0.11	0.20	0.26	0.89
PART MATTER	G/KW-HR	0.05	0.06	0.12	0.16	0.27
TOTAL NOX (AS NO2)	LB/HR	4.72	2.32	1.42	1.43	0.90
TOTAL CO	LB/HR	0.48	1.59	1.90	0.71	0.62
TOTAL HC	LB/HR	0.06	0.08	0.10	0.08	0.13
TOTAL CO2	LB/HR	689	557	411	231	138
PART MATTER	LB/HR	0.05	0.05	0.06	0.05	0.04
OXYGEN IN EXH	%	10.1	11.2	12.0	12.7	14.6
DRY SMOKE OPACITY	%	0.5	0.6	1.0	1.2	1.1
BOSCH SMOKE NUMBER		0.72	0.75	0.86	0.91	0.90

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN		**EKW**	**400.0**	**300.0**	**200.0**	**100.0**	**40.0**
PERCENT LOAD		**%**	**100**	**75**	**50**	**25**	**10**
ENGINE POWER		**BHP**	**619**	**467**	**319**	**179**	**92.2**
TOTAL NOX (AS NO2)		G/HR	2,591	1,275	781	785	495
TOTAL CO		G/HR	411	1,351	1,614	602	524
TOTAL HC		G/HR	51	71	89	65	113
PART MATTER		G/HR	43.6	42.1	56.1	40.2	35.7
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	1,910.0	1,143.6	978.4	1,759.9	1,627.1
TOTAL CO	(CORR 5% O2)	MG/NM3	303.9	1,231.2	1,967.5	1,195.3	2,121.2
TOTAL HC	(CORR 5% O2)	MG/NM3	32.6	57.0	96.4	134.3	393.9
PART MATTER	(CORR 5% O2)	MG/NM3	27.1	32.8	59.4	76.7	117.9
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	708.7	424.4	363.0	653.0	603.8
TOTAL CO	(CORR 15% O2)	MG/NM3	112.8	456.8	730.1	443.6	787.1
TOTAL HC	(CORR 15% O2)	MG/NM3	12.1	21.1	35.8	49.8	146.2
PART MATTER	(CORR 15% O2)	MG/NM3	10.1	12.2	22.1	28.5	43.8
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	930	557	477	857	793
TOTAL CO	(CORR 5% O2)	PPM	243	985	1,574	956	1,697
TOTAL HC	(CORR 5% O2)	PPM	61	106	180	251	735
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	345	207	177	318	294
TOTAL CO	(CORR 15% O2)	PPM	90	365	584	355	630
TOTAL HC	(CORR 15% O2)	PPM	23	39	67	93	273
TOTAL NOX (AS NO2)		G/HP-HR	4.22	2.75	2.46	4.40	5.39
TOTAL CO		G/HP-HR	0.67	2.91	5.08	3.37	5.70
TOTAL HC		G/HP-HR	0.08	0.15	0.28	0.37	1.23
PART MATTER		G/HP-HR	0.07	0.09	0.18	0.22	0.39
TOTAL NOX (AS NO2)		G/KW-HR	5.73	3.74	3.34	5.98	7.33
TOTAL CO		G/KW-HR	0.91	3.96	6.91	4.58	7.75
TOTAL HC		G/KW-HR	0.11	0.21	0.38	0.50	1.68
PART MATTER		G/KW-HR	0.10	0.12	0.24	0.31	0.53
TOTAL NOX (AS NO2)		LB/HR	5.71	2.81	1.72	1.73	1.09
TOTAL CO		LB/HR	0.91	2.98	3.56	1.33	1.15
TOTAL HC		LB/HR	0.11	0.16	0.20	0.14	0.25
PART MATTER		LB/HR	0.10	0.09	0.12	0.09	0.08

Regulatory Information

EPA TIER 3		**2005 - 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 3	CO: 3.5 NOx + HC: 4.0 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

STANDARD

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	619	619	619	619	619	619	619	619	619	619	619	619	619
1,000	619	619	619	619	619	619	619	619	619	619	619	619	619
2,000	619	619	619	619	619	619	619	619	619	619	619	619	619
3,000	619	619	619	619	619	619	619	619	619	619	619	619	619
4,000	619	619	619	619	619	619	619	619	619	619	619	613	619
5,000	619	619	619	619	619	619	619	619	619	610	599	589	619
6,000	619	619	619	619	619	619	618	607	596	586	576	566	619
7,000	619	619	619	619	616	605	594	583	573	563	554	544	619
8,000	619	619	615	604	592	581	571	560	551	541	532	523	615
9,000	615	603	591	580	569	558	548	538	529	520	511	502	595
10,000	590	579	567	556	546	536	526	517	508	499	490	482	575
11,000	567	555	544	534	524	514	505	496	487	479	471	463	556
12,000	544	533	522	512	502	493	484	476	467	459	451	444	537
13,000	521	511	501	491	482	473	464	456	448	440	433	426	519
14,000	500	490	480	471	462	453	445	437	429	422	415	408	501
15,000	479	469	460	451	442	434	426	419	411	404	397	391	483

Cross Reference

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
0K6279	PP5608	2729743	GS282	-	FSE00001	
0K6279	PP5608	2864922	GS282	-	FTE00001	

Performance Parameter Reference

Parameters Reference:DM9600-14
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.
On 3500 and C175 engines, at speeds below Peak Torque 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 ng), 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 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 15 deg C (59 deg F), where the density is 850 G/Liter (7.0936 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 out put 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.
Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.
EMISSION CYCLE LIMITS:
Cycle emissions Max Limits apply to cycle-weighted averages only. Emissions at individual load points may exceed the cycle-weighted limit.
WET & DRY EXHAUST/EMISSIONS DESCRIPTION:
Wet - Total exhaust flow or concentration of total exhaust flow
Dry - Total exhaust flow minus water vapor or concentration of exhaust flow with water vapor excluded
EMISSIONS DEFINITIONS:
Emissions : DM1176
EMISSION CYCLE DEFINITIONS
1. For constant-speed marine engines for ship main propulsion, including,diesel-electric drive, test cycle E2 shall be applied, for controllable-pitch propeller sets
test cycle E2 shall be applied.
2. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied.
3. For constant-speed auxiliary engines test cycle D2 shall be applied.
4. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied.
HEAT REJECTION DEFINITIONS:
Diesel Circuit Type and HHV Balance : DM9500
HIGH DISPLACEMENT (HD) DEFINITIONS:
3500: EM1500
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
SOUND DEFINITIONS:
Sound Power : DM8702
Sound Pressure : TM7080
Date Released : 10/27/21

CATERPILLER C9 250 KW GENERATOR

Cat® C9 DIESEL GENERATOR SETS

CAT®

Standby & Prime: 60Hz

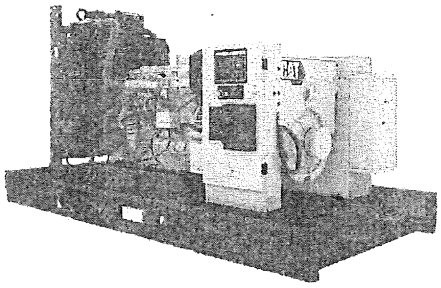


Image shown might not reflect actual configuration

Engine Model	Cat® C9 ACERT™ in-line 6, 4-cycle diesel
Bore x Stroke	112mm x 149mm (4.4in x 5.9in)
Displacement	8.8 L (538 in³)
Compression Ratio	16.1:1
Aspiration	Turbocharged Air-to-Air Aftercooled
Fuel Injection System	HEUI
Governor	Electronic ADEM™ A4

Model	Standby	Prime	Emission Strategy
C9	250 ekW, 313 kVA	225 ekW, 281 kVA	TIER III Non-Road

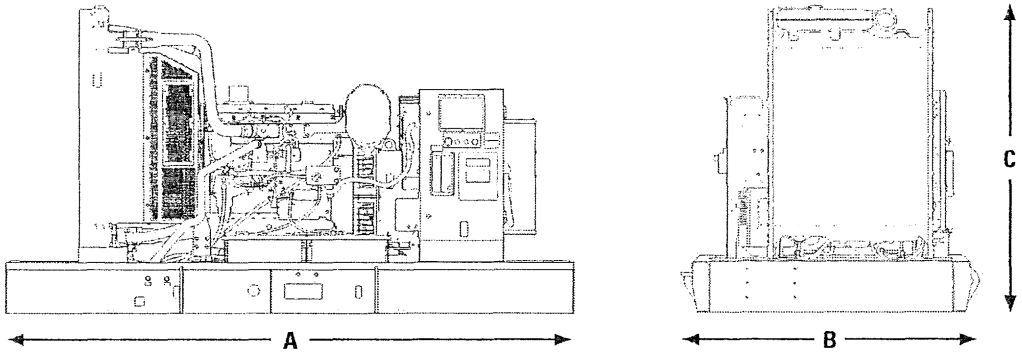
PACKAGE PERFORMANCE

Performance	Standby	Prime
Frequency	60 Hz	
Genset Power Rating	313 kVA	281 kVA
Genset power rating with fan @ 0.8 power factor	250 ekW	225 ekW
Emissions	TIER III Non-Road	
Performance Number	DM8501-03	DM8505-03
Fuel Consumption		
100% load with fan, L/hr (gal/hr)	73.3 (19.4)	68.9 (18.2)
75% load with fan, L/hr (gal/hr)	58.8 (15.5)	55.7 (14.7)
50% load with fan, L/hr (gal/hr)	43.8 (11.6)	42.0 (11.1)
25% load with fan, L/hr (gal/hr)	27.4 (7.3)	27.2 (7.2)
Cooling System[1]		
Radiator air flow restriction (system), kPa (in. Water)	0.12 (0.48)	0.12 (0.48)
Radiator air flow, m3/min (cfm)	497 (17551)	497 (17551)
Engine coolant capacity, L (gal)	13.9 (3.7)	13.9 (3.7)
Radiator coolant capacity, L (gal)	43 (11.5)	43 (11.5)
Total coolant capacity, L (gal)	57 (15)	57 (15)
Inlet Air		
Combustion air inlet flow rate, m³/min (cfm)	25.2 (889.8)	24.2 (855.3)
Max. Allowable Combustion Air Inlet Temp, °C (°F)	50 (122)	50 (122)
Exhaust System		
Exhaust stack gas temperature, °C (°F)	455.5 (852.0)	444.1 (831.3)
Exhaust gas flow rate, m³/min (cfm)	63.6 (2245.6)	59.8 (2112.4)
Exhaust system backpressure (maximum allowable) kPa (in. water)	10.0 (40.0)	10.0 (40.0)
Heat Rejection		
Heat rejection to jacket water, kW (Btu/min)	104 (5928)	99 (5631)
Heat rejection to exhaust (total) kW (Btu/min)	277 (15772)	259 (14720)
Heat rejection to aftercooler, kW (Btu/min)	82 (4686)	72 (4115)
Heat rejection to atmosphere from engine, kW (Btu/min)	18 (1004)	26 (1500)

Cat® C9 DIESEL GENERATOR SETS

Emissions (Nominal)[2]	Standby		Prime	
NOx, mg/Nm³ (g/hp-hr)	1516.2 (2.9)		1355.4 (2.7)	
CO, mg/Nm³ (g/hp-hr)	172.8 (0.4)		188.9 (0.4)	
HC, mg/Nm³ (g/hp-hr)	37.7 (0.1)		44.2 (0.1)	
PM, mg/Nm³ (g/hp-hr)	32.6 (0.1)		37.0 (0.1)	
Alternator[3]				
Voltages	480V	600V	480V	600V
Motor starting capability @ 30% Voltage Dip	543 skVA	656 skVA	543 skVA	656 skVA
Current	376 amps	301 amps	338 amps	271 amps
Frame Size	LC5014H	LC5024H	LC5014H	LC5024H
Excitation	SE	AR	SE	AR
Temperature Rise	150 ° C	150 ° C	105 ° C	105 ° C

WEIGHTS & DIMENSIONS



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
3091 (122)	1622 (64)	2066 (82)	2248 (4956)

APPLICABLE CODES AND STANDARDS:

AS1359, CSA C22.2 No100-04, UL142, UL489, UL869, UL2200, NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG1-22, NEMA MG1-33, 2006/95/EC, 2006/42/EC, 2004/108/EC.
Note: Codes may not be available in all model configurations. Please consult your local Cat Dealer representative for availability.

STANDBY: Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

PRIME: Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand is 100% of prime rated ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year

RATINGS: Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

DEFINITIONS AND CONDITIONS

[1] For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

[2] Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77° F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 BTU/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

[3] UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics. Generator temperature rise is based on a 40° C ambient per NEMA MG1-32.

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LEHE1569-02 (05/20)

PERFORMANCE DATA [DM8501]

AUGUST 10, 2021

For Help Desk Phone Numbers Click here

Perf No: DM8501 Change Level: 03

General | Heat Rejection | Emissions | Regulatory | Altitude Derate | Cross Reference | Perf Param Ref

View PDF

SALES MODEL:	C9	**COMBUSTION:**	DIRECT INJECTION
BRAND:	CAT	**ENGINE SPEED (RPM):**	1,800
ENGINE POWER (BHP):	398	**HERTZ:**	60
GEN POWER W/O FAN (EKW):	265.0	**FAN POWER (HP):**	30.2
GEN POWER WITH FAN (EKW):	250.0	**ASPIRATION:**	TA
COMPRESSION RATIO:	16.1	**AFTERCOOLER TYPE:**	ATAAC
RATING LEVEL:	STANDBY	**AFTERCOOLER CIRCUIT TYPE:**	JW+OC, ATAAC
PUMP QUANTITY:	1	**INLET MANIFOLD AIR TEMP (F):**	122
FUEL TYPE:	DIESEL	**JACKET WATER TEMP (F):**	192.2
MANIFOLD TYPE:	DRY	**TURBO CONFIGURATION:**	SINGLE
GOVERNOR TYPE:	ELEC	**TURBO QUANTITY:**	1
CAMSHAFT TYPE:	STANDARD	**TURBOCHARGER MODEL:**	S310-1.25
IGNITION TYPE:	CI	**CERTIFICATION YEAR:**	2005
INJECTOR TYPE:	EUI	**PISTON SPD @ RATED ENG SPD (FT/MIN):**	1,759.8
REF EXH STACK DIAMETER (IN):	4		
MAX OPERATING ALTITUDE (FT):	3,281		

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

General Performance Data Top

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)
EKW	%	BHP	PSI	LB/BHP-HR	GAL/HR
250.0	100	398	326	0.341	19.1
225.0	90	359	294	0.346	17.5
200.0	80	321	263	0.355	16.0
187.5	75	302	247	0.360	15.3
175.0	70	284	232	0.364	14.6
150.0	60	247	202	0.374	13.0
125.0	50	211	172	0.385	11.4
100.0	40	176	144	0.394	9.8
75.0	30	141	116	0.404	8.0
62.5	25	124	101	0.410	7.2
50.0	20	106	87	0.418	6.2
25.0	10	68.9	56	0.445	4.3

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
250.0	100	398	77.7	122.3	1,142.4	55.4	852.0	79	425.2
225.0	90	359	74.1	121.6	1,094.4	51.6	823.5	75	407.9
200.0	80	321	70.7	122.1	1,050.1	48.2	800.5	72	390.0
187.5	75	302	69.0	122.5	1,029.4	46.4	790.7	70	380.5
175.0	70	284	66.6	122.4	1,010.3	44.2	782.4	67	370.2
150.0	60	247	60.6	122.2	973.8	39.4	768.3	61	346.6

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
125.0	50	211	53.2	121.8	937.9	33.9	755.8	54	318.8
100.0	40	176	43.3	121.2	899.4	27.4	742.4	44	280.7
75.0	30	141	32.2	120.7	857.9	20.5	727.9	33	236.6
62.5	25	124	26.7	120.5	835.9	17.2	720.5	27	214.1
50.0	20	106	21.3	120.3	812.9	14.1	712.7	22	191.5
25.0	10	68.9	12.1	120.5	671.3	9.1	612.1	13	150.2

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	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	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
250.0	100	398	889.8	2,245.6	3,863.5	3,999.1	841.8	776.8
225.0	90	359	866.1	2,131.2	3,753.5	3,877.8	816.6	756.7
200.0	80	321	845.5	2,029.1	3,641.7	3,755.4	791.7	736.4
187.5	75	302	833.2	1,976.5	3,583.9	3,692.5	777.2	724.2
175.0	70	284	815.6	1,915.7	3,500.2	3,603.4	758.3	707.7
150.0	60	247	770.3	1,777.1	3,290.5	3,382.8	711.5	666.0
125.0	50	211	711.6	1,616.1	3,025.9	3,107.0	653.7	613.6
100.0	40	176	631.2	1,409.7	2,668.7	2,738.1	576.6	542.5
75.0	30	141	539.6	1,189.0	2,266.0	2,323.1	492.3	464.1
62.5	25	124	493.0	1,076.6	2,063.6	2,114.4	448.5	423.3
50.0	20	106	447.1	961.4	1,865.3	1,909.6	403.2	380.9
25.0	10	68.9	365.7	720.7	1,521.7	1,552.4	330.6	314.7

Heat Rejection Data Top

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
250.0	100	398	5,928	1,004	15,772	8,470	2,214	4,686	16,886	41,564	44,276
225.0	90	359	5,517	890	14,624	7,716	2,028	4,305	15,231	38,081	40,566
200.0	80	321	5,156	844	13,650	7,085	1,859	3,906	13,615	34,894	37,171
187.5	75	302	4,986	796	13,203	6,804	1,775	3,702	12,819	33,332	35,507
175.0	70	284	4,811	750	12,693	6,507	1,688	3,474	12,026	31,686	33,754
150.0	60	247	4,487	657	11,600	5,894	1,508	2,957	10,466	28,319	30,167
125.0	50	211	4,177	565	10,395	5,241	1,323	2,387	8,931	24,835	26,456
100.0	40	176	3,834	664	8,956	4,456	1,131	1,704	7,458	21,230	22,615
75.0	30	141	3,407	764	7,418	3,634	932	1,052	5,989	17,489	18,630
62.5	25	124	3,174	722	6,658	3,239	829	773	5,246	15,560	16,575
50.0	20	106	2,926	591	5,915	2,861	723	532	4,490	13,570	14,455
25.0	10	68.9	2,390	520	4,011	1,661	501	182	2,923	9,412	10,026

Emissions Data Top

Units Filter All Units

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN	**EKW**	**250.0**	**187.5**	**125.0**	**62.5**	**25.0**
ENGINE POWER	**BHP**	**398**	**302**	**211**	**124**	**68.9**
PERCENT LOAD	**%**	**100**	**75**	**50**	**25**	**10**
TOTAL NOX (AS NO2)	G/HR	1,150	661	419	260	205
TOTAL CO	G/HR	144	145	113	152	144
TOTAL HC	G/HR	36	47	48	37	38
TOTAL CO2	KG/HR	193	155	115	71	43
PART MATTER	G/HR	32.1	33.9	25.1	25.1	17.5

GENSET POWER WITH FAN		**EKW**	**250.0**	**187.5**	**125.0**	**62.5**	**25.0**
ENGINE POWER		**BHP**	**398**	**302**	**211**	**124**	**68.9**
PERCENT LOAD		**%**	**100**	**75**	**50**	**25**	**10**
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	1,516.2	1,083.8	918.3	939.9	1,312.7
TOTAL CO	(CORR 5% O2)	MG/NM3	172.8	215.5	229.8	496.4	785.9
TOTAL HC	(CORR 5% O2)	MG/NM3	37.7	59.9	83.6	111.9	195.8
PART MATTER	(CORR 5% O2)	MG/NM3	32.6	43.3	43.2	76.0	79.5
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	739	528	447	458	639
TOTAL CO	(CORR 5% O2)	PPM	138	172	184	397	629
TOTAL HC	(CORR 5% O2)	PPM	70	112	156	209	365
TOTAL NOX (AS NO2)		G/HP-HR	2.91	2.20	2.00	2.11	2.98
TOTAL CO		G/HP-HR	0.36	0.48	0.54	1.23	2.08
TOTAL HC		G/HP-HR	0.09	0.15	0.23	0.30	0.55
PART MATTER		G/HP-HR	0.08	0.11	0.12	0.20	0.25
TOTAL NOX (AS NO2)		LB/HR	2.54	1.46	0.92	0.57	0.45
TOTAL CO		LB/HR	0.32	0.32	0.25	0.34	0.32
TOTAL HC		LB/HR	0.08	0.10	0.11	0.08	0.08
TOTAL CO2		LB/HR	425	342	255	156	94
PART MATTER		LB/HR	0.07	0.07	0.06	0.06	0.04
OXYGEN IN EXH		%	10.2	11.6	12.7	13.7	15.0
DRY SMOKE OPACITY		%	0.5	0.8	0.8	1.4	0.9
BOSCH SMOKE NUMBER			0.39	0.67	0.66	1.21	0.84

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN		**EKW**	**250.0**	**187.5**	**125.0**	**62.5**	**25.0**
ENGINE POWER		**BHP**	**398**	**302**	**211**	**124**	**68.9**
PERCENT LOAD		**%**	**100**	**75**	**50**	**25**	**10**
TOTAL NOX (AS NO2)		G/HR	1,242	714	452	281	222
TOTAL CO		G/HR	270	271	211	284	268
TOTAL HC		G/HR	69	88	92	70	71
PART MATTER		G/HR	62.6	66.0	49.0	49.0	34.1
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	1,637.5	1,170.5	991.8	1,015.1	1,417.8
TOTAL CO	(CORR 5% O2)	MG/NM3	323.2	403.0	429.8	928.3	1,469.7
TOTAL HC	(CORR 5% O2)	MG/NM3	71.2	113.1	157.9	211.5	370.0
PART MATTER	(CORR 5% O2)	MG/NM3	63.7	84.4	84.3	148.3	155.0
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	798	570	483	494	691
TOTAL CO	(CORR 5% O2)	PPM	259	322	344	743	1,176
TOTAL HC	(CORR 5% O2)	PPM	133	211	295	395	691
TOTAL NOX (AS NO2)		G/HP-HR	3.14	2.38	2.16	2.27	3.22
TOTAL CO		G/HP-HR	0.68	0.90	1.01	2.30	3.89
TOTAL HC		G/HP-HR	0.17	0.29	0.44	0.57	1.03
PART MATTER		G/HP-HR	0.16	0.22	0.23	0.40	0.49
TOTAL NOX (AS NO2)		LB/HR	2.74	1.57	1.00	0.62	0.49
TOTAL CO		LB/HR	0.59	0.60	0.47	0.63	0.59
TOTAL HC		LB/HR	0.15	0.19	0.20	0.15	0.16
PART MATTER		LB/HR	0.14	0.15	0.11	0.11	0.08

Regulatory Information Top

EPA TIER 3 **2005 - 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 3	CO: 3.5 NOx + HC: 4.0 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 Top

STANDARD

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	398	398	398	398	398	398	398	398	398	398	398	398	398
1,000	398	398	398	398	398	398	398	398	398	398	395	389	398
2,000	398	398	398	398	398	398	398	398	394	387	380	374	398
3,000	398	398	398	398	398	398	393	386	379	372	366	360	398
4,000	398	398	398	398	392	385	378	371	365	358	352	346	396
5,000	398	398	392	384	377	370	363	357	351	345	339	333	384
6,000	392	384	377	370	363	356	349	343	337	331	326	320	372
7,000	377	369	362	355	349	342	336	330	324	318	313	308	360
8,000	362	355	348	341	335	329	323	317	311	306	301	296	348
9,000	348	341	334	328	322	316	310	304	299	294	289	284	337
10,000	334	327	321	315	309	303	297	292	287	282	277	273	325
11,000	320	314	308	302	296	291	285	280	275	271	266	262	314
12,000	307	301	295	290	284	279	274	269	264	260	255	251	304
13,000	295	289	283	278	272	267	263	258	253	249	245	241	293
14,000	282	277	271	266	261	256	252	247	243	239	235	231	283
15,000	271	265	260	255	250	246	241	237	233	229	225	221	273

Cross Reference Top

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
0K6612	NAP	2575707	GS279	-	S9L00001	
0K6612	NAP	3950368	GS279	-	S9P00001	
4150078	PP5548	3950368	GS279	-	S9P00001	
4150078	PP5548	4529865	GS857	LS	S9P00001	
4150078	PP5548	5664658	PG350	G	RG300001	
4150078	PP5548	5664658	PG375	G	RE300001	

Performance Parameter Reference Top

Parameters Reference: DM9600 - 12

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 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 15 deg C (59 deg F), where the density is 850 G/Liter (7.0936 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 out put 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.
Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.

EMISSION CYCLE LIMITS: Cycle emissions Max Limits apply to cycle-weighted averages only. Emissions at individual load points may exceed the cycle-weighted limit.

EMISSIONS DEFINITIONS: Emissions : DM1176

EMISSION CYCLE DEFINITIONS
1. For constant-speed marine engines for ship main propulsion, including,diesel-electric drive, test cycle E2 shall be applied, for controllable-pitch propeller sets test cycle E2 shall be applied.
2. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied.
3. For constant-speed auxiliary engines test cycle D2 shall be applied.
4. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied.

HEAT REJECTION DEFINITIONS: Diesel Circuit Type and HHV Balance : DM9500

HIGH DISPLACEMENT (HD) DEFINITIONS: 3500: EM1500

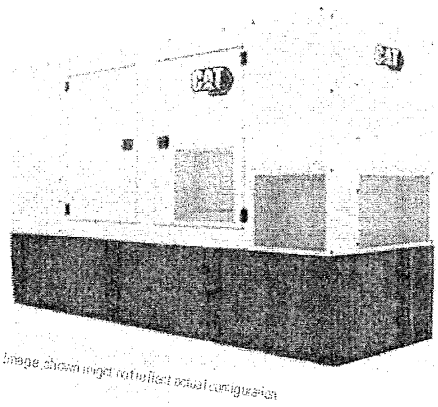
RATING DEFINITIONS: Agriculture : TM6008
Fire Pump : TM6009
Generator Set : TM6035
Generator (Gas) : TM6041
Industrial Diesel : TM6010
Industrial (Gas) : TM6040
Irrigation : TM5749
Locomotive : TM6037
Marine Auxiliary : TM6036
Marine Prop (Except 3600) : TM5747
Marine Prop (3600 only) : TM5748
MSHA : TM6042
Oil Field (Petroleum) : TM6011
Off-Highway Truck : TM6039
On-Highway Truck : TM6038

SOUND DEFINITIONS: Sound Power : DM8702
Sound Pressure : TM7080

Date Released : 07/10/19

Cat® GC ENCLOSURES

CAT®



SOUND ATTENUATED LEVEL 2

ENCLOSURES

D250GC – D600GC

60 Hz

FEATURES

Robust / Highly Corrosion Resistant Construction

- Factory installed on skid base or tanks base
- Environmentally friendly, polyester powder baked paint
- Enclosure constructed with 18-gauge steel
- Interior zinc plated fasteners
- Internally mounted exhaust silencing system
- Comply with ASCE/SEI 7 for Wind loads up to 100mph
- Designed and tested to comply with UL 2200 Listed generator set package

Excellent Access

- Large cable entry area for installation ease.
- Accommodates side mounted single or multiple breakers.
- Two doors on both sides.
- Vertically hinged allow 180° opening rotation
- Radiator fill cover.

Security and Safety

- Lockable access doors which give full access to control panel and breaker.
- Cooling fan and battery charging alternator fully guarded.
- Fuel fill, oil fill and battery can only be reached via lockable access.
- Externally mounted emergency stop button (Optional).
- Designed for spreader bar lifting to ensure safety.
- Stub-up area is rodent proof.

Sound Attenuated Level 2

- Caterpillar white paint
- UL Listed integral fuel tank with 24 hours running time capacity (Optional).
- DC lighting package (Optional)

Cat® GC ENCLOSURES

CAT®

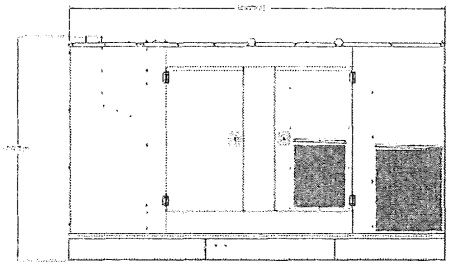
Enclosure Package Operating Characteristics

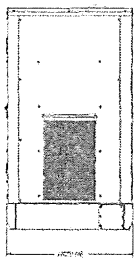
Enclosure Type	Standby ekW	Cooling Air Flow Rate		Ambient Capability*		Sound Pressure Levels (dBA) at 7m (23 ft)
		m^3/s	cfm	°C	°F	100% Load
Level 2 Sound Attenuated Enclosure (Steel)	250	6.4	13561	57	135	74
	300	6.4	13561	51	125	74
	350	7.4	15680	57	134	71
	400	7.4	15680	53	127	71
	450	8.4	17692	54	130	73
	500	8.4	17692	50	122	73
	550	11.2	23731	56	133	73
	600	11.2	23731	53	127	73

*Cooling system performance at sea level. Consult your Cat® dealer for site specific ambient and altitude capabilities.

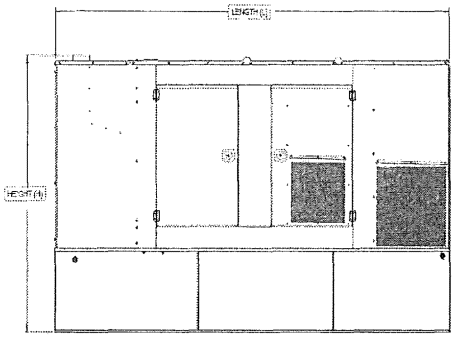
Note: Sound level measurements are subject to instrumentation, installation and manufacturing variability, as well as ambient site conditions.

DIMENSIONS





Sound Attenuated Enclosure on Skid Base



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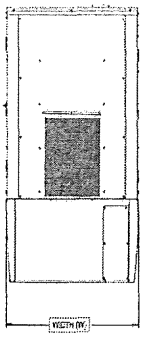

Sound Attenuated Enclosure on a UL Listed Integral Fuel Tank Base

Cat® GC ENCLOSURES

CAT®

WEIGHTS & DIMENSIONS

Enclosure Type	Standby Ratings, ekW	Length, L		Width, W		Height, H		Package Weights	
		mm	in	mm	in	mm	in	kg	lb
Sound Attenuated Enclosure on Skid Base	250	3958	155.8	1440	56.7	1991	78.4	2857	6298.6
	300							2945	6492.6
	350	4633	182.4	1630	64.2	2227	87.7	3983	8781.0
	400							4017	8856.0
	450	4823	189.8	1630	64.2	2227	87.7	4408	9718.0
	500							4457	9826.0
	550	4980	196.1	1865	73.4	2172	85.5	4754	10480.8
	600							4837	10663.8
Sound Attenuated Enclosure on UL Listed Integral Fuel Tank Base	250	3958	155.8	1440	56.7	2487	97.9	3497	7709.6
	300							3585	7903.6
	350	4633	182.4	1630	64.2	2644	104.1	4765	10505.0
	400							4799	10580.0
	450	4823	189.8	1630	64.2	2777	109.3	5345	11783.7
	500							5394	11891.7
	550	4980	196.1	1865	73.4	2723	107.2	5973	13168.2
	600							6056	13351.2
Sound Attenuated Enclosure on UL Listed Extended Integral Fuel Tank Base	250	4608	181.4	1430	56.3	2379	93.7	3590	7914.6
	300							3678	8108.6
	350	5251	203.7	1620	63.8	2561	100.8	4876	10749.7
	400							4910	10824.7
	450	5909	232.6	1620	63.8	2612	102.8	5497	12118.8
	500							5546	12226.8
	550	6759	266.1	1865	73.4	2487	97.9	6237	13750.2
	600							6320	13933.2

LET'S DO THE WORK.™

LEHE2014-4(11-20)

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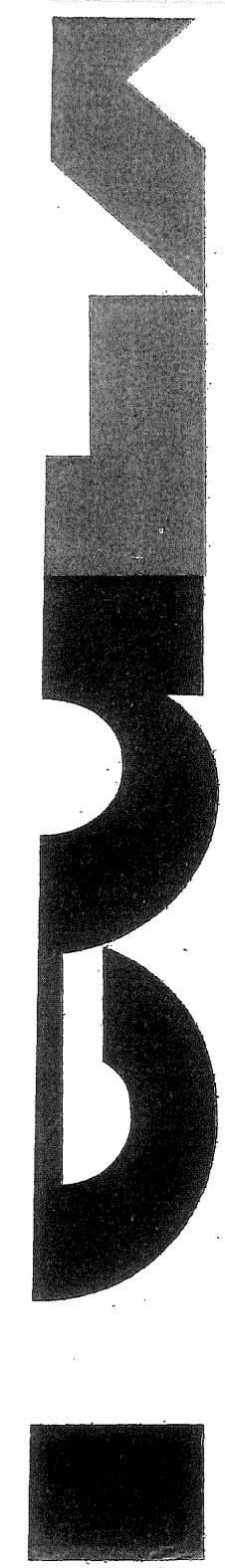

CHICAGO, IL 60606
UNITED STATES US

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