



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 by State of Indiana IDEM-OAQ
via email July 24, 2026 MJ-1

**RE: APPLICATION FOR NEW SOURCE MINOR PSD/EO
CONSTRUCTION APPROVAL AND FESOP
SITE SBN520/750
SITE 520: 4751 E. 61ST AVENUE, HOBART, IN 46342
SITE 750: 6197 COLORADO ST., HOBART, IN 46342**

July 24, 2026

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Dear Sir or Madam:

On behalf of our client, Amazon Data Services, Inc. (Amazon), Ramboll Americas Engineering Solutions, Inc. (Ramboll) has prepared and hereby submits the enclosed application for a New Source Minor PSD/EO Construction Approval and a Federally Enforceable State Operating Permit (FESOP) for the installation and operation of two data center facilities at locations referenced above, which are considered as one single source identified as "SBN520/750". The facility description, regulatory applicability, application forms, potential emission calculations with necessary supporting information are enclosed within this submittal.

If you have any questions or require further information, please do not hesitate to contact me or Mr. Dan Glazer (deglazer@amazon.com). We appreciate your review and look forward to your feedback.

Yours sincerely,

A handwritten signature in black ink that reads "Tingting Wang".

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Enclosure: Application for New Source Minor PSD/EO Construction Approval and FESOP

CC: Dan Glazer – Amazon Data Services, Inc.
David Monaghan – Amazon Data Services, Inc.

Submitted to:

**Indiana Department of Environmental Management
Indianapolis, Indiana**

Prepared for:

Amazon Data Services, Inc.

Site SBN520/750

SBN520 Address: 4751 E. 61st Avenue, Hobart, IN 46342

SBN750 Address: 6197 Colorado St., Hobart, IN 46342

Prepared by:

Ramboll Americas Engineering Solutions, Inc

Date

July 2026

Project Number:

1940118265

APPLICATION FOR NEW SOURCE MINOR PSD/EMISSION OFFSET CONSTRUCITON APPROVAL AND FESOP

SBN520/SBN750 SITE HOBART, INDIANA

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- Figure 1: Site Location Map
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1. INTRODUCTION

Amazon Data Services, Inc. (Amazon) proposes to construct and operate two data center facilities at 4751 E. 61st Avenue, Hobart, IN 46342 (referred to as "SBN520") and 6197 Colorado St., Hobart, IN 46342 (referred to as "SBN750"). SBN520 will have one hundred and seventy (170) emergency back-up generators in various sizes with a total power generation capacity of approximately 464 Megawatts (MW). SBN750 will have six hundred and twelve (612) emergency back-up generators in various sizes with a total power generation capacity of approximately 1,655 Megawatts (MW). Both sites will have associated diesel fuel storage tanks and 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.

In accordance with IDEM's Guidance on Definition of "Source" for Collocated Activities (Air-005-NPD), Amazon understands that SBN520 and SBN750 will be classified as a single source for air permitting purposes as they meet the three criteria: 1. Activities are located on contiguous or adjacent property; 2. Activities are under common control; and 3. The activities on SBN520 and SBN750 belong to the same industrial grouping (SIC code 7374). The two facilities will be collectively referred to as the "Site".

Pursuant to Title 326 of the Indiana Administrative Code (326 IAC), Article 2 – Permit Review Rules, Rule 2-5.1-3, Amazon is requesting the issuance of a New Source Minor Prevention of Significant Deterioration (PSD) or Emission Offset (EO) Construction Approval, for the proposed construction since the sites' combined potential-to-emit (PTE) is below the PSD/EO major source thresholds. Additionally, this submittal also serves as a permit application to obtain a Federally Enforceable State Operating Permit (FESOP) under 326 IAC, Rule 2-8.

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 permit application forms are included in **Appendix A**. Detailed 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 SBN520/750 as needed to protect critical data center functions during any interruptions in electrical service. Amazon proposes to install six (6) data center buildings at SBN520 and twenty (20) data center buildings at SBN750. The Site Layout Map on **Figure 2** currently shows the proposed locations of all 26 buildings.

Each emergency generator is composed of two (2) distinct parts, a diesel engine and the associated electric generator. Ultra-low sulfur diesel (ULSD) and/or renewable diesel that meets the ULSD standards in the Code of Federal Regulations, Title 40 (40 CFR), Section 1090.305 will be used to fuel the engines.

2.1 Emergency Generators

The Site will install multiple types and quantities of emergency generators, as summarized in **Table 1** below. The manufacturer provided equipment specifications and emission data for all the models listed in the table are provided in **Appendix C**.

Table 1 – List of Proposed Emergency Generators

Site	Gen ID No.	Description	Model	Power Capacity per Gen	EPA Tier Level	Quantity
SBN500	CEG1 – CEG 168	Critical emergency generators	CAT 3516E	2,750 kW	Tier 4-equivalent ¹	168
	AWB1	Ancillary emergency generator for water cooling system and fire emergency	CAT 3512C	1,600 kW	Tier 2	1
	ACB1	Ancillary emergency generator for Access Control Building	CAT C9	250 kW	Tier 3	1
SBN750	CEG169 – CEG766	Critical emergency generators	CAT 3516E	2,750 kW	Tier 4-equivalent ¹	598
	AWB2	Ancillary emergency generator for water cooling system and fire emergency	CAT 3512C	1,600 kW	Tier 2	1
	HEG1 – HEG11	House emergency generators	CAT C18 or C27	750 kW	Tier 2	11

Site	Gen ID No.	Description	Model	Power Capacity per Gen	EPA Tier Level	Quantity
	CAB1	Ancillary emergency generator for Central Admin Building	CAT C13	400 kW	Tier 3	1
	ACB2	Ancillary emergency generator for Access Control Building	CAT C9	250 kW	Tier 3	1
Note: 1. The critical emergency generators will be powered by Tier 2-certified engines. Each critical emergency generator will be equipped with a control system to meet the equivalent 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), all 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 560 kW each will be certified to meet the Tier 2 emission standards and the engines less than 560 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).

Each of the critical emergency generators CEG1 – CEG766 (2,750 kW each) will be equipped with an emission control system, which is a combined after-treatment system that integrates Selective Catalytic Reduction (SCR) and Catalyzed Diesel Particulate Filter (cDPF) to meet the Tier 4 equivalent emission standards and avoid major source (i.e., PSD) permitting. A process flow diagram showing the operation of the critical engines is presented in **Figure 3**.

2.2 Diesel Storage Tanks

The proposed emergency generators will be equipped with individual belly tanks for storage of diesel fuel. The Site will also have twenty-six (26) bulk diesel fuel storage tanks (TK1 – 26), each with a volume capacity of 12,000 gallons. The quantities and volume capacities of the fuel storage tanks are listed in **Table 2** below.

Table 2 – List of Proposed Fuel Storage Tanks

Belly Tank ID No.	Volume Capacity	Quantity
CEG BT 1 – 766	6,700 gallons each	766
HEG BT 1 – 11	1,367 gallons each	11
AWB1 BT & AWB2 BT	2,640 gallons	2
CAB BT	770 gallons	1
ACB1 BT & ACB2 BT	495 gallons	2
Bulk Diesel Fuel Storage Tanks (TK1 – 26)	12,000 gallons each	26

3. POTENTIAL EMISSIONS

Emissions from SBN520/750 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 (SO₂), particulate matter (PM), particulate matter less than 10 micrometers in diameter (PM₁₀), 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-to-emit (PTE) of the emergency generators and their associated fuel tanks. Detailed emission calculations are included in **Appendix B**.

3.1 Emergency Generators

The PTE of NO_x, CO, PM, and VOC of the emergency generators were calculated based on the emission factors from the manufacturer specification sheets and performance data for each engine model provided by the equipment manufacturers (see **Appendix C**). For a conservative estimate of potential uncontrolled emissions, the potential site variation data are used in the emission calculations. The generator manufacturer data provide emission factors in mass per power output per hour (i.e., grams per brake horsepower hour or g/BHP-hr) at various engine operating loads (10%, 25%, 50%, 75%, and 100%). For each pollutant, the maximum (worst-case) emission factor across all load levels was selected for a conservative estimate of the hourly PTE (see **Appendix B**).

As previously stated in Section 2.1, emission controls that integrate SCR and cDPF will be applied for the critical emergency generators CEG No. 1 – 766 to meet the EPA Tier 4 equivalent emission standards. Three sets of control systems, manufactured by Miratech, Safety Power, and Caterpillar, respectively, have been chosen as three options, but a final selection has not been made. The manufacturer provided control efficiencies of each system are listed in **Table 3** below. The specification sheets of the three control systems are provided in **Appendix C**. The controlled PTE of CEG No. 1 – 766 was conservatively calculated based on the lowest control efficiency among the three sets for each pollutant.

Table 3 – Manufacturer Provided Control Efficiencies

Pollutant	Miratech Provided Control Efficiency	Caterpillar Provided Control Efficiency	Safety Power Provided Control Efficiency	Control Efficiency used in PTE Calculations
NO _x	91.7%	91.7%	91.7%	91.7%
CO	69.80%	75%	80%	69.8%
VOC	50%	45%	40%	40.0%
Filterable PM	68.6%	68.75%	75.6%	68.6%

Reduction of NO_x emissions occurs after the SCR catalyst bed temperature reaches 572°F, which is the minimum operating temperature limit provided by both manufacturers of the control systems. Catalyst bed temperature is the operating factor at which the SCR reduces NO_x emissions. The Site will monitor the catalyst bed temperature of each control device at least once every 15 minutes during engine operations.

CO and VOC emissions are reduced by the manufacturer provided reduction efficiencies when the media of the cDPF reaches 500°F regardless of engine load. Per manufacturer provided information, generator exhaust temperatures at all load levels are in excess of 600°F. As such, it is expected that CO and VOC control will be achieved essentially upon startup of each critical generator.

The cDPF provides control of PM emissions at all times.

Potential emissions of SO₂ and HAPs from all the emergency generators were calculated based on the emission factors from AP-42 Chapter 3.3 and Chapter 3.4. SO₂ emissions are based on the use of ULSD or renewable diesel that meets the ULSD standards, i.e. less than 0.0015% sulfur.

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. The PTE of the diesel fuel storage tanks, including the belly tanks and central fuel storage tanks, was calculated using the methodology presented in AP-42, Chapter 7.1 (Organic Liquid Storage Tanks). Detailed calculations are provided in **Appendix B, Table B.12 and B.18.**

The potential VOC emissions from all the diesel fuel storage tanks combined are approximately 0.38 tpy. No specific emission limits are proposed for the fuel storage tanks.

3.3 Facility Wide Potential Emissions

As provided in **Appendix B, Table B.1.a**, the facility wide uncontrolled PTE of NO_x, CO, and VOC without any emission control or operating limitations appears to be greater than the Title V and PSD major source threshold. However, the Site will limit the PTE of NO_x, CO, VOC, and PM by equipping each critical emergency generator with an emission control system and limiting the operating hours of the support emergency generators. **Table 4** below (and **Appendix B, Table B.1.b**) summarizes the limited PTE of the Site.

As shown in the table, the limited facility wide PTE of each criteria pollutant is below the PSD and Title V major source threshold. The Site will be a Synthetic Minor source as the limited PTE of all pollutants fall below the Title V threshold. 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 Limited Facility Wide PTE (tpy)

Emission Units	NO _x	CO	PM (filt.)	PM ₁₀ / PM _{2.5}	VOC	SO ₂	Total HAPs
CEG No. 1 - 766	45.0 ¹	90.0 ¹	55.0 ²	55.0 / 55.0 ²	45.0 ¹	9.40	8.53
All Support Gens	3.76 ²	2.64 ²	0.15 ²	0.25 / 0.24 ²	0.94 ²	0.08	0.06
All Diesel Fuel Storage Tanks	-	-	-	- / -	0.38	-	Neg.
Total	48.76	92.64	55.15	55.25 / 55.24	46.32	9.47	8.59
Notes: 1. Shaded cells indicate where limits are included. 2. The emission values listed above are based on standard emission factors and the limited operating hours for each generator type, as detailed in Section 3.4.							

Emission Units	NO _x	CO	PM (filt.)	PM ₁₀ / PM _{2.5}	VOC	SO ₂	Total HAPs
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PSD/EO Threshold	50	250	250	250	50	250	-
PSD/EO Triggered?	No	No	-	No	No	No	-

Title V Threshold	50	50	100	100	50	100	25
Title V Triggered?	No	No	No	No	No	No	No

3.4 Proposed Permit Limits

Amazon requests to set the following operating and emission limits for the emergency generators:

- Limit the NO_x, CO, and VOC emissions from CEG1 – CEG766, combined, below the following limits:

Pollutant	Proposed Emission Limits
NO _x	45 tpy
CO	90 tpy
VOC	45 tpy
PM / PM ₁₀ / PM _{2.5}	55 / 55 / 55 tpy

- Limit the operating hours of the support emergency generators as follows:

Emergency Generators	Proposed Operating Limits
AWB1 & AWB2, combined	≤ 100 operating hours per year
HEG1 – HEG11, combined	≤ 550 operating hours per year
CAB	≤ 50 operating hours per year
ACB1 & ACB2, combined	≤ 100 operating hours per year

Amazon requests not to set operating limits for the critical emergency generators CEG1 – CEG766, except those run time restrictions set in the federal NSPS rule 40 CFR 60.4211(f) for emergency internal combustion engines (see Section 4.1.3.2 below).

To comply with the proposed operating hour limits, the Site will track the operating hours of the support emergency generators on a monthly and 12-monthly rolling basis.

To comply with the above listed NO_x, CO, and VOC emission limits, the Site will track actual emissions from CEGs using the following calculation methodology:

$$NE = \text{Uncontrolled NO}_x + \text{Controlled NO}_x$$

$$= [(DFU_u)(NEF_u) + (DFU_c)(NEF_c)] / 2,000 \text{ lbs/ton}$$

Where:

$$NE = \text{Total NO}_x \text{ Emissions, tons per month}$$

$$= \text{Uncontrolled NO}_x \text{ emissions} + \text{Controlled NO}_x \text{ emissions}$$

DFU_U = Total Uncontrolled Diesel Fuel Usage, gallons per month

NEF_U = Uncontrolled Emission Factor for NO_x

= 0.279 pounds per gallon

NO_x emissions are considered uncontrolled until the SCR reaches an operating temperature of 572°F.

DFU_C = Total Controlled Diesel Fuel Usage, gallons per month

NEF_C = Controlled Emission Factor for NO_x

= 0.023 pounds per gallon

NO_x emissions are considered controlled after the SCR of the emissions control system reaches a minimum operating temperature of 572°F.

CE = $[(DFU_C)(CEF_C)] / 2,000$ lbs/ton

Where:

CE = Total Controlled CO Emissions, tons per month

DFU_C = Total Controlled Diesel Fuel Usage, gallons per month

CEF_C = Controlled Emission Factor for CO

= 0.020 pounds per gallon

VE = $[(DFU_C)(VEF_C)] / 2,000$ lbs/ton

Where:

VE = Controlled VOC Emissions, tons per month

DFU_C = Total Controlled Diesel Fuel Usage, gallons per month

VEF_C = Controlled Emission Factor for VOC

= 0.007 pounds per gallon

The emission factors of NO_x , CO, and VOC, in lbs/gal, were derived from the manufacturer provided emission data (see **Appendix B, Tables B.8.a & b**). The maximum lbs/gal emission factors across all load levels will be used for actual emission tracking. 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 the Site.

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 Lake County, which is designated as nonattainment for Ozone and attainment or unclassifiable for all other criteria pollutants. The New Source Review (NSR) program that potentially applies is NSR permitting requirements.

As shown in **Table 4** and **Appendix B**, Table B.1, potential site-wide emissions for all pollutants are below the PSD and non-attainment NSR major source thresholds; therefore, the Site will be a new minor PSD/EO source after construction of the proposed emergency generators with the applied limits.

4.1.2 Federally Enforceable State Operating Permit (FESOP)

A FESOP is for facilities that would otherwise be subject to the Part 70 program based on PTE but are willing to limit PTE below Title V major source thresholds. IDEM has incorporated the provisions of this program in 326 IAC Rule 8. As demonstrated in **Appendix B**, the proposed Site is a synthetic minor source because the Site has the potential to emit more than 100 tpy of NO_x, PM/PM₁₀/PM_{2.5}, VOC, and CO but has applied limits to bring emissions of these pollutants below 100 tpy each.

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 SBN500 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)
$130 \leq \text{kW} \leq 560$	Tier 3	2006	4.0	3.5	0.2
$\text{kW} > 560$	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 fuel oil 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 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 the 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-5-1-2 – Opacity Limits

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

- (a) Opacity from a facility located in Lake County shall not exceed an average of twenty percent (20%) in any one (1) six (6) minute averaging period. This opacity limit supersedes the opacity limit contained in 326 IAC 5-1-2(2)(B)
- (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

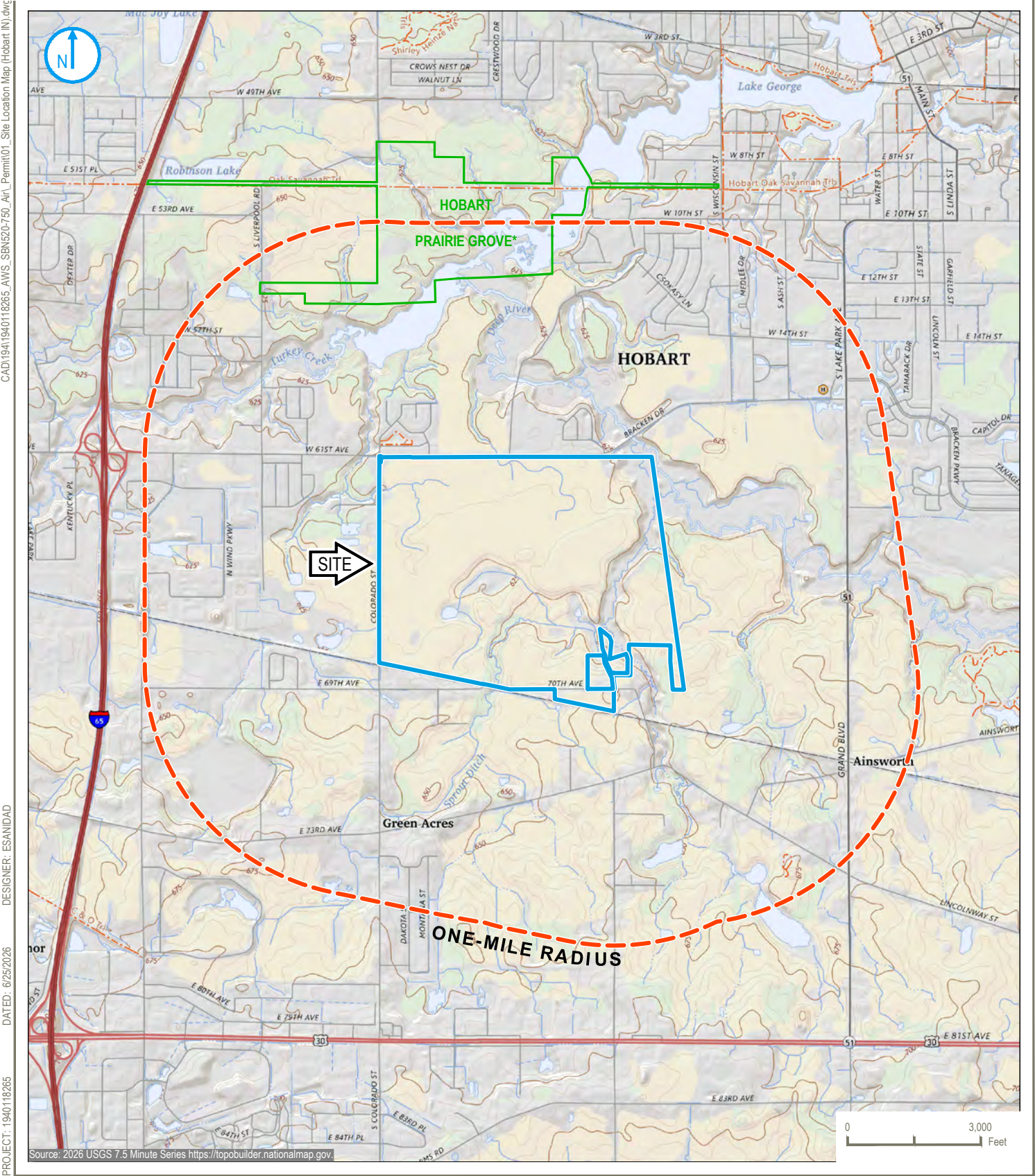
Sources are exempt from this rule if subject to a carbon monoxide emission limit, and the generators will be subject to the CO emission standards in NSPS IIII and synthetic minor limits.

4.2.7 326 IAC 10 – Nitrogen Oxides Rules

None of the NO_x rules in 326 IAC 10 applies to the emergency generators at the Site.

Amazon Data Services, Inc. - Application for New Source Minor PSD/Emission Offset Constructon Approval and FESOP

FIGURES



PROJECT: 1940118265
DATED: 6/25/2026
DESIGNER: ESANIDAD

CAD1941940118265_AWS_SBN520-750_Ar1_Permit01_Site Location Map (Hobart IN).dwg

Map Scale: 1:36,000 | Map Center: 41°29'56.8635", -87°17'7.0567"
*An outlying unit of Indiana Dunes National Park

SITE LOCATION MAP

FIGURE 01

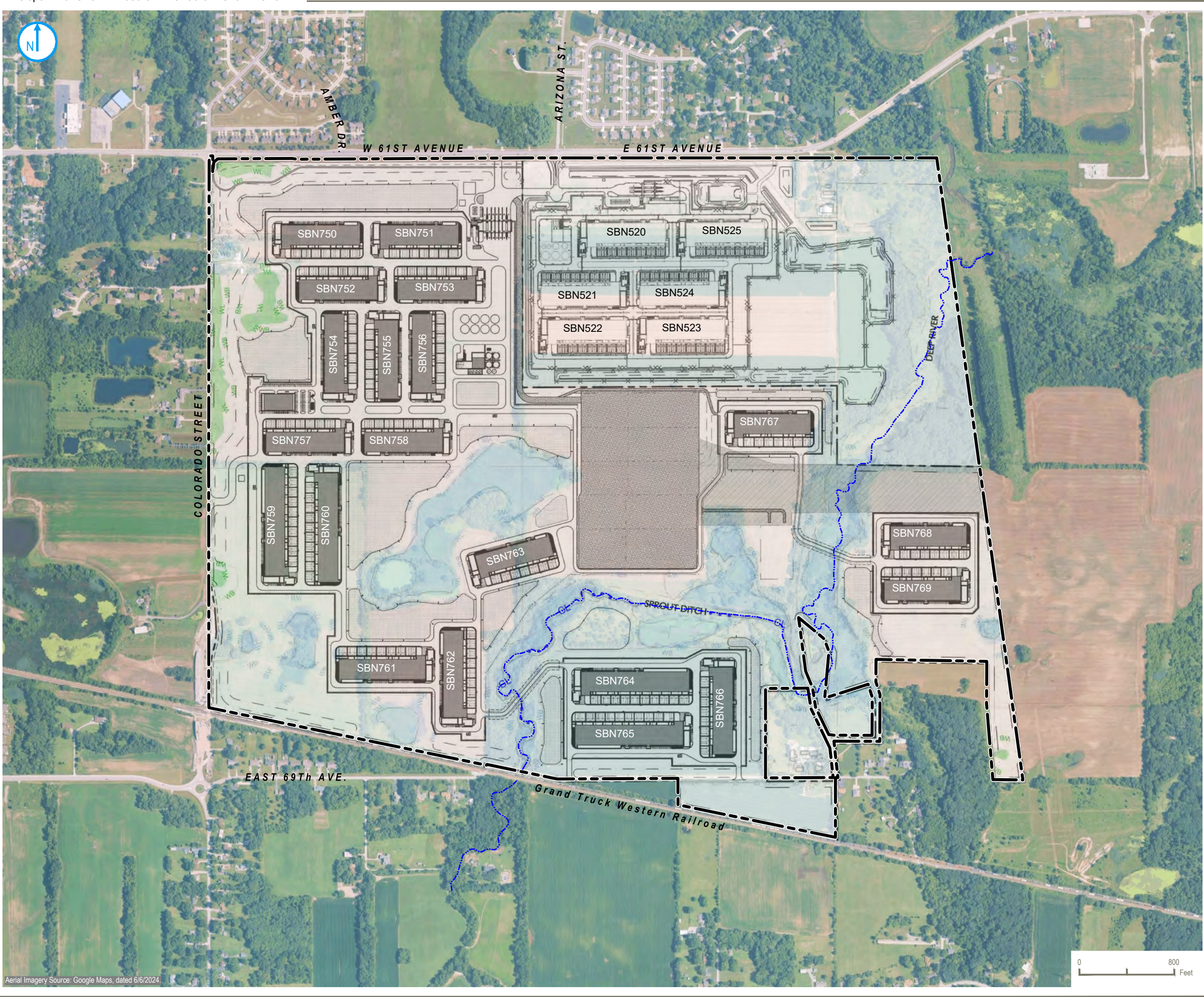


SBN520
4751 EAST 61ST AVENUE
HOBART, INDIANA

SBN750
6197 COLORADO STREET
HOBART, INDIANA

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY





PROPERTY BOUNDARY (APPROXIMATE)

SITE LAYOUT

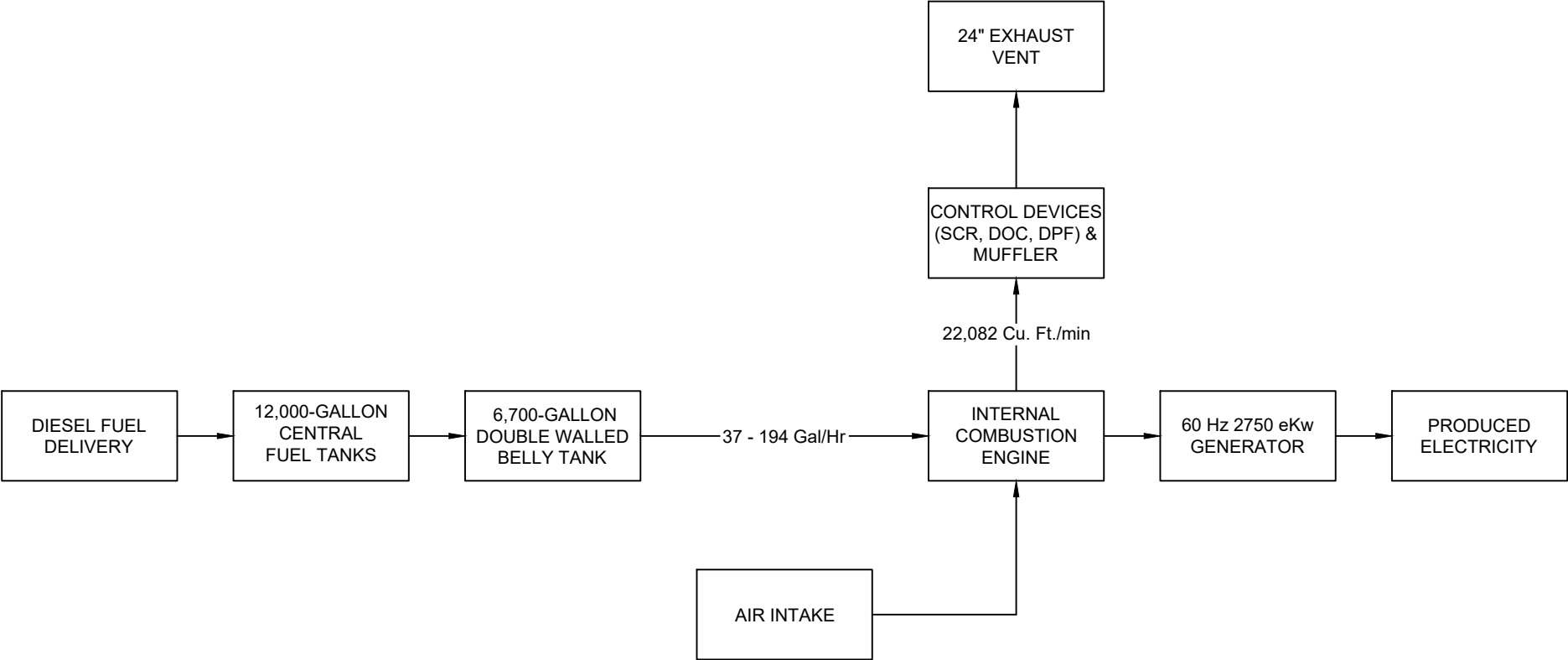
SBN520
4751 EAST 61ST AVENUE
HOBART, INDIANA

SBN750
6197 COLORADO STREET
HOBART, INDIANA

FIGURE 02

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY





PROCESS FLOW DIAGRAM

FIGURE 03

SBN 520
4751 EAST 61ST AVENUE
HOBART, INDIANA
SBN 750
6197 COLORADO STREET
HOBART, INDIANA

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY



Amazon Data Services, Inc. - Application for New Source Minor PSD/Emission Offset Construction Approval and FESOP

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:

089-50590-00739 –

DATE APPLICATION WAS RECEIVED:

Received by State of Indiana IDEM-
OAQ
via email July 24, 2026 MJ-1

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: Amazon Data Services, Inc.

3. Plant ID: –

4. Billing Address: 13820 Sunrise Valley Drive

City: Herndon

State: VA

ZIP Code: 20171 –

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

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.*

Robert Truedinger

Name (typed)

Signed by:

Robb Truedinger

83B51630A138463...

Signature

Authorized Representative

Title

July 22, 2026

Date




**OAQ GENERAL SOURCE DATA APPLICATION
GSD-01: Basic Source Level Information**

State Form 50640 (R5 / 1-10)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Received by State of Indiana IDEM-OAQ
via email July 24, 2026 MJ-1

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: Amazon Data Services, Inc.		2. Plant ID: —	
3. Location Address: 4751 E. 61st Avenue (SBN520) & 6197 Colorado St. (SBN750)			
City: Hobart		State: IN	ZIP Code: 46342 —
4. County Name: Lake		5. Township Name:	
6. Geographic Coordinates:			
Latitude: 41.499776°		Longitude: -87.288005°	
7. Universal Transferal Mercadum Coordinates (if known):			
Zone: 16T	Horizontal: 475959.51 m E	Vertical: 4594282.09 m N	
8. Adjacent States: Is the source located within 50 miles of an adjacent state?			
☐ No ☒ Yes – <i>Indicate Adjacent State(s):</i> ☒ 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 – <i>Indicate Nonattainment Pollutant(s):</i> ☐ 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 – <i>Provide information regarding past company names in Part I, Company Name History.</i>
13. Portable Source Location History: Will the location of the portable source be changing in the near future?
☒ Not Applicable ☐ No ☐ Yes – <i>Complete Part J, Portable Source Location History, and Part K, Request to Change Location of Portable Source.</i>
14. Existing Approvals: Have any exemptions, registrations, or permits been issued to this source?
☒ No ☐ Yes – <i>List these permits and their corresponding emissions units in Part M, Existing Approvals.</i>
15. Unpermitted Emissions Units: Does this source have any unpermitted emissions units?
☒ No ☐ Yes – <i>List all unpermitted emissions units in Part N, Unpermitted Emissions Units.</i>
16. New Source Review: Is this source proposing to construct or modify any emissions units?
☐ No ☒ Yes – <i>List all proposed new construction in Part O, New or Modified Emissions Units.</i>
17. Risk Management Plan: Has this source submitted a Risk Management Plan?
☒ Not Required ☐ No ☐ Yes → Date submitted: _____ EPA Facility Identifier: — —

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: David Monaghan

19. Title (optional): Sr. Air Quality Engineer, AMER

20. Mailing Address: 800 North High Street

City: Columbus

State: OH

ZIP Code: 43215 –

21. Electronic Mail Address (optional): dmonagh@amazon.com

22. Telephone Number: (614) 312 – 7306

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: Robert Truedinger

25. Title: Environmental Director

26. Mailing Address: 1812 Boren Avenue

City: Seattle

State: WA

ZIP Code: 98101 –

27. Telephone Number: (614) 312 – 7306

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: Amazon Data Services, Inc.

31. Name of Owner Contact Person: David Monaghan

32. Mailing Address: 800 North High Street

City: Columbus

State: OH

ZIP Code: 43215 –

33. Telephone Number: (614) 312 – 7306

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): () –

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: Hobart Branch of the Lake County Public Library		
50. Name of Librarian (optional):		
51. Mailing Address: 100 Main St		
City: Hobart	State: IN	ZIP Code: 46342 –
52. Internet Address (optional):		
53. Electronic Mail Address (optional):		
54. Telephone Number: (219) 942 – 2243	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
	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:**

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 are emergency generators, which generate electricity to provide emergency power supply to the data center operation.	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
CEG1 - CEG766	Y		Diesel powered emergency generators (critical emergency gens)			
HEG1 - HEG11	Y		Diesel powered emergency generators (house emergency gens)			

AWB1 & AWB2	Y		Diesel powered emergency generators for water cooling system and fire emergency			
CAB, ACB1, & ACB2	Y		Diesel powered emergency generators (ancillary gens for Central Admin Building and Access Control Buildings)			
Diesel fuel storage tanks	Y		Diesel fuel storage, including 766 belly tanks in various sizes for the generators and 26 aboveground central fuel storage tanks.			

**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.

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 (<i>unless</i> SSOA).	
☐ Y ☒ N	PI-02B	<i>Combustion:</i> Boilers, Process Heaters, & Furnaces	52536	Include one form for each boiler, process heater, or furnace (<i>unless</i> SSOA).	
☒ Y ☐ N	PI-02C	<i>Combustion:</i> Turbines & Internal Combustion Engines	52537	Include one form for each turbine or internal combustion engine (<i>unless</i> SSOA).	
☐ Y ☒ N	PI-02D	<i>Combustion:</i> Incinerators & Combustors	52538	Include one form for each incinerator or combustor (<i>unless</i> SSOA).	
☐ Y ☒ N	PI-02E	<i>Combustion:</i> Kilns	52539	Include one form for each kiln (<i>unless</i> SSOA).	
☒ Y ☐ N	PI-02F	<i>Combustion:</i> Fuel Use	52540	Include one form for each combustion unit (<i>unless</i> SSOA).	
☒ Y ☐ N	PI-02G	<i>Combustion:</i> Emission Factors	52541	Include one form for each combustion unit (<i>unless</i> SSOA).	
☒ Y ☐ N	PI-02H	<i>Combustion:</i> Federal Rule Applicability	52542	Include one form for each combustion unit (<i>unless</i> 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 (<i>unless general permit</i>).	
☐ 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 (<i>unless</i> SSOA).	
☐ Y ☒ N	PI-09	Degreasing	52549	Include for each degreasing process (<i>unless</i> 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 (<i>unless</i> 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 (<i>unless</i> SSOA).
☐ Y ☒ N	PI-18	Mineral Processing	52559	Include if the process involves mineral processing (<i>unless</i> SSOA).
☐ Y ☒ N	PI-19	Surface Coating & Printing Operations	52560	Include for each surface coating or printing process (<i>unless</i> SSOA).
☐ Y ☒ N	PI-20	Woodworking / Plastic Machining	52561	Include for each woodworking or plastic machining process (<i>unless</i> SSOA).
☐ Y ☒ N	PI-21	Site Remediation	52570	Include for each soil remediation process.
☐ Y ☒ N	PI-22	Ethanol Plants (<i>Under Development</i>)	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.

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.

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.

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-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 (<i>for processes vented inside a building</i>)

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	

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.)

Continued on Next Page

IDEM OAQ Form GSD-02, Part D
Source Building Information

Amazon Data Services, Inc. - SBN520/750

Building ID	Building Description	Building Dimensions			Distance & direction to the nearest property line or access limiting feature (feet & compass direction)	Distance & direction to the nearest residence (feet & compass direction)
		Length (feet)	Width (feet)	Height (feet)		
SBN520	Data Center V 1.1	658.00	212.75	68.80	850 ft, North	1080 ft, North
SBN521	Data Center V 1.1	658.00	212.75	68.80	1380 ft, North	1570 ft, North
SBN522	Data Center V 1.1	658.00	212.75	68.80	2180 ft, North	2380 ft, North
SBN523	Data Center V 1.1	658.00	212.75	68.80	2180 ft, North	2340 ft, North
SBN524	Data Center V 1.1	658.00	212.75	68.80	1380 ft, North	1500 ft, North
SBN525	Data Center V 1.1	658.00	212.75	68.80	850 ft, North	1080 ft, North
ACB-1	Access Control Building 1	50.00	30.00	17.08	400 ft, North	650 ft, North
AWB-1	Auxillary Water Building 1	102.83	89.33	26.00	850 ft, North	1100 ft, North
SBN750	Data Center V 1.1	658.00	212.75	68.80	800 ft, West	900 ft, West
SBN751	Data Center V 1.1	658.00	212.75	68.80	850 ft, North	100 ft, North
SBN752	Data Center V 1.1	658.00	212.75	68.80	1000 ft, West	1150 ft, West
SBN753	Data Center V 1.1	658.00	212.75	68.80	1200 ft, North	1450 ft, North
SBN754	Data Center V 1.1	658.00	212.75	68.80	900 ft, West	980 ft, West
SBN755	Data Center V 1.1	658.00	212.75	68.80	1300 ft, West	1380 ft, West
SBN756	Data Center V 1.1	658.00	212.75	68.80	1700 ft, West	1780 ft, West
SBN757	Data Center V 1.1	658.00	212.75	68.80	700 ft, West	960 ft, West
SBN758	Data Center V 1.1	658.00	212.75	68.80	1500 ft, West	1760 ft, West
SBN759	Data Center V 1.2	927.00	220.00	68.80	410 ft, West	1000 ft, West
SBN760	Data Center V 1.2	927.00	220.00	68.80	880 ft, West	1400 ft, West
SBN761	Data Center V 1.2	731.80	220.00	68.80	570 ft, South	900 ft, South
SBN762	Data Center V 1.2	731.80	220.00	68.80	450 ft, South	750 ft, South
SBN763	Data Center V 1.2	658.00	212.75	68.80	1500 ft, South	1750 ft, South
SBN764	Data Center V 1.2	927.00	220.00	68.80	810 ft, South	1450 ft, South
SBN765	Data Center V 1.2	927.00	220.00	68.80	450 ft, South	1250 ft, South
SBN766	Data Center V 1.2	731.80	220.00	68.80	680 ft, South	1270 ft, East
SBN767	Data Center V 1.2	658.00	212.75	68.80	1680 ft, East	2400 ft, North
SBN768	Data Center V 1.2	658.00	212.75	68.80	550 ft, East	1680 ft, South
SBN769	Data Center V 1.2	658.00	212.75	68.80	600 ft, East	1350 ft, South
ACB-2	Access Control Building 2	50.00	30.00	17.08	640 ft, North	1100 ft, North
AWB-2	Auxillary Water Building 2	102.83	89.33	26.00	1280 ft, North	1700 ft, North
CAB	Central Admin Building	247.20	135.20	23.00	420 ft, West	540 ft, West

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.)*

[illegible]

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. (<i>If additional space is needed, please attach a separate sheet with the information and indicate in the space below that additional information is attached.</i>) |

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

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 |

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

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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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
CEG1 - CEG76 6	CAT 3516E		766 critical emergency generators, powered by Tier 2 certified diesel engines, with controls to meet Tier 4 equivalent emission standards.	Caterpillar	Est. Q2 2027	2750.00 kW, each	S-1 through S-766
AWB1 & AWB2	CAT 3512C		Two (2) ancillary emergency generator for water cooling system and fire emergency, Tier 2 certified engines, no control.	Caterpillar	Est. Q2 2027	1600.00 kW	S-AWB1 & S-AWB2
HEG1 - HEG11	CAT C18 or C27		Eleven (11) house gens, powered by Tier 2 certified diesel engines, no control.	Caterpillar	Est. Q2 2027	750.00 kW, each	S-HEG1 thru S-HEG11
CAB	CAT C13		One (1) ancillary emergency generator for CAB (Admin Building)	Caterpillar	Est. Q2 2027	400.00 kW	S-CAB
ACB1 & ACB2	CAT C9		Two (2) ancillary emergency generator for ACB (Security Buildings)	Caterpillar	Est. Q2 2027	250.00 kW	S-ACB1 7 S-ACB2
TK 1 - 26	TBD		Twenty-six (26) 12,000-gal aboveground storage tanks for storage of diesel fuel	TBD	Est. Q2 2027	12000.00 gal ea	V-TK1 thru V-TK26
CEG BT1 - 766			Fuel belly tanks for CEG1 - CEG766			6700.00 gal ea	
AWB BT1 & 2			Fuel belly tanks for AWB1 and AWB2			2640.00 gal ea	

HEG BT1 thru HEG BT11			Fuel belly tanks for HEG 1 - 11			1367.00 gal ea	
CAB BT			Fuel belly tank for CAB			770.00 gal	
ACB BT1 & 2			Fuel belly tanks for ACB1 & ACB2			495.00 gal ea	

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Page 1 of 3

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
CEG1 - CEG766	☐ No Control ☐ Dust Suppression ☒ Other: <u>Control System</u>	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) and Catalyzed Diesel Particulate Filter (cDPF) to meet EPA Tier 4 equivalent emission standards.	☐ Yes ☒ No Date Submitted: _____
AWB1 & AWB2	☒ No Control ☐ Dust Suppression ☐ Other: _____		☐ Yes ☐ No Date Submitted: _____
HEG1 - HEG11	☒ No Control ☐ Dust Suppression ☐ Other: _____		☐ Yes ☐ No Date Submitted: _____
CAB	☒ No Control ☐ Dust Suppression ☐ Other: _____		☐ Yes ☐ No Date Submitted: _____
ACB1 & ACB2	☒ 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: _____
	☐ No Control ☐ Dust Suppression ☐ Other: _____		☐ Yes ☐ No Date Submitted: _____

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: <i>Check all that apply.</i>	15. Control Measures:	
☐ Conveying:	☐ Wet	☐ Dry
☐ Stock Piles:	☐ Open	☐ Covered
☐ Unpaved Roads: <i>Watered?</i>	☐ Yes	☐ No
☐ Other <i>(specify)</i> :		
☐ Other <i>(specify)</i> :		
☐ Other <i>(specify)</i> :		

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.

[illegible]

State Form 51602 (R3 / 1-10)

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

- 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 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.

Page 1 of 2

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)				
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 (<i>specify</i>):				

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				
Flanges				
Open-Ended Lines				
Pressure Relief Seals				
Pump Seals				
Sampling Connections				
Valves				
Other (<i>specify</i>):				

State Form 51604 (R3 / 1-10)

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

- 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 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.

[illegible]

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

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					
Flanges					
Open-Ended Lines					
Pressure Relief Seals					
Pump Seals					
Sampling Connections					
Valves					
Other <i>(specify)</i> :					



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)
All the diesel fuel storage tanks	1. Any activity or emission unit:	2-7-1(40)(A)
	☒ 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	

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)
	☐ Water jet cutting operations	

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	

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	

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	

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	

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	
	☐ Infrared 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: ☐ Purging of gas lines ☐ Purging of vessels	2-7-1(21)(G)(xvii)
	35. Flue gas conditioning systems and associated chemicals such as the following: ☐ Sodium sulfate ☐ Ammonia ☐ Sulfur trioxide.	2-7-1(21)(G)(xviii)
	36. Equipment used to collect any material that might be released during a malfunction, process upset, or spill cleanup, including the following: ☐ Catch tanks ☐ Temporary liquid separators ☐ Tanks ☐ Fluid handling equipment	2-7-1(21)(G)(xix)
	37. Blowdown for the following: ☐ Sight glass ☐ Boiler ☐ Compressors ☐ Pumps ☐ Cooling tower	2-7-1(21)(G)(xx)
	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: ☐ On-site fire training approved by the IDEM ☒ Emergency generators as follows: ☐ Gasoline generators not exceeding one hundred ten (110) horsepower ☒ Diesel generators not exceeding one thousand six hundred (1,600) horsepower	2-7-1(21)(G)(xxii)
HEG1- HEG11 , CAB, ACB1, ACB2	☐ 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: ☐ Deburring ☐ Polishing ☐ Pneumatic conveying ☐ Buffing ☐ Abrasive blasting ☐ Woodworking operations	2-7-1(21)(G)(xxiii)
	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)(xxviii)

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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	

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 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) $\leq$ 25 lb/day	Particulate Matter with aerodynamic diameter $\leq$ 10 μ m (PM ₁₀) $\leq$ 5 lbs/hr or 25 lb/day
Lead (Pb) $\leq$ 0.6 ton/yr or 3.29 lb/day	Sulfur Dioxide (SO ₂) $\leq$ 5 lbs/hr or 25 lb/day
Nitrogen Oxides (NO _x) $\leq$ 5 lbs/hr or 25 lb/day	Volatile Organic Compounds (VOC) $\leq$ 3 lbs/hr or 15 lb/day

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

[illegible]

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

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.

[illegible]



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.

Robert Truedinger, being first duly sworn upon oath, deposes and says:

- I live in _____ County, State of _____, and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.
- I hold the position of Environmental Director for Amazon Data Services, Inc. (permit applicant's or facility's name).
- By virtue of my position with Amazon Data Services, Inc. (permit applicant's name), I am authorized to make the representation contained in this affidavit on behalf of the facility.
- I understand that the notice requirements of Ind. Code §13-15-8 applies to Amazon Data Services, Inc. - SBN520/750 Site (permit applicant's or facility's name) for purposes of the accompanying permit application.
- 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 site located at 4751 E. 61st Avenue and 6197 Colorado St., Hobart, IN 46342 (briefly describe type of permit application) filed on behalf of Amazon Data Services, Inc. (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.

Robert Truedinger

Name (typed)

Signature

Signed by:

Robb Truedinger

83B51630A138463...

Environmental Director

Title

Date

July 22, 2026

STATE OF _____

COUNTY OF _____

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 _____, and being first duly sworn by me upon oath, says that the fact stated in the foregoing instrument are true. Signed and sealed this _____ of _____, 20____

Printed: _____ My Commission Expires: _____

Residence of _____ County _____





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: See the attached list of adjacent landowners and occupants

2. Date Notified:

3. Address:

City:

State:

ZIP Code: —

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):

List of Adjacent Landowners and Occupants

Parcel source from Lake County's website: <https://experience.arcgis.com/experience/1867699965349e492506de765490541/page/Parcel-Info>

FeatID	PARCELID	mdeededOwn	LocstreetN	LocstreetD	Locstreet_1	LocstreetS	Loccity	Locstate	LoczipCode	mailstreet	mailstre_1	mailstre_2	mailstre_3	mailcity	mailstate	mailzipCod
1	45-12-01-357-012.000-018	Elkins, Kevin	3021		TOPAZ	DR	HOBART	IN	46342	3021		Topaz	DR	Hobart	IN	46342
2	45-12-01-479-026.000-018	Duenas, Ramon Magdaleno	4480	E	61ST	AVE	HOBART	IN	46342	4470	E	61st	AVE	Hobart	IN	46342
3	45-13-07-300-013.000-046	Tuhaus LLC			GIBSON	PL	HOBART	IN	46342	1045		Elm Street, Suite 204		Manchester	NH	03101
4	45-12-11-226-008.000-046	Tri-State Holdings LLC	6194	S	COLORADO	ST	HOBART	IN	46342			PO Box 2629		Addison	TX	75001
5	45-12-01-357-025.000-018	Garrity, Shawn	2901		TOPAZ	DR	HOBART	IN	46342	2901		Topaz	DR	Hobart	IN	46342
6	45-12-01-357-010.000-018		3029		TOPAZ	DR	HOBART	IN	46342							
7	45-12-01-479-025.000-018	Duenas, Ramon Magdaleno	4470	E	61ST	AVE	HOBART	IN	46342	4470	E	61st	AVE	Hobart	IN	46342
8	45-13-07-300-001.000-046	Tuhaus LLC	6600		ELKHART	ST	HOBART	IN	46342	1045		Elm Street, Suite 204		Manchester	NH	03101
9	45-12-01-480-013.000-018	Mikkos, Roger G & Carole S	5		DEEP RIVER	DR	HOBART	IN	46342	5		Deep River	DR	Hobart	IN	46342-5750
10	45-13-07-300-004.000-046	Tuhaus LLC	5050	E	70TH	AVE	MERRILLVILLE	IN	46410	1045		Elm Street, Suite 204		Manchester	NH	03101
11	45-12-12-200-005.000-046	Hobart Owner LLC		E	61ST	ST	HOBART	IN	46342	10210	N	Central Expy., Ste 300		Dallas	TX	75231
12	45-12-12-351-013.000-046	Reeves, Kahlee	3380	E	69TH	AVE	HOBART	IN	46342	3380	E	69th	AVE	Merrillville	IN	46410
13	45-12-13-227-002.000-046	Colvin, Ronald G Colvin Living Trust (und 1	4830	E	73RD	AVE	MERRILLVILLE	IN	46410	7235		Dekalb	ST	Merrillville	IN	46410
14	45-13-06-352-001.000-018	Tinney, Joe R and Kaye T Tinney H & W	5001	E	61ST	AVE	HOBART	IN	46342	5001	E	61st	AVE	Hobart	IN	46342
15	45-12-11-226-007.000-046	Lake County Trust Company Trs Tr #5905	6192	S	COLORADO	ST	HOBART	IN	46342	6192	S	Colorado	ST	Hobart	IN	46342
16	45-13-18-126-001.000-046	Northern Indiana Public Service	5405	E	70TH APPR	AVE	HOBART	IN	46342	290	W	Nationwide Blvd, PO Box 117		Columbus	OH	43215
17	45-12-12-200-010.000-046	Hobart Redevelopment Commission	6350	E	61st	ST	Hobart	IN	46342	414		Main	ST	Hobart	IN	46342
18	45-13-07-300-005.000-046	Lipke, DeForest & Tex Onedita h&w (1/2int	5050	E	70TH	AVE	MERRILLVILLE	IN	46410	636		Lake	ST	Hobart	IN	46342
19	45-13-07-300-014.000-046	Tuhaus LLC			EX GIBSON	PL	HOBART	IN	46342	1045		Elm Street, Suite 204		Manchester	NH	03101
20	45-12-12-351-011.000-046	Steward, Allen Dakota & Jerrica Steward H	3554	E	69TH	AVE	MERRILLVILLE	IN	46410	2301		Oakwood	LN	Lowell	IN	46356
21	45-12-11-276-008.000-046	Bolek, Daniel S & Deborah M	6500		COLORADO APPROX	ST	HOBART	IN	46342	6476		Colorado	ST	Hobart	IN	46342-5329
22	45-12-11-227-009.000-046	Fantini, Jaime S (Jill Fantini retains her int)	OUTLOT		AT 3010 1/2 E62ND		HOBART	IN	46342	6264	S	Colorado	ST	Hobart	IN	46342
23	45-12-11-276-003.000-046	Fantini, Jaime S (Jill Fantini retains her int)	6264	S	COLORADO		HOBART	IN	46342	6264	S	Colorado	ST	Hobart	IN	46342
24	45-13-18-102-001.000-046	Carl, Diane L	6913		DEKALB	ST	MERRILLVILLE	IN	46410	6913		Dekalb	ST	Merrillville	IN	46410
25	45-12-01-481-001.000-018	City of Hobart	SE		COR OF 61ST & DPRVR	DR	HOBART	IN	46342	414		Main	ST	Hobart	IN	46342-2248
26	45-13-07-100-002.000-046	Northern Indiana Public Service	6101		EX DEKALB	ST	HOBART	IN	46342	290	W	Nationwide Blvd, PO Box 117		Columbus	OH	43215
27	45-12-01-357-005.000-018	Tittle, Debra L	3115		TOPAZ	DR	HOBART	IN	46342	3115		Topaz	DR	Hobart	IN	46342
28	45-12-01-357-008.000-018	Torres, Mariah A	3045		TOPAZ	DR	HOBART	IN	46342	3045		Topaz	DR	Hobart	IN	46342
29	45-13-07-300-009.000-046	Froedg, Carl D & Elizabeth A H&W	5200	E	70TH	AVE	MERRILLVILLE	IN	46410	5200	E	70th	AVE	Merrillville	IN	46410
30	45-12-01-357-021.000-018	Mackie-Wilson, Nikkia	2925		TOPAZ	DR	HOBART	IN	46342	2925		Topaz	DR	Hobart	IN	46342
31	45-12-12-400-002.000-046	Wirtz Harold F and Marianne Wirtz, Co-Trs	5010	E	70TH	AVE	MERRILLVILLE	IN	46410	5010	E	70th	ST	Merrillville	IN	46410
32	45-12-12-200-008.000-046	Hobart Owner LLC		E	61st	ST	Hobart	IN	46342	10210	N	Central Expy., Ste 300		Dallas	TX	75231
33	45-12-01-357-001.000-018	Lipscomb, Joe IV	3139		TOPAZ	DR	HOBART	IN	46342	3139		Topaz	DR	Hobart	IN	46342
34	45-12-12-200-009.000-046	Ewen Deep River Farm LLC	4751	E	61st	AVE	Hobart	IN	46342	4767	E	61st	AVE	Hobart	IN	46342
35	45-12-01-357-004.000-018	Nunn, Peggy A	3119		TOPAZ	DR	HOBART	IN	46342	3119		Topaz	DR	Hobart	IN	46342
36	45-12-12-351-006.000-046	Buggs, Carlyle A	3414 3416	E	69TH	AVE	MERRILLVILLE	IN	46410	3414-16	E	69th	AVE	Merrillville	IN	46410
37	45-13-18-102-002.000-046	Massa, Chris	7070		DEKALB	ST	MERRILLVILLE	IN	46410	7070		Dekalb	ST	Merrillville	IN	46410
38	45-13-07-100-005.000-046	Northern Indiana Public Service	6100		ELKHART	ST	HOBART	IN	46342	290	W	Nationwide Blvd, PO Box 117		Columbus	OH	43215
39	45-12-12-502-001.000-046	Chicago & Grand Trunk Rr	6957		RR COL 3600 E 69TH	AVE	MERRILLVILLE	IN	46410			Po Box 5025		Troy	MI	48007-5025
40	45-12-12-400-001.000-046	Tuhaus LLC	6800		CLAY APPROX	ST	HOBART	IN	46342	1045		Elm Street, Suite 204		Manchester	NH	03101
41	45-13-07-300-011.000-046	Northern Indiana Public Service	6900		FLOYD	ST	HOBART	IN	46342	290	W	Nationwide Blvd, PO Box 117		Columbus	OH	43215
42	45-12-13-226-001.000-046	Tuhaus LLC	4701	E	69TH APPR	AVE	MERRILLVILLE	IN	46410	1045		Elm Street, Suite 204		Manchester	NH	03101
43	45-12-12-351-009.000-046	Doherty, Michael J	3506	E	69TH	AVE	MERRILLVILLE	IN	46410	3506	E	69th	AVE	Merrillville	IN	46410
44	45-12-01-454-007.000-018	Trejo, Pilar	2117		Tawny	ST	Hobart	IN	46342	2117		Tawny	ST	Hobart	IN	46342
45	45-12-01-357-028.000-018	Smith, Earl H, III	2945		TOPAZ	DR	HOBART	IN	46342	2945		Topaz	DR	Hobart	IN	46342
46	45-12-12-301-001.000-046	WC TMG Indiana 65 LLC	6775		COLORADO APPROX	ST	MERRILLVILLE	IN	46410	10		Pkwy N Blvd, #120		Deerfield	IL	60015
47	45-13-18-101-003.000-046	Robinson, Eugene	5175	E	70TH	AVE	MERRILLVILLE	IN	46410	5175	E	70th	AVE	Merrillville	IN	46410
48	45-12-01-454-009.000-018	Rios, Manuel & Brenda Rios h&w	2055		Tawny	ST	Hobart	IN	46342	2055		Tawny	ST	Hobart	IN	46342
49	45-13-18-101-001.000-046	TradeWinds Services Inc	5095	E	70TH	AVE	MERRILLVILLE	IN	46410	3198	E	63RD	PL	Merrillville	IN	46410
50	45-12-01-357-003.000-018	Stevenson, Catlin Page	3131		TOPAZ	DR	HOBART	IN	46342	3131		Topaz	DR	Hobart	IN	46342
51	45-13-18-101-004.000-046	Massengill, Michael (Denise Massengill R	6974		DEKALB	ST	HOBART	IN	46342	6974		Dekalb	ST	Merrillville	IN	46410
52	45-13-07-300-006.000-046	Lipke, DeForest & Tex Onedita h&w (1/2int	5050	E	70TH	AVE	MERRILLVILLE	IN	46410	636		Lake	ST	Hobart	IN	46342
53	45-12-13-502-001.000-046	Grand, Trunk Western R.r.	RR		4100-4900 EX E 70TH AV		HOBART	IN	46342			Po Box 5025		Troy	MI	48007-5025
54	45-12-01-454-006.000-018	Franklin, Terrell & Monique h&w	2195		Tawny	ST	Hobart	IN	46342	2195		Tawny	ST	Hobart	IN	46342
55	45-12-13-126-014.000-046	Turner, Matthew A and Amber Turner, H & W	3400	E	70TH	AVE	MERRILLVILLE	IN	46410	3400	E	70th	AVE	Merrillville	IN	46410
56	45-12-01-357-022.000-018	Love, Viola M & Vinson w&h	2921		TOPAZ	DR	HOBART	IN	46342	2921		Topaz	DR	Hobart	IN	46342
57	45-13-07-300-010.000-046	Lipke, DeForest & Tex Onedita h&w (1/2int	5050	E	70TH	AVE	MERRILLVILLE	IN	46410	636		Lake	ST	Hobart	IN	46342
58	45-12-12-351-004.000-046	Bryant, Vickie Jane and James Hartley Brya	3354	E	69TH	AVE	MERRILLVILLE	IN	46410	3354	E	69th	AVE	Merrillville	IN	46410
59	45-12-12-351-003.000-046	Ferba, Eric W Jr	3312	E	69TH	AVE	MERRILLVILLE	IN	46410	3310-12	E	69th	AVE	Merrillville	IN	46410
60	45-12-01-376-001.000-018	Redevelopment Commission of the City of	4010	E	61ST	AVE	HOBART	IN	46342	414		Main	ST	Hobart	IN	46342
61	45-12-13-201-001.000-046	Lake County Trust No. 5740	4101	E	69TH APPR	AVE	MERRILLVILLE	IN	46410	9800		Connecticut St Ste 82-900		Crown Point	IN	46307
62	45-12-13-201-001.000-046	Lake County Trust No. 5740	4101	E	69TH APPR	AVE	MERRILLVILLE	IN	46410	9800		Connecticut St Ste 82-900		Crown Point	IN	46307
63	45-12-01-357-006.000-018	Huizar, Francisco J & Christine A Kelley J/T	3111		TOPAZ	DR	HOBART	IN	46342	3111		Topaz	DR	Hobart	IN	46342
64	45-12-01-479-019.000-018	Shanks, John	4420	E	61ST	AVE	HOBART	IN	46342	4420	E	61st	AVE	Hobart	IN	46342
65	45-12-01-358-015.000-018	Kramer, Cyndia L Kramer Revoc Trust	1777		AMBER	DR	HOBART	IN	46342	1777		Amber	DR	Hobart	IN	46342
66	45-12-01-454-005.000-018	Eagle Creek Property Owners' Association</														

List of Adjacent Landowners and Occupants

Parcel source from Lake County's website: <https://experience.arcgis.com/experience/18676999665349e492506de765490541/page/Parcel-Info>

FeatID	PARCELID	mdeededOwn	LocstreetW	LocstreetD	Locstreet_1	LocstreetS	Loccity	Locstate	LoczipCode	mailstreet	mailstre_1	mailstre_2	mailstre_3	mailcity	mailstate	mailzipCod
84	45-13-18-101-002.000-046	TradeWinds Services Inc.	5131-39	E	70TH	AVE	MERRILLVILLE	IN	46410	3198	E	83RD	PL	Merrillville	IN	46410
85	45-12-11-276-004.000-046	Fleener, Robert Jeffrey, Emma Mallek & E	6296	S	COLORADO		HOBART	IN	46342	6296	S	Colorado		Hobart	IN	46342
86	45-12-11-276-006.000-046	Barajas, Elizardo	6400		COLORADO	ST	HOBART	IN	46342	6400		Colorado	ST	Hobart	IN	46342
87	45-12-01-454-010.000-018	Sales, Ryan A and Anastasia P Sales H & V	2031		Tawny	ST	Hobart	IN	46342	2031		Tawny		Hobart	IN	46342
88	45-12-01-479-029.000-018	Piazza, Lauren Ashley	4		DEEP RIVER	DR	HOBART	IN	46342	4		Deep River	DR	Hobart	IN	46342
89	45-12-01-357-024.000-018	Tribble, Janine C	2905		TOPAZ	DR	HOBART	IN	46342	2905		Topaz	DR	Hobart	IN	46342
90	45-12-01-357-029.000-018	Benedict, Alexandra C	2941		TOPAZ	DR	HOBART	IN	46342	2941		Topaz	DR	Hobart	IN	46342
91	45-12-11-227-008.000-046	Capgrow Holdings JV Sub VI LLC	3142	E	62ND	PL	HOBART	IN	46342	320	W	Ohio Street Suite 650		Chicago	IL	60654
92	45-12-01-358-010.000-018	Dixon, Kathyleen T	1773		AMBER	DR	HOBART	IN	46342	1773		Amber Drive		Hobart	IN	46342
93	45-12-11-226-004.000-046	Guzman, Esmeralda	6110	S	COLORADO	ST	HOBART	IN	46342	6110	S	Colorado	ST	Hobart	IN	46342
94	45-12-11-400-008.000-046	Stone Meadow LLC	6716		Colorado	st	Hobart	IN	46342	6716		Colorado	ST	Hobart	IN	46342
95	45-13-07-100-001.000-046	Santiago, Angie Diaz	4785	E	61ST	AVE	HOBART	IN	46342	4785	E	61st	AVE	Hobart	IN	46342
96	45-12-01-376-002.000-018	Hobart, City of		E	61ST	AVE	HOBART	IN	46342	414		Main	ST	Hobart	IN	46342
97	45-12-11-362-001.000-046	Grand Trunk Ry. Co.	1600 3200		EX E 67TH	AVE	HOBART	IN	46342			Po Box 5025		Troy	MI	48007-5025
98	45-12-01-358-016.000-018	Williams, Alexander M & Barbara h&w	1775		AMBER	DR	HOBART	IN	46342	1775		Amber	DR	Hobart	IN	46342
99	45-12-12-351-010.000-046	Berg, Louis M	3512	E	69TH	AVE	HOBART	IN	46342	3512	E	69th	AVE	HOBART	IN	46342
100	45-12-01-357-002.000-018	Johnson, Willie E Jr	3135		TOPAZ	DR	HOBART	IN	46342	3135		Topaz	DR	Hobart	IN	46342
101	45-12-11-276-007.000-046	Bolek, Daniel S & Deborah M	6476		COLORADO	ST	HOBART	IN	46342	6476		Colorado	ST	Hobart	IN	46342
102	45-12-12-100-002.000-046	Tuhaus LLC			COLORADO	ST	HOBART	IN	46342	1045		Elm Street, Suite 204		Manchester	NH	03101
103	45-12-01-479-027.000-018	Bohnenkamp, David & Delores	4490	E	61ST	AVE	HOBART	IN	46342	13310		MOCKINGBIRD	CT	Huntley	IL	60142
104	45-12-12-351-005.000-046	Rodecker, Cynthia R & Danielle D Rodeck	3382	E	69TH	AVE	MERRILLVILLE	IN	46410	3382	E	69th	AVE	Hobart	IN	46342
105	45-13-07-300-008.000-046	Breu, David A & Susan A h&w	5186	E	70TH	AVE	MERRILLVILLE	IN	46410	5186	E	70th	AVE	Merrillville	IN	46410
106	45-13-07-300-002.000-046	Northern Indiana Public Service	6600		ELKHART	ST	HOBART	IN	46342	290	W	Nationwide Blvd, PO Box 117		Columbus	OH	43215
107	45-13-18-151-001.000-046	Colvin, Ronald G Colvin Living Trust (und 1	7235		DEKALB	ST	MERRILLVILLE	IN	46410	7235		Dekalb	ST	Merrillville	IN	46410
108	45-12-13-227-001.000-046	Schley, Nicole M.	7100		STATE	PL	MERRILLVILLE	IN	46410	7100		State	PL	Merrillville	IN	46410
109	45-12-01-479-016.000-018	Fritz, Frank J & Cynthia L	6		DEEP RIVER	DR	HOBART	IN	46342	6		Deep River	DR	Hobart	IN	46342-5751
110	45-12-11-226-017.000-046	Dickerson, Alan L & Nadiyah S h&w	3143	E	62ND	PL	HOBART	IN	46342	3143	E	62nd	PL	Hobart	IN	46342
111	45-12-12-351-008.000-046	Blair, Charles T Sr	3476	E	69TH	AVE	MERRILLVILLE	IN	46411	3476	E	69th	AVE	Merrillville	IN	46410
112	45-12-11-276-005.000-046	Babel, Jan	6300		COLORADO	ST	HOBART	IN	46342	6300		Colorado	ST	Hobart	IN	46342
113	45-12-01-358-017.000-018	Cadena, Jade D	1771		AMBER	DR	HOBART	IN	46342	1771		Amber	DR	Hobart	IN	46342
114	45-12-01-479-022.000-018	Striker, Sylvia	4440	E	61ST	AVE	HOBART	IN	46342	4440	E	61st	AVE	Hobart	IN	46342
115	45-12-12-351-007.000-046	Millus, Milutin & Radmilla	3446		69TH	AVE	MERRILLVILLE	IN	46410	8720	E	Old Lincoln	HWY	Hobart	IN	46342
116	45-12-12-351-015.000-046	Blair, Charnelle A	3470	E	69TH	AVE	Merrillville	IN	46411	3470	E	69th	AVE	Merrillville	IN	46410
117	45-12-01-357-011.000-018	Hoskins, Cora	3025		TOPAZ	DR	HOBART	IN	46342	3025		Topaz	DR	Hobart	IN	46342
118	45-12-01-357-014.000-018	Pineda, Dixie D	3005		TOPAZ	DR	HOBART	IN	46342	3005		Topaz	DR	Hobart	IN	46342
119	45-12-12-351-002.000-046	Cole, Tawana	6895-97		COLORADO	ST	MERRILLVILLE	IN	46410	6895-97		Colorado		Merrillville	IN	46410
120	45-13-07-100-006.000-046	Northern Indiana Public Service	6301		ELKHARTST APPR		HOBART	IN	46342	290	W	Nationwide Blvd, PO Box 117		Columbus	OH	43215
121	45-12-01-357-027.000-018	Gronkiewicz, Devin	2947		TOPAZ	DR	HOBART	IN	46342	2947		Topaz	DR	Hobart	IN	46342
122	45-13-06-353-001.000-018	Northern Indiana Public Service.	100		BRACKEN	RD	HOBART	IN	46342	290	W	Nationwide Blvd, PO Box 117		Columbus	OH	43215
123	45-12-01-357-026.000-018	Thompson, RoShawnda S	2949		TOPAZ	DR	HOBART	IN	46342	2949		Topaz	DR	Hobart	IN	46342
124	45-12-01-479-024.000-018	Fossey, Dennis G & Louise	4460	E	61ST	AVE	HOBART	IN	46342	15		Elm	ST	Hobart	IN	46342-5754
125	45-12-01-451-006.000-018	Stanish, Daniel J & Christine M H&W	4010	E	61ST	AVE	HOBART	IN	46342	715		Pintail		Hobart	IN	46342
126	45-12-12-200-004.000-046	Davis, Clarence C & Elinor P h&w	4767	E	61ST	AVE	HOBART	IN	46342	4767	E	61st	AVE	Hobart	IN	46342
127	45-12-01-357-030.000-018	Terrell, Diane D	3047		TOPAZ	DR	HOBART	IN	46342	3047		Topaz	DR	Hobart	IN	46342
128	45-12-12-200-007.000-046	Hobart Owner LLC		E	61st	ST	Hobart	IN	46342	10210	N	Central Expy., Ste 300		Dallas	TX	75231
129	45-12-02-476-014.000-018	Southlake Church of God Inc			61st	ave	Hobart	IN	46342	3440	W	61st	AVE	Hobart	IN	46342-6400



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: Josh Huddlestun		2. Date Notified:	
3. Title: Mayor, City of Hobart			
4. Address: 414 Main Street			
City: Hobart		State: IN	ZIP Code: 46342 –
5. Electronic Mail: Countycommissioners@co.jasper.in.us		6. Telephone Number: (219) 942 - 6112	
7. Method of Notification: ☐ Telephone ☐ Electronic Mail ☐ Standard Mail ☐ Other (specify):			
Name: Kyle W. Allen Sr., Jerry Tippy, and Michael C. Repay			Date Notified:
Title: Board of Commissioners, Lake County			
Address: 2293 N. Main Street			
City: Crown Point		State: IN	ZIP Code: 46307 –
Electronic Mail: commissioners@lakecountyin.gov		Telephone Number: (219) 755 - 3200	
Method of Notification: ☐ Telephone ☐ Electronic Mail ☐ Standard Mail ☐ Other (specify):			
Name: Lake County Health Department			Date Notified:
Title: Director / Health Officer			
Address: 1400 N. Main Street			
City: Crown Point		State: IN	ZIP Code: 46307 –
Electronic Mail: health@lakecountyin.gov		Telephone Number: (219) 755 - 3655	
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):			

**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:**

CEG1 - CEG766

CE 1 - 766

Ultra-low sulfur diesel or renewable diesel that meets 40 CFR 1090.305

AWB1 & AWB2

None

Same as above

CAB

None

Same as above

ACB1 & ACB2

None

Same as above

HEG1 - HEG11

None

Same as above

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 and EPA Tier 2 Emission Standards**6. Rationale:** Briefly explain why the published emission factor does not appropriately represent the process, operation, or pollution control equipment efficiently.

Manufacturer provided emission factors for NOx, CO, VOC for CEG1 - CEG766, with controls applied.

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 emission factors for NOx, CO, VOC for CEG1 - CEG766, with controls applied.

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-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	766	CEG1 - CEG766		26.58	☒ Yes ☐ No
Internal combustion engines	2	AWB1 & AWB2		14.99	☒ Yes ☐ No
Internal combustion engines	11	HEG1 - HEG11		7.34	☒ Yes ☐ No
Internal combustion engines	1	CAB		3.84	☒ Yes ☐ No
Internal combustion engines	1	ACB1 & AWB2		2.62	☒ Yes ☐ No
					☐ 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: CEG1 - CEG766 (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

This space was intentionally left blank.

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) and catalyzed diesel particulate filter (cDPF) 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

☐ 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 NO_x, CO, VOC, PM, PM₁₀, and PM_{2.5} emissions from CEG1 - CEG766, combined, below the following limits:

NO_x < 45 tpy

CO < 90 tpy

VOC < 45 tpy

PM (filterable) < 55 tpy

PM₁₀ (filterable + condensable) < 55 tpy

PM_{2.5} (filterable + condensable) < 55 tpy

CE-01: Control Equipment Summary

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

www.IN.gov/idem



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
 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-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 - 766 for critical emergency generators CEG1 - CEG766
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) and catalyzed diesel particulate filter (CDPF). These components work together to achieve the control efficiencies provided in the manufacturer specifications (attached in Appendix C).

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	ACFM			
5. Gas Stream Temperature	°F		572.00	
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%	69.80%
☐ b. Lead (Pb)					
☒ c. Hazardous Air Pollutant (HAP) (specify): Volatile organic HAPs from diesel fuel combustion				100.00%	40%
☒ d. Nitrogen Oxides (NO_x)				100.00%	91.70%
☐ e. Mercury (Hg)					
☒ f. Particulate Matter (PM)	filterable only			100.00%	68.60%
☐ g. Particulate Matter less than 10_{μm} (PM₁₀)	filterable only			100.00%	68.60%

☐ h. Particulate Matter less than 2.5µm (PM _{2.5})	filterable only			100.00%	68.60%
☐ i. Sulfur Dioxide (SO ₂)					
☒ j. Volatile Organic Compounds (VOC)				100.00%	40%
☐ k. Other Pollutant (<i>specify</i>):					

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	SCR urea injection status		
15. Monitoring Frequency:	Continuous during generator operation	Continuous during generator operation		
16. Item(s) Recorded:	Catalyst bed temperature	SCR urea injection status		
17. Record Keeping Frequency:	At least once every 15 minutes during generator operation	At least once every 15 minutes during generator operation		
18. Pollutant(s) Tested:	NOx, CO, and VOC	NA		
19. Test Method(s):	EPA approved methods	NA		
20. Testing Frequency:	Once every 5 years	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?

If "Yes", provide the following:

☒ No ☐ Yes

Permit Number:

Issuance Date:

Determination:

☐ Integral ☐ Not Integral

23. Is this device integral to the process?

If "Yes", provide the reason(s) why the device is integral.

☒ No ☐ Yes



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: AWB1 & AWB2 (1,600 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)
 1.60 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.

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.*

AWB1 and AWB2, combined < 100 operating hours / year



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
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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: HEG1 - HEG11 (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

This space was intentionally left blank.

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.*

HEG1 - HEG11, combined < 550 operating hours/year



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
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 Facsimile Number: (317) 232-6749
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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:	CAB (400 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) 0.4 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.

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.*

CAB < 50 operating hours/year



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: ACB1 & ACB2 (250 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)

0.25 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

This space was intentionally left blank.

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.*

ACB1 and ACB2, combined < 100 operating hours / year



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 proposed emergency generators (CEG1 - CEG766, HEG1 - HEG11, AWB1 & AWB2, CAB, ACB1 & ACB2)

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/ft ³)
☐ Liquefied Petroleum Gas ☐ Commercial- Propane ☐ Engine Fuel Propane (HD-5) ☐ Commercial- Butane		☐ Primary ☐ Secondary	Sulfur: Butane: Propane:	(Btu/ft ³)
☐ Process Gas *		☐ Primary ☐ Secondary	Sulfur:	(Btu/ft ³)
☐ Landfill Gas *		☐ Primary ☐ Secondary	Sulfur:	(Btu/ft ³)
☐ Other (specify):		☐ Primary ☐ Secondary	: :	(Btu/ft ³)
* Indicate the source of the process or landfill gas:				

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 (Btu/gal)	100.00%
☐ 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 ☐ <i>Anthracite</i> ☐ <i>Culm</i>		☐ 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 (<i>specify</i>):		☐ Primary ☐ Secondary	Sulfur: Ash: Moisture:	(Btu/gal)	☐ Dry ☐ Moist

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Continued on Next Page

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.

Please see the proposed emission limits in Section 3.4 of the application. The applicant requests not to set fuel usage as permit limits. The site will comply with emissions limits by:

1. tracking operating hours of the support emergency generators (AWB1 & AWB2, HEG1 - HEG11, CAB, ACB1 & ACB2), and
2. tracking actual emissions from CEG1 - CEG766 based on the lbs/gal emission factors and actual fuel usage.

**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 proposed emergency generators (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)	EPA Tier 2 or Tier 3		☐ 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)	EPA Tier 2 or Tier 3		☐ AP-42	☒ Other	☐ N/A
Mercury (Hg)			☐ AP-42	☐ Other	☒ N/A
Particulate Matter (PM)	EPA Tier 2 or Tier 3		☐ AP-42	☒ Other	☐ N/A
Particulate Matter less than 10µm (PM ₁₀)	EPA Tier 2 or Tier 3		☐ AP-42	☒ Other	☐ N/A
Particulate Matter less than 2.5µm (PM _{2.5})	EPA Tier 2 or Tier 3		☐ AP-42	☒ Other	☐ N/A
Sulfur Dioxide (SO ₂)			☒ AP-42	☐ Other	☐ N/A
Volatile Organic Compounds (VOC)	EPA Tier 2 or Tier 3		☐ 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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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
 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 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? <i>If yes, attach a completed FED-01 for each rule that applies.</i>	☒ Yes ☐ No	2. Unit IDs
☐ 40 CFR Part 60, Subpart Cb	Large Municipal Waste Combustors (<i>constructed before 9/20/1994</i>)	
☐ 40 CFR Part 60, Subpart Ce	Hospital/Medical/Infectious Waste Incinerators	
☐ 40 CFR Part 60, Subpart D	Fossil-Fuel-Fired Steam Generators (<i>constructed after 8/17/1971</i>)	
☐ 40 CFR Part 60, Subpart Da	Electric Utility Steam Generating Units (<i>constructed after 9/18/1978</i>)	
☐ 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 (<i>constructed after 12/20/1989 and before 9/20/1994</i>)	
☐ 40 CFR Part 60, Subpart Eb	Large Municipal Waste Combustors (<i>constructed after 9/20/1994 or modified / reconstructed after 6/19/1996</i>)	
☐ 40 CFR Part 60, Subpart Ec	Hospital/Medical/Infectious Waste Incinerators (<i>constructed after 6/20/1996</i>)	
☐ 40 CFR Part 60, Subpart O	Sewage Treatment Plants (<i>sludge burners</i>)	
☐ 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 (<i>constructed after 8/30/1999 or modified / reconstructed after 6/6/2001</i>)	
☐ 40 CFR Part 60, Subpart BBBB	Small Municipal Waste Combustion Units (<i>constructed on or before 8/30/1999</i>)	
☐ 40 CFR Part 60, Subpart CCCC	Commercial and Industrial Solid Waste Incineration Units (<i>constructed after 11/30/1999 or modified / reconstructed after 6/1/2001</i>)	
☐ 40 CFR Part 60, Subpart DDDD	Commercial and Industrial Solid Waste Incineration Units (<i>constructed on or before 11/30/1999</i>)	
☐ 40 CFR Part 60, Subpart KKKK	Stationary Combustion Turbines	

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? <i>If yes, attach a completed FED-01 for each rule that applies.</i>		☒ Yes ☐ No	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:	6,700-Gal Belly Tanks BT No. 1 - 766 for CEG1 - CEG766		
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:	Grey		
8. Materials Stored:(include MSDS)	Diesel fuel		
9. True Vapor Pressure (PVA):	pounds per square inch (psi at 20°C)		
10. Vapor Molecular Weight (Mv):	130.00 gallons (b/lbmole)		
11. Annual Throughput:	3.30 million gallons per year (gal/yr) All CEG 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.		
None		

PART C: Information Specific to Tank Type

Part C identifies the physical properties of the tank.

17. Tank Diameter (D): 14.3 x 37.5 feet (ft)

18. Tank Height (Hs): 1.70 feet (ft)

19. Tank Volume / Capacity (V): 6700.00 gallons (gal) 896.00 cubic feet (ft³)

20. Maximum Liquid Height (Hlx): 1.50 feet (ft)

21. External Floating Roof: Complete only if applicable.

a. Average Liquid Density (WI): 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 (WI): 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

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 Kc because the tank size is less than 20,000 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:	Two (2) 2,640-gal Belly Tank for AWB1 and AWB2		
2. Installation Date: (actual or anticipated)			
3. Tank Location:	Under the 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 tank ☐ Pressure Tank		
5. Is the tank Above Ground?	☒ Yes ☐ No		
6. Tank Orientation:	☒ Horizontal ☐ Vertical		
7. Tank Color:	Grey		
8. Materials Stored: (include MSDS)	Diesel fuel		
9. True Vapor Pressure (PVA):	pounds per square inch (psi at 20°C)		
10. Vapor Molecular Weight (Mv):	130.00 gallons (b/lbmole)		
11. Annual Throughput:	10940.00 gallons per year (gal/yr)		
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.		
None		

PART C: Information Specific to Tank Type

Part C identifies the physical properties of the tank.

17. Tank Diameter (D): 8.7 x 20.8 feet (ft)

18. Tank Height (Hs): 2.0 feet (ft)

19. Tank Volume / Capacity (V): 2640.00 gallons (gal) 353.00 cubic feet (ft³)

20. Maximum Liquid Height (Hlx): 1.8 feet (ft)

21. External Floating Roof: Complete only if applicable.
a. Average Liquid Density (WI): 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 (WI): 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)

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

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 tank is not subject to 40 CFR 60 Subpart Kc because the tank size is less than 20,000 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: Eleven (11) 1,367-gal Belly Tanks for HEG1 - HEG11

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 <i>(specify)</i> : Horizontal rectangle tanks | | ☐ Pressure Tank |

5. Is the tank Above Ground? ☒ Yes ☐ No

6. Tank Orientation: ☒ Horizontal ☐ Vertical

7. Tank Color: Grey

8. Materials Stored: *(include MSDS)* Diesel fuel

9. True Vapor Pressure (PVA): pounds per square inch *(psi at 20°C)*

10. Vapor Molecular Weight (Mv): 130.00 gallons *(b/lbmole)*

11. Annual Throughput: 29480.00 gallons per year *(gal/yr)* 11 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.*

None

PART C: Information Specific to Tank Type

Part C identifies the physical properties of the tank.

17. Tank Diameter (D): 3.3 x 22.1 feet (ft)

18. Tank Height (Hs): 2.50 feet (ft)

19. Tank Volume / Capacity (V): 1367.00 gallons (gal) 183.00 cubic feet (ft³)

20. Maximum Liquid Height (Hlx): 2.25 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

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 Kc because the tank size is less than 20,000 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:	One 770-gallon Belly Tank for the ancillary CAB emergency generator	
2. Installation Date: (actual or anticipated)		
3. Tank Location:	under each emergency generator	
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:	Grey	
8. Materials Stored: (include MSDS)	Diesel fuel	
9. True Vapor Pressure (PVA):	pounds per square inch (psi at 20°C)	
10. Vapor Molecular Weight (Mv):	130 gallons (b/lbmole)	
11. Annual Throughput:	1400.00 gallons per year (gal/yr)	
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.		
None		

PART C: Information Specific to Tank Type

Part C identifies the physical properties of the tank.

17. Tank Diameter (D): _____ feet (ft)

18. Tank Height (Hs): 2.08 feet (ft)

19. Tank Volume / Capacity (V): 770.00 gallons (gal) 103 cubic feet (ft³)

20. Maximum Liquid Height (Hlx): _____ feet (ft)

21. External Floating Roof: Complete only if applicable.
a. Average Liquid Density (WI): _____ 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 (WI): _____ 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

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 tank is not subject to 40 CFR 60 Subpart Kc because the tank size is less than 20,000 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: Two (2) 495-gallon Belly Tank for the ancillary ACB1 and ACB2

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 <i>(specify)</i> : | | ☐ Pressure Tank |

5. Is the tank Above Ground? ☒ Yes ☐ No

6. Tank Orientation: ☒ Horizontal ☐ Vertical

7. Tank Color: Grey

8. Materials Stored: *(include MSDS)* Diesel fuel

9. True Vapor Pressure (PVA): pounds per square inch *(psi at 20°C)*

10. Vapor Molecular Weight (Mv): 130.00 ~~gallons~~ *(b/lbmole)*

11. Annual Throughput: 1910.00 gallons per year *(gal/yr)* Two 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.*

None

PART C: Information Specific to Tank Type

Part C identifies the physical properties of the tank.

17. Tank Diameter (D): 4.29 feet (ft)

18. Tank Height (Hs): 1.7 feet (ft)

19. Tank Volume / Capacity (V): 495.00 gallons (gal) 66 cubic feet (ft³)

20. Maximum Liquid Height (Hlx): 1.5 feet (ft)

21. External Floating Roof: Complete only if applicable.
a. Average Liquid Density (WI): 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 (WI): 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		
	value	units	(if not using AP-42, include calculations)		
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	

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 tank is not subject to 40 CFR 60 Subpart Kc because the tank size is less than 20,000 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: Twenty-six (26) 12,000-gal Central Diesel Fuel Storage Tanks (TK 1 - 26)

2. Installation Date:
(actual or anticipated)

3. Tank Location: One for 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 <i>(specify)</i> : 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): pounds per square inch *(psi at 20°C)*

10. Vapor Molecular Weight (Mv): 130.00 ~~gallons~~ *(b/lbmole)*

11. Annual Throughput: 3.30 million gallons per year *(gal/yr)* TK1 - 26 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.*

None

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): 31.92 feet (ft)

19. Tank Volume / Capacity (V): 12000.00 gallons (gal) 1604.00 cubic feet (ft³)

20. Maximum Liquid Height (Hlx): 7.50 feet (ft)

21. External Floating Roof: Complete only if applicable.
a. Average Liquid Density (WI): 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 (WI): 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

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 - 26 are not subject to 40 CFR 60 Subpart Kc because the tank size is less than 20,000 gallons each.

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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:			
3. Source Category Name:	Emergency generators		
4. Affected Source (Include all applicable emission unit IDs):	CEG1 - CEG766, HEG1 - HEG11, AWB1 & AWB2, CAB, ACB1 & ACB2		

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).*

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

- [illegible]

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: _____

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.

Amazon Data Services, Inc. - Application for New Source Minor PSD/Emission Offset Construction Approval and FESOP

APPENDIX B

POTENTIAL EMISSION CALCULATIONS

**Appendix B: Emissions Calculations
PTE Summary**

Company Name: Amazon Data Services, Inc.

Site: SBN520 / SBN750

SBN520 Address: 4751 E. 61st Avenue, Hobart, IN 46342

SBN750 Address: 6197 Colorado St., Hobart, IN 46342

Table B.1a: Uncontrolled/Unlimited PTE (tons/year)								
Emission Unit	PM	PM10	PM2.5	SO2	NOx	VOC	CO	Total HAPs
SBN520								
CEG1 - CEG168	55.83	68.11	66.09	2.06	1,429.29	357.32	977.06	1.87
AWB1	0.19	0.24	0.23	0.01	4.97	1.24	3.39	0.01
ACB1	0.03	0.22	0.22	0.20	0.52	0.13	0.57	0.003
Diesel Storage Tanks*	--	--	--	--	--	0.08	--	--
Total SBN520	56.06	68.56	66.54	2.27	1,434.78	358.78	981.02	1.88
SBN750								
CEG169 - CEG766	198.73	242.44	235.24	7.33	5,087.61	1,271.90	3,477.86	6.66
HEG1 - HEG11	1.01	1.23	1.19	0.04	25.79	6.45	17.63	0.03
AWB2	0.19	0.24	0.23	0.01	4.97	1.24	3.39	0.01
CAB	0.05	0.33	0.33	0.31	0.80	0.20	0.88	0.004
ACB2	0.03	0.22	0.22	0.20	0.52	0.13	0.57	0.003
Diesel Storage Tanks*	--	--	--	--	--	0.30	--	--
Total SBN750	200.02	244.46	237.22	7.90	5,119.68	1,280.22	3,500.33	6.71
Total SBN520 & SBN750	256.08	313.02	303.76	10.17	6,554.47	1,639.00	4,481.35	8.59
Paved Roads (SBN520 & SBN750)	0.28	0.06	0.01	-	-	-	-	-

Table B.1.b: Limited PTE (tons/year)								
Emission Unit	PM	PM10	PM2.5	SO2	NOx	VOC	CO	Total HAPs
CEG1 - CEG766	55.0	55.0	55.0	9.40	45.0	45.0	90.0	8.53
HEG1 - HEG10	0.10	0.12	0.12	0.00	2.58	0.64	1.76	0.03
AWB1 & AWB2	0.04	0.05	0.05	0.00	0.99	0.25	0.68	0.01
CAB	0.01	0.03	0.03	0.03	0.08	0.02	0.09	0.004
ACB1 & ACB2	0.01	0.04	0.04	0.04	0.10	0.03	0.11	0.005
Diesel Storage Tanks*	--	--	--	--	--	0.38	--	--
Total SBN520 & SBN750	55.15	55.25	55.24	9.47	48.76	46.32	92.64	8.59
Paved Roads (SBN520 & SBN750)	0.28	0.06	0.01	-	-	-	-	-

Shaded Cells Indicate where Limits are Included.

* PTE calculations are in the application.

Emission Factors per Engine Type

Facility: SBN520 / SBN750
SBN520 Address: 4751 E. 61st Avenue, Hobart, IN 46342
SBN750 Address: 6197 Colorado St., Hobart, IN 46342

Table B.2 Engine Information

Number and Type of Generator/Engine Sets	Number of Gens	Power Capacity	Tier Level	Model
	SBN520			
	168	2,750 kW ea.	Tier 2 Certified, with control to achieve Tier 4 Equivalent	CAT 3516e Gens
	1	1600 kW	Tier 2 Certified	3512C Gens
	1	250 kW	Tier 3 Certified	C9 Gen, 250 kW
Number and Type of Generator/Engine Sets	SBN750			
	598	2,750 kW ea.	Tier 2 Certified, with control to achieve Tier 4 Equivalent	CAT 3516e Gens
	1	1600 kW	Tier 2 Certified	3512C Gens
	11	750 kW ea.	Tier 2 Certified	CAT C18 or C27 Gens
	1	400 kW	Tier 3 Certified	C13 Gens, 400 kW ea.
	1	250 kW	Tier 3 Certified	C9 Gen, 250 kW

Engine Specifications

Table B.3 - Engine Power Output by Load

Engine Type	Power Output ¹ (bhp)				
	10% Load	25% Load	50% Load	75% Load	Full Standby
2,750 kW Tier 4 Equivalent	549	1,131	2,102	3,072	4,043
1,600 kW Tier 2 Certified	339	676	1,237	1,799	2,360
750 kW Tier 2 Certified - C18	155	315	575	840	1,112
750 kW Tier 2 Certified - C27	153	318	578	843	1,114
400 kW Tier 3 Certified	91	178	316	457	609
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 ¹ (gal/hr/gen)					Heat Input ² (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	36.9	63.3	108.2	148.0	194.0	5.06	8.67	14.83	20.28	26.58
1,600 kW Tier 2 Certified	22.3	39.0	63.8	86.1	109.4	3.06	5.34	8.74	11.80	14.99
750 kW Tier 2 Certified - C18	9.5	16.6	28.4	42.8	53.6	1.30	2.27	3.89	5.86	7.34
750 kW Tier 2 Certified - C27	9.5	16.4	28.4	40.8	51.8	1.30	2.25	3.89	5.59	7.10
400 kW Tier 3 Certified	5.5	9.8	17.3	23.6	28.0	0.75	1.34	2.37	3.23	3.84
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

Emission Factors per Engine Type

Facility: SBN520 / SBN750
SBN520 Address: 4751 E. 61st Avenue, Hobart, IN 46342
SBN750 Address: 6197 Colorado St., Hobart, IN 46342

Notes:

- Per the manufacturer specification sheets and performance data for each engine model.
- 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 137,030 Btu/gal

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) ³ - CAT					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
<i>Criteria Pollutants</i>						
NO _x	8.51	3.73	3.65	4.83	6.00	8.51
CO	3.43	1.68	0.57	0.56	1.16	3.43
VOC	0.46	0.29	0.17	0.12	0.10	0.46
Filt. PM	0.21	0.15	0.07	0.05	0.07	0.21

Table B.5.b - 1,600 kW Uncontrolled Emission Factors in g/bhp-hr

Pollutant	1,500 kW Hourly Uncontrolled Emission Factors (g/bhp-hr) ³					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
<i>Criteria Pollutants</i>						
NO _x	6.06	3.25	3.76	5.04	5.91	6.06
CO	5.03	2.17	1.48	1.41	1.11	5.03
VOC	1.16	0.48	0.25	0.18	0.16	1.16
Filt. PM	0.31	0.17	0.16	0.11	0.08	0.31

Table B.5.c - 750 kW (C18) Uncontrolled Emission Factors in g/bhp-hr

Pollutant	750 kW Hourly Uncontrolled Emission Factors (g/bhp-hr) ³ - CAT					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
<i>Criteria Pollutants</i>						
NO _x	5.42	4.62	3.88	4.05	5.85	5.85
CO	13.85	1.85	0.25	0.52	0.41	13.85
VOC	5.59	0.33	0.16	0.15	0.11	5.59
Filt. PM	0.93	0.16	0.07	0.08	0.06	0.93

Emission Factors per Engine Type

Facility: SBN520 / SBN750
SBN520 Address: 4751 E. 61st Avenue, Hobart, IN 46342
SBN750 Address: 6197 Colorado St., Hobart, IN 46342

Table B.5.d - 750 kW (C27) Uncontrolled Emission Factors in g/bhp-hr

Pollutant	750 kW Hourly Uncontrolled Emission Factors (g/bhp-hr) ³ - CAT					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
<i>Criteria Pollutants</i>						
NO _x	7.41	5.37	4.31	4.64	6.16	7.41
CO	3.80	1.68	1.12	0.83	0.48	3.80
VOC	0.71	0.28	0.17	0.10	0.05	0.71
Filt. PM	0.46	0.33	0.28	0.08	0.04	0.46

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

Pollutant	400 kW Hourly Uncontrolled Emission Factors (g/bhp-hr) ³					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
<i>Criteria Pollutants</i>						
NO _x	4.10	3.26	1.87	2.36	4.98	4.98
CO	8.55	6.55	3.52	1.88	2.32	8.55
VOC	0.90	0.33	0.18	0.08	0.02	0.90
Filt. PM	0.49	0.18	0.12	0.15	0.10	0.49

Table B.5.f - 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
<i>Criteria Pollutants</i>						
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.

Emission Factors per Engine Type

Facility: SBN520 / SBN750
SBN520 Address: 4751 E. 61st Avenue, Hobart, IN 46342
SBN750 Address: 6197 Colorado St., Hobart, IN 46342

SO₂, 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/MMBtu)
SO ₂ ⁵	1.52E-03	0.29
Condensable PM	7.70E-03	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) ⁷
CO ₂	163.05
CH ₄	0.01
N ₂ O	0.001
CO ₂ e ⁷	163.61

Table B.6.c - GHG Global Warming Factors

Pollutant	Global Warming Potential ⁸
CO ₂	1
CH ₄	25
N ₂ O	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 SO₂ 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 CO₂e 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.

Emission Factors per Engine Type

Facility: SBN520 / SBN750
SBN520 Address: 4751 E. 61st Avenue, Hobart, IN 46342
SBN750 Address: 6197 Colorado St., Hobart, IN 46342

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) ^{9, 10}						2,750 kW Hourly Uncontrolled Emission Factors (lb/gal/gen) ¹¹					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
<u>Criteria Pollutants</u>												
NO _x	10.30	9.30	16.91	32.71	53.48	53.48	0.279	0.147	0.156	0.221	0.276	0.279
CO	4.15	4.19	2.64	3.79	10.34	10.34	0.113	0.066	0.024	0.026	0.053	0.113
VOC	0.56	0.72	0.79	0.81	0.89	0.89	0.015	0.011	0.007	0.005	0.005	0.015
Filt. PM	0.25	0.37	0.32	0.34	0.62	0.62	0.007	0.006	0.003	0.002	0.003	0.007
PM/PM ₁₀ /PM _{2.5} ¹²	0.29	0.44	0.44	0.49	0.83	0.83	0.008	0.007	0.004	0.003	0.004	0.008
SO ₂	0.008	0.013	0.022	0.031	0.040	0.04	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
<u>Hazardous Air Pollutants</u>												
Benzene	3.92E-03	6.73E-03	1.15E-02	1.57E-02	2.06E-02	2.06E-02	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04
Toluene	1.42E-03	2.44E-03	4.17E-03	5.70E-03	7.47E-03	7.47E-03	3.85E-05	3.85E-05	3.85E-05	3.85E-05	3.85E-05	3.85E-05
Xylenes	9.76E-04	1.67E-03	2.86E-03	3.91E-03	5.13E-03	5.13E-03	2.64E-05	2.64E-05	2.64E-05	2.64E-05	2.64E-05	2.64E-05
Formaldehyde	3.99E-04	6.84E-04	1.17E-03	1.60E-03	2.10E-03	2.10E-03	1.08E-05	1.08E-05	1.08E-05	1.08E-05	1.08E-05	1.08E-05
Acetaldehyde	1.27E-04	2.19E-04	3.74E-04	5.11E-04	6.70E-04	6.70E-04	3.45E-06	3.45E-06	3.45E-06	3.45E-06	3.45E-06	3.45E-06
Acrolein	3.98E-05	6.84E-05	1.17E-04	1.60E-04	2.09E-04	2.09E-04	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06
Total PAH	1.07E-03	1.84E-03	3.14E-03	4.30E-03	5.64E-03	5.64E-03	2.91E-05	2.91E-05	2.91E-05	2.91E-05	2.91E-05	2.91E-05
Total HAP	7.96E-03	1.37E-02	2.33E-02	3.19E-02	4.18E-02	4.18E-02	2.16E-04	2.16E-04	2.16E-04	2.16E-04	2.16E-04	2.16E-04
<u>Greenhouse Gases</u>												
CO ₂	824.47	1414.33	2417.54	3306.80	4334.60	4334.60	22.34	22.34	22.34	22.34	22.34	22.34
CH ₄	0.03	0.06	0.10	0.13	0.18	0.18	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04
N ₂ O	0.01	0.01	0.02	0.03	0.04	0.04	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04
CO ₂ e	827.30	1419.18	2425.84	3318.15	4349.47	4349.47	22.42	22.42	22.42	22.42	22.42	22.42

Emission Factors in lbs/gal of Fuel Input

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

Emission Factors per Engine Type

Facility: SBN520 / SBN750
SBN520 Address: 4751 E. 61st Avenue, Hobart, IN 46342
SBN750 Address: 6197 Colorado St., Hobart, IN 46342

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) ¹³						2,750 kW Hourly Controlled Emission Factors (lb/gal/gen) ¹¹					
	10% Load ¹⁴	25% Load	50% Load	75% Load	Full Standby	Maximum ¹⁴	10% Load ¹⁴	25% Load	50% Load	75% Load	Full Standby	Maximum ¹⁴
<i>Criteria Pollutants</i>												
NO _x	10.30	0.77	1.40	2.72	4.44	4.44	0.279	0.012	0.013	0.018	0.023	0.023
CO	1.25	1.27	0.80	1.15	3.12	3.12	0.034	0.020	0.007	0.008	0.016	0.020
VOC	0.33	0.43	0.47	0.49	0.53	0.53	0.009	0.007	0.004	0.003	0.003	0.007
Filt. PM	0.08	0.12	0.10	0.11	0.20	0.20	0.002	0.002	0.001	0.001	0.001	0.0019
PM/PM ₁₀ /PM _{2.5} ¹²	0.12	0.18	0.22	0.26	0.40	0.40	0.003	0.003	0.002	0.002	0.002	0.0029
SO ₂	0.008	0.013	0.022	0.031	0.040	0.040	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
<i>Hazardous Air Pollutants</i>												
Benzene	3.92E-03	4.04E-03	6.90E-03	9.44E-03	1.24E-02	1.24E-02	1.06E-04	6.38E-05	6.38E-05	6.38E-05	6.38E-05	6.38E-05
Toluene	1.42E-03	1.46E-03	2.50E-03	3.42E-03	4.48E-03	4.48E-03	3.85E-05	2.31E-05	2.31E-05	2.31E-05	2.31E-05	2.31E-05
Xylenes	9.76E-04	1.00E-03	1.72E-03	2.35E-03	3.08E-03	3.08E-03	2.64E-05	1.59E-05	1.59E-05	1.59E-05	1.59E-05	1.59E-05
Formaldehyde	3.99E-04	4.11E-04	7.02E-04	9.60E-04	1.26E-03	1.26E-03	1.08E-05	6.49E-06	6.49E-06	6.49E-06	6.49E-06	6.49E-06
Acetaldehyde	1.27E-04	1.31E-04	2.24E-04	3.07E-04	4.02E-04	4.02E-04	3.45E-06	2.07E-06	2.07E-06	2.07E-06	2.07E-06	2.07E-06
Acrolein	3.98E-05	4.10E-05	7.01E-05	9.59E-05	1.26E-04	1.26E-04	1.08E-06	6.48E-07	6.48E-07	6.48E-07	6.48E-07	6.48E-07
Total PAH	1.07E-03	1.10E-03	1.89E-03	2.58E-03	3.38E-03	3.38E-03	2.91E-05	1.74E-05	1.74E-05	1.74E-05	1.74E-05	1.74E-05
Total HAP	7.96E-03	8.19E-03	1.40E-02	1.92E-02	2.51E-02	2.51E-02	2.16E-04	1.29E-04	1.29E-04	1.29E-04	1.29E-04	1.29E-04
<i>Greenhouse Gases</i>												
CO ₂	824.47	1414.33	2417.54	3306.80	4334.60	4334.60	22.34	22.34	22.34	22.34	22.34	22.34
CH ₄	0.03	0.06	0.10	0.13	0.18	0.18	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04
N ₂ O	0.01	0.01	0.02	0.03	0.04	0.04	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04
CO ₂ e	827.30	1419.18	2425.84	3318.15	4349.47	4349.47	22.42	22.42	22.42	22.42	22.42	22.42

Emission Factors per Engine Type

Facility: SBN520 / SBN750
SBN520 Address: 4751 E. 61st Avenue, Hobart, IN 46342
SBN750 Address: 6197 Colorado St., Hobart, IN 46342

Table B.7.c - 1,600 kW Hourly Uncontrolled Emission Rates in lb/hr/gen

Pollutant	1,500 kW Hourly Uncontrolled Emission Factors (lb/hr/gen) ^{9, 10}						1,500 kW Hourly Uncontrolled Emission Factors (lb/gal/gen) ¹¹					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
<i>Criteria Pollutants</i>												
NO _x	4.53	4.84	10.25	19.99	30.75	30.75	0.20	0.12	0.16	0.23	0.28	0.281
CO	3.76	3.23	4.04	5.59	5.78	5.78	0.17	0.08	0.06	0.06	0.05	0.169
VOC	0.87	0.72	0.68	0.71	0.83	0.87	0.039	0.018	0.011	0.008	0.008	0.039
Filt. PM	0.23	0.25	0.44	0.44	0.42	0.44	0.010	0.006	0.007	0.005	0.004	0.010
PM/PM ₁₀ /PM _{2.5} ¹²	0.26	0.29	0.50	0.53	0.53	0.53	0.011	0.008	0.008	0.006	0.005	0.011
SO ₂	0.0046	0.0081	0.0132	0.0179	0.0227	0.02	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
<i>Hazardous Air Pollutants</i>												
Benzene	2.37E-03	4.15E-03	6.78E-03	9.16E-03	1.16E-02	1.16E-02	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04
Toluene	8.59E-04	1.50E-03	2.46E-03	3.32E-03	4.21E-03	4.21E-03	3.85E-05	3.85E-05	3.85E-05	3.85E-05	3.85E-05	3.85E-05
Xylenes	5.90E-04	1.03E-03	1.69E-03	2.28E-03	2.89E-03	2.89E-03	2.64E-05	2.64E-05	2.64E-05	2.64E-05	2.64E-05	2.64E-05
Formaldehyde	2.41E-04	4.22E-04	6.90E-04	9.31E-04	1.18E-03	1.18E-03	1.08E-05	1.08E-05	1.08E-05	1.08E-05	1.08E-05	1.08E-05
Acetaldehyde	7.70E-05	1.35E-04	2.20E-04	2.97E-04	3.78E-04	3.78E-04	3.45E-06	3.45E-06	3.45E-06	3.45E-06	3.45E-06	3.45E-06
Acrolein	2.41E-05	4.21E-05	6.89E-05	9.30E-05	1.18E-04	1.18E-04	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06
Total PAH	6.48E-04	1.13E-03	1.85E-03	2.50E-03	3.18E-03	3.18E-03	2.91E-05	2.91E-05	2.91E-05	2.91E-05	2.91E-05	2.91E-05
Total HAP	4.81E-03	8.41E-03	1.38E-02	1.86E-02	2.36E-02	2.36E-02	2.16E-04	2.16E-04	2.16E-04	2.16E-04	2.16E-04	2.16E-04
<i>Greenhouse Gases</i>												
CO ₂	498.26	871.39	1425.50	1923.76	2444.35	2444.35	22.34	22.34	22.34	22.34	22.34	22.34
CH ₄	0.02	0.04	0.06	0.08	0.10	0.10	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04
N ₂ O	0.00	0.01	0.01	0.02	0.02	0.02	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04
CO ₂ e	499.96	874.38	1430.39	1930.36	2452.74	2452.74	22.42	22.42	22.42	22.42	22.42	22.42

Table B.8.c - 1,600 kW Uncontrolled Emission Factor in lbs/gal/gen

Emission Factors per Engine Type

Facility: SBN520 / SBN750
SBN520 Address: 4751 E. 61st Avenue, Hobart, IN 46342
SBN750 Address: 6197 Colorado St., Hobart, IN 46342

Table B.7.d - 750 kW (C18) Hourly Uncontrolled Emission Rates in lb/hr/gen

Table B.8.d - 750 (C18) kW Uncontrolled Emission Factor in lbs/gal/gen

Pollutant	750 kW Hourly Uncontrolled Emission Factors (lb/hr/gen) ^{9, 10}						750 kW Hourly Uncontrolled Emission Factors (lb/gal/gen) ¹¹					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
<i>Criteria Pollutants</i>												
NO _x	1.85	3.21	4.92	7.50	14.34	14.34	0.19	0.19	0.17	0.18	0.27	0.268
CO	4.73	1.28	0.32	0.96	1.01	4.73	0.50	0.08	0.01	0.02	0.02	0.498
VOC	1.91	0.23	0.20	0.28	0.27	1.91	0.201	0.014	0.007	0.006	0.005	0.201
Filt. PM	0.32	0.11	0.09	0.15	0.15	0.32	0.033	0.007	0.003	0.003	0.003	0.033
PM/PM ₁₀ /PM _{2.5} ¹²	0.33	0.13	0.12	0.19	0.20	0.33	0.035	0.008	0.004	0.005	0.004	0.035
SO ₂	0.002	0.003	0.006	0.009	0.011	0.01	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
<i>Hazardous Air Pollutants</i>												
Benzene	1.01E-03	1.77E-03	3.02E-03	4.55E-03	5.70E-03	5.70E-03	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04
Toluene	3.66E-04	6.39E-04	1.09E-03	1.65E-03	2.06E-03	2.06E-03	3.85E-05	3.85E-05	3.85E-05	3.85E-05	3.85E-05	3.85E-05
Xylenes	2.51E-04	4.39E-04	7.51E-04	1.13E-03	1.42E-03	1.42E-03	2.64E-05	2.64E-05	2.64E-05	2.64E-05	2.64E-05	2.64E-05
Formaldehyde	1.03E-04	1.79E-04	3.07E-04	4.63E-04	5.80E-04	5.80E-04	1.08E-05	1.08E-05	1.08E-05	1.08E-05	1.08E-05	1.08E-05
Acetaldehyde	3.28E-05	5.73E-05	9.81E-05	1.48E-04	1.85E-04	1.85E-04	3.45E-06	3.45E-06	3.45E-06	3.45E-06	3.45E-06	3.45E-06
Acrolein	1.03E-05	1.79E-05	3.07E-05	4.62E-05	5.79E-05	5.79E-05	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06
Total PAH	2.76E-04	4.82E-04	8.25E-04	1.24E-03	1.56E-03	1.56E-03	2.91E-05	2.91E-05	2.91E-05	2.91E-05	2.91E-05	2.91E-05
Total HAP	2.05E-03	3.58E-03	6.13E-03	9.23E-03	1.16E-02	1.16E-02	2.16E-04	2.16E-04	2.16E-04	2.16E-04	2.16E-04	2.16E-04
<i>Greenhouse Gases</i>												
CO ₂	212.26	370.90	634.55	956.29	1197.60	1197.60	22.34	22.34	22.34	22.34	22.34	22.34
CH ₄	0.01	0.02	0.03	0.04	0.05	0.05	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04
N ₂ O	0.00	0.00	0.01	0.01	0.01	0.01	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04
CO ₂ e	212.99	372.17	636.73	959.57	1201.71	1201.71	22.42	22.42	22.42	22.42	22.42	22.42

Emission Factors per Engine Type

Facility: SBN520 / SBN750
SBN520 Address: 4751 E. 61st Avenue, Hobart, IN 46342
SBN750 Address: 6197 Colorado St., Hobart, IN 46342

Table B.7.e - 750 kW (C27) Hourly Uncontrolled Emission Rates in lb/hr/gen

Table B.8.e - 750 (C27) kW Uncontrolled Emission Factor in lbs/gal/gen

Pollutant	750 kW Hourly Uncontrolled Emission Factors (lb/hr/gen) ^{9, 10}						750 kW Hourly Uncontrolled Emission Factors (lb/gal/gen) ¹¹					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
<i>Criteria Pollutants</i>												
NO _x	2.50	3.76	5.49	8.62	15.13	15.13	0.26	0.23	0.19	0.21	0.29	0.292
CO	1.28	1.18	1.43	1.54	1.18	1.54	0.13	0.07	0.05	0.04	0.02	0.135
VOC	0.24	0.20	0.22	0.19	0.12	0.24	0.025	0.012	0.008	0.005	0.002	0.025
Filt. PM	0.16	0.23	0.36	0.15	0.10	0.36	0.016	0.014	0.013	0.004	0.002	0.016
PM/PM ₁₀ /PM _{2.5} ¹²	0.17	0.25	0.39	0.19	0.15	0.39	0.017	0.015	0.014	0.005	0.003	0.017
SO ₂	0.002	0.003	0.006	0.008	0.011	0.01	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
<i>Hazardous Air Pollutants</i>												
Benzene	1.01E-03	1.74E-03	3.02E-03	4.34E-03	5.51E-03	5.51E-03	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04
Toluene	3.66E-04	6.31E-04	1.09E-03	1.57E-03	1.99E-03	1.99E-03	3.85E-05	3.85E-05	3.85E-05	3.85E-05	3.85E-05	3.85E-05
Xylenes	2.51E-04	4.34E-04	7.51E-04	1.08E-03	1.37E-03	1.37E-03	2.64E-05	2.64E-05	2.64E-05	2.64E-05	2.64E-05	2.64E-05
Formaldehyde	1.03E-04	1.77E-04	3.07E-04	4.41E-04	5.60E-04	5.60E-04	1.08E-05	1.08E-05	1.08E-05	1.08E-05	1.08E-05	1.08E-05
Acetaldehyde	3.28E-05	5.66E-05	9.81E-05	1.41E-04	1.79E-04	1.79E-04	3.45E-06	3.45E-06	3.45E-06	3.45E-06	3.45E-06	3.45E-06
Acrolein	1.03E-05	1.77E-05	3.07E-05	4.41E-05	5.59E-05	5.59E-05	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06
Total PAH	2.76E-04	4.76E-04	8.25E-04	1.19E-03	1.50E-03	1.50E-03	2.91E-05	2.91E-05	2.91E-05	2.91E-05	2.91E-05	2.91E-05
Total HAP	2.05E-03	3.54E-03	6.13E-03	8.80E-03	1.12E-02	1.12E-02	2.16E-04	2.16E-04	2.16E-04	2.16E-04	2.16E-04	2.16E-04
<i>Greenhouse Gases</i>												
CO ₂	212.26	366.43	634.55	911.61	1157.38	1157.38	22.34	22.34	22.34	22.34	22.34	22.34
CH ₄	0.01	0.01	0.03	0.04	0.05	0.05	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04
N ₂ O	0.00	0.00	0.01	0.01	0.01	0.01	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04
CO ₂ e	212.99	367.69	636.73	914.73	1161.35	1161.35	22.42	22.42	22.42	22.42	22.42	22.42

Emission Factors per Engine Type

Facility: SBN520 / SBN750
SBN520 Address: 4751 E. 61st Avenue, Hobart, IN 46342
SBN750 Address: 6197 Colorado St., Hobart, IN 46342

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

Pollutant	400 kW Hourly Uncontrolled Emission Factors (lb/hr/gen) ^{9, 10}						400 kW Hourly Uncontrolled Emission Factors (lb/gal/gen) ¹¹					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
<i>Criteria Pollutants</i>												
NO _x	0.82	1.28	1.30	2.38	6.69	6.69	0.15	0.13	0.08	0.10	0.24	0.239
CO	1.71	2.57	2.45	1.89	3.11	3.11	0.31	0.26	0.14	0.08	0.11	0.311
VOC	0.18	0.13	0.13	0.08	0.03	0.18	3.28E-02	1.32E-02	7.25E-03	3.42E-03	9.59E-04	0.033
Filt. PM	0.10	0.07	0.08	0.15	0.13	0.15	1.78E-02	7.21E-03	4.83E-03	6.40E-03	4.80E-03	1.78E-02
PM/PM ₁₀ /PM _{2.5} ¹²	1.04E-01	8.10E-02	1.02E-01	1.76E-01	1.64E-01	0.18	1.89E-02	8.26E-03	5.89E-03	7.46E-03	5.85E-03	1.89E-02
SO ₂	2.19E-01	3.89E-01	6.87E-01	9.38E-01	1.11E+00	1.11	3.97E-02	3.97E-02	3.97E-02	3.97E-02	3.97E-02	3.97E-02
<i>Hazardous Air Pollutants</i>												
Benzene	7.03E-04	1.25E-03	2.21E-03	3.02E-03	3.58E-03	3.58E-03	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04
Toluene	3.08E-04	5.49E-04	9.70E-04	1.32E-03	1.57E-03	1.57E-03	3.85E-05	3.85E-05	3.85E-05	3.85E-05	3.85E-05	3.85E-05
Xylenes	2.15E-04	3.83E-04	6.76E-04	9.22E-04	1.09E-03	1.09E-03	2.64E-05	2.64E-05	2.64E-05	2.64E-05	2.64E-05	2.64E-05
Formaldehyde	8.89E-04	1.58E-03	2.80E-03	3.82E-03	4.53E-03	4.53E-03	1.08E-05	1.08E-05	1.08E-05	1.08E-05	1.08E-05	1.08E-05
Acetaldehyde	5.78E-04	1.03E-03	1.82E-03	2.48E-03	2.94E-03	2.94E-03	3.45E-06	3.45E-06	3.45E-06	3.45E-06	3.45E-06	3.45E-06
Acrolein	6.97E-05	1.24E-04	2.19E-04	2.99E-04	3.55E-04	3.55E-04	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06
Total PAH	1.27E-04	2.26E-04	3.98E-04	5.43E-04	6.45E-04	6.45E-04	2.91E-05	2.91E-05	2.91E-05	2.91E-05	2.91E-05	2.91E-05
Total HAP	2.89E-03	5.15E-03	9.09E-03	1.24E-02	1.47E-02	1.47E-02	2.16E-04	2.16E-04	2.16E-04	2.16E-04	2.16E-04	2.16E-04
<i>Greenhouse Gases</i>												
CO ₂	122.89	218.96	386.54	527.30	625.61	625.61	22.34	22.34	22.34	22.34	22.34	22.34
CH ₄	0.00	0.01	0.02	0.02	0.03	0.03	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04
N ₂ O	0.00	0.00	0.00	0.00	0.01	0.01	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04
CO ₂ e	123.31	219.72	387.87	529.11	627.76	627.76	22.42	22.42	22.42	22.42	22.42	22.42

Emission Factors per Engine Type

Facility: SBN520 / SBN750
SBN520 Address: 4751 E. 61st Avenue, Hobart, IN 46342
SBN750 Address: 6197 Colorado St., Hobart, IN 46342

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

Pollutant	250 kW Hourly Uncontrolled Emission Factors (lb/hr/gen) ^{9, 10}						250 kW Hourly Uncontrolled Emission Factors (lb/gal/gen) ¹¹					
	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum	10% Load	25% Load	50% Load	75% Load	Full Standby	Maximum
<i>Criteria Pollutants</i>												
NO _x	0.49	0.62	1.00	1.58	2.76	2.76	0.11	0.09	0.09	0.10	0.14	0.144
CO	0.59	0.63	0.47	0.60	0.60	0.63	0.14	0.09	0.04	0.04	0.03	0.137
VOC	0.16	0.16	0.20	0.19	0.15	0.20	3.64E-02	2.16E-02	1.80E-02	1.26E-02	7.81E-03	0.036
Filt. PM	0.07	0.11	0.11	0.15	0.14	0.15	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	7.90E-02	1.17E-01	1.19E-01	1.63E-01	1.61E-01	0.16	1.84E-02	1.62E-02	1.04E-02	1.06E-02	8.41E-03	1.84E-02
SO ₂	1.71E-01	2.86E-01	4.53E-01	6.08E-01	7.59E-01	7.59E-01	3.97E-02	3.97E-02	3.97E-02	3.97E-02	3.97E-02	3.97E-02
<i>Hazardous Air Pollutants</i>												
Benzene	5.50E-04	9.21E-04	1.46E-03	1.96E-03	2.44E-03	2.44E-03	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04
Toluene	2.41E-04	4.04E-04	6.39E-04	8.57E-04	1.07E-03	1.07E-03	3.85E-05	3.85E-05	3.85E-05	3.85E-05	3.85E-05	3.85E-05
Xylenes	1.68E-04	2.81E-04	4.45E-04	5.98E-04	7.46E-04	7.46E-04	2.64E-05	2.64E-05	2.64E-05	2.64E-05	2.64E-05	2.64E-05
Formaldehyde	6.95E-04	1.16E-03	1.84E-03	2.47E-03	3.09E-03	3.09E-03	1.08E-05	1.08E-05	1.08E-05	1.08E-05	1.08E-05	1.08E-05
Acetaldehyde	4.52E-04	7.57E-04	1.20E-03	1.61E-03	2.01E-03	2.01E-03	3.45E-06	3.45E-06	3.45E-06	3.45E-06	3.45E-06	3.45E-06
Acrolein	5.45E-05	9.13E-05	1.44E-04	1.94E-04	2.42E-04	2.42E-04	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06
Total PAH	9.90E-05	1.66E-04	2.62E-04	3.52E-04	4.40E-04	4.40E-04	2.91E-05	2.91E-05	2.91E-05	2.91E-05	2.91E-05	2.91E-05
Total HAP	2.26E-03	3.78E-03	5.99E-03	8.04E-03	1.00E-02	1.00E-02	2.16E-04	2.16E-04	2.16E-04	2.16E-04	2.16E-04	2.16E-04
<i>Greenhouse Gases</i>												
CO ₂	96.08	160.87	254.71	341.85	426.76	426.76	22.34	22.34	22.34	22.34	22.34	22.34
CH ₄	0.00	0.01	0.01	0.01	0.02	0.02	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04	9.06E-04
N ₂ O	0.00	0.00	0.00	0.00	0.00	0.00	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04	1.81E-04
CO ₂ e	96.41	161.42	255.59	343.03	428.22	428.22	22.42	22.42	22.42	22.42	22.42	22.42

Emission Factors per Engine Type

Facility: SBN520 / SBN750
SBN520 Address: 4751 E. 61st Avenue, Hobart, IN 46342
SBN750 Address: 6197 Colorado St., Hobart, IN 46342

Notes:

9. For engine-specific emission rates:
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)
The maximum emission rate across all load levels is selected as the emission factor for a worst-case estimate of the PTE.
10. For AP-42 & GHG emission rates:
Hourly Emissions at Load X (lb/hr/gen) = Emission Factor (lb/MMBtu) x Heat Input at Load X (MMBtu/hr/gen)
The maximum emission rate across all load levels is selected as the emission factor for a worst-case estimate of the PTE.
11. Fuel Emission Rates at Load X in lb/gal/gen:

For NO_x, 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)
The maximum emission rate across all load levels is selected as the emission factor for a worst-case estimate of the PTE.

For AP-42 & GHG: lb/gal/gen = Emission Factor (lb/Mmbtu) x Diesel HHV (0.137 MMBtu/gal)
12. Total PM/PM₁₀/PM_{2.5} is the sum of filterable PM/PM₁₀/PM_{2.5} and condensable PM.
13. Three sets of control systems, manufactured by Miratech, Safety Power, and Caterpillar, respectively, have been chosen for the critical gens. For a conservative estimate of the post-controlled emissions, the Tier 4 level controls (SCR, DOC, DPF) are assumed to be the worst-case control efficiencies among the three options for each pollutant, as listed below:

NO _x	91.7%
CO	69.8%
VOC	40.0%
Filterable PM	68.6%

14. The site will monitor the catalyst bed temperature of each control device once every 15 minutes during engine operations. The catalyst bed temperature is indicative of control. During the period that the monitored temperature is above the manufacturer provided minimum operating temperature limit (572 degree F), NO_x emissions from the critical engine are controlled. If the monitored temperature is below the limit, engine NO_x emissions are uncontrolled. For uncontrolled periods, the maximum EFs in Table B.7.b across all load levels will be used for emission tracking. For controlled periods, the maximum EFs in Table B.8.b across all load levels will be used for emission tracking

B.9: Emissions Calculations
Reciprocating Internal Combustion Engines - Diesel Fuel (CEG1-CEG168)
Output Rating (>600 HP)

Company Name: Amazon Data Services, Inc.
Site: SBN520
Source Address: 4751 E. 61st Avenue, Hobart, IN 46342
Permit Number:

Maximum Horsepower Rating (hp)	4,043	
Maximum Kilowatts Power Rating (kw)	3,015	
Maximum Output Kilowatts Power Rating (ekW)	2,750	
Maximum Hours Operated per Year	500	(emergency generator)
Potential Throughput (hp-hr/year)	2,021,500	
Potential Throughput (kw-hr/year)	1,507,433	
Sulfur Content (S) of Fuel (% by weight)	0.0015	(ultra low sulfur diesel with sulfur content of 15 ppm pursuant to 40 CFR 60.4207(b))
# of Engines	168	

Note: Cells highlighted in **orange** indicate usage of AP-42 Emission Factors, cells highlighted in **blue** indicate usage of EPA Tier 2 Emission Standards, cells highlighted in **green** indicate usage of manufacturer engine specifications, and cells highlighted in **gray** indicate where limits are included.

Uncontrolled PTE (tpy) based on AP-42 (per engine)							
	PM	PM10*	direct PM2.5*	SO2 (.00809S)	NOx	VOC	CO
Uncontrolled AP-42 Emission Factor in lb/hp-hr	---	4.01E-04	3.89E-04	1.21E-05	---	---	---
PTE (tpy) (per engine)	---	0.41	0.39	0.01	---	---	---

PTE (tpy) based on EPA Tier 2 Standards (per engine)							
	PM	PM10	direct PM2.5	SO2	NOx**	VOC**	CO
EPA Tier 2 Standards (g/kw-hr)	0.20	---	---	---	5.12	1.28	3.50
PTE (tpy) (per engine)	0.33	---	---	---	8.51	2.13	5.82

Uncontrolled PTE (tpy)							
	PM	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
PTE for 168 Engines (tpy)	55.83	68.11	66.09	2.06	1429.29	357.32	977.06

Note: EPA Tier 2 Standards are preferred. Therefore, for PM, NOx, VOC, and CO, EPA Tier 2 Emission Standards have been used. AP-42 Emission Factors have been used for the pollutants not specified under EPA's Tier 2 Standards (PM10, PM2.5, and SO2).

Controlled Emissions (tpy) Based on Engine Specs (per engine)							
	PM	PM10	direct PM2.5	SO2	NOx	VOC	CO
PTE based on engine specs (worst case scenario) (lb/hr)	0.40	0.40	0.40	---	4.44	0.53	3.12
PTE (tpy) (per engine)	0.10	0.10	0.10	---	1.11	0.13	0.78

Controlled Emissions (tpy)							
	PM	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
PTE for 168 Engines (tpy)	16.83	16.83	16.83	2.06	186.43	22.46	131.15

NOx, VOC, CO are calculated after control and prior to limits.

PTE after issuance (tpy)							
	PM	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Limited PTE for 168 Engines (tpy)	55.83	68.11	66.09	2.06	45.00	45.00	90.00

PTE after issuance for PM10, PM2.5 and SO2 is based on AP-2; PM is based on Tier 2; and NOx, VOC, and CO are limited.

Hazardous Air Pollutants (HAPs)

	Pollutant (tpy)						
	Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs***
Uncontrolled AP-42 Emission Factor in lb/hp-hr****	5.43E-06	1.97E-06	1.35E-06	5.52E-07	1.78E-07	5.52E-08	1.48E-06
PTE (tpy) each engine	5.49E-03	1.99E-03	1.37E-03	5.58E-04	1.78E-04	5.58E-05	1.50E-03
Total PTE (tpy) for 168 engines	0.92	0.33	0.23	0.09	0.03	0.01	0.25

The HAP Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-3 and 3.4-4.

PTE of Total HAPs (tpy) each engine	0.01
PTE of Total HAPs (tpy) for 168 engines	1.87

Methodology

*The PM10 and PM2.5 emission factors for are from AP-42 Table 3.4-2. The PM10 emission factor is the sum of filterable PM10 and condensable particulate. The PM2.5 emission factor is the sum of filterable particulate less than 3 um and condensable particulate. Emission factors in lb/hp-hr were calculated using the emission factor in lb/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Tables 3.3-1 and 3.4-1).

** For engines that have a combined NOx + NMHC emission standard under NSPS Subpart IIII, the VOC emission standard was estimated from the combined NOx + NMHC emission standard assuming 80% NOx and 20% VOC (NMHC) based on the equation provided in 40 CFR 1039.740(c).

***PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

****Emission factors in lb/hp-hr were calculated using emission factors in lb/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Tables 3.3-1 and 3.4-1).

Maximum Output Power Rating (kw) = [Maximum Output Horsepower Rating (hp)] * [0.7457 kw/hp]

Potential Throughput (hp-hr/year) = [Maximum Output Horsepower Rating (hp)] * [Maximum Hours Operated per Year]

Potential Throughput (kw-hr/year) = [Maximum Output Power Rating (kw)] * [Maximum Hours Operated per Year]

PTE (tons/year, each engine)

Based on Uncontrolled AP-42 lb/hr Emission Factor: PTE (tons/year, each engine) = [Potential Throughput (hp-hr/year)] * [Uncontrolled Emission Factor (lb/hp-hr)] / [2,000 lb/ton]

Based on g/kw-hr Emission Standard: PTE (tons/year, each engine) = [Potential Throughput (kw-hr/year)] * [Emission Standard (g/kw-hr)] * [lb/453.592 grams] / [2,000 lb/ton]

Based on lbs/hr Emission Rate: PTE (tons/year, each engine) = [Emission Rate (lbs/hr)] * [Maximum Hours Operated per Year] / [2,000 lb/ton]

Total PTE (tons/year, 168 engines) = [PTE (tons/year, each engine)] * [168 engines]

B.10: Emissions Calculations
Reciprocating Internal Combustion Engines - Diesel Fuel (AWB1)
Output Rating (>600 HP)
Maximum Input Rate (>4.2 MMBtu/hr)

Company Name: Amazon Data Services, Inc.
Site: SBN520
Source Address: 4751 E. 61st Avenue, Hobart, IN 46342
Permit Number:

The engine has been certified to comply with the emission standards in 40 CFR 60, Subpart IIII, New Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines. Therefore, the NSPS Subpart IIII emission standards for PM, NOx, VOC, and CO are used as the emission factors to determine the potential to emit (PTE).

Emissions calculated based on output rating (hp)

NSPS Subpart IIII Emission Standards based on a:

Maximum Output Horsepower Rating (bhp)	2,360.0	from Manufacturer data	EPA Tier 2 standards
Maximum Mechanical Power Output Rating (kw)	1,759.9	calculated from maximum hp	
Maximum Electrical Power Output Rating (ekw)	1,600.0	from Manufacturer data	
Maximum Hours Operated per Year	500	(emergency generator or fire pump)	
Potential Throughput (hp-hr/yr)	1,180,000		
Potential Throughput (kw-hr/yr)	879,926		
Limited Hours Operated per Year	50		
Sulfur Content (S) of Fuel (% by weight)	0.0015	(ultra low sulfur diesel with sulfur content of 15 ppm pursuant to 40 CFR 60.4207(b))	
Number of Identical Gens	1		

	Pollutant						
	PM	PM10*	direct PM2.5*	SO2 (.00809S)	NOx ¹	VOC ¹	CO
AP-42 Emission Factor in lb/hp-hr		4.01E-04	3.89E-04	1.21E-05			
40 CFR 60 (NSPS), Subpart IIII, Emission Standard (g/kw-hr)	0.20				5.12	1.28	3.5
Potential Emissions ton/year							
Based on AP-42 lb/hr Emission Factor		0.24	0.23	0.01			
Based on g/kw-hr Emission Factor	0.19				4.97	1.24	3.39
PTE (lb/hr)	0.78	0.95	0.92	0.03	19.86	4.97	13.58
Potential Emission in tons/yr (each)	0.19	0.24	0.23	0.01	4.97	1.24	3.39
Potential Emission in tons/yr (Total)	0.19	0.24	0.23	0.01	4.97	1.24	3.39
Limited Potential Emissions in tons/yr (Total)	0.02	0.02	0.02	0.001	0.50	0.12	0.34

The PM10 and PM2.5 emission factors are from AP-42 Table 3.4-3. The PM10 emission

Note 1: For engines that have a combined NOx + NMHC emission standard under NSPS Subpart IIII, the individual NOx and VOC emission standards were estimated from the combined NOx + NMHC emission standard assuming 80% NOx and 20% VOC (NMHC) based on the equation provided in 40 CFR 1039.740(c).

Hazardous Air Pollutants (HAPs)

	Pollutant						
	Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs**
Emission Factor in lb/hp-hr***	5.43E-06	1.97E-06	1.35E-06	5.52E-07	1.76E-07	5.52E-08	1.48E-06
Potential Emission in tons/yr, each engine	3.20E-03	1.16E-03	7.97E-04	3.26E-04	1.04E-04	3.25E-05	8.76E-04

**PAH = Polycyclic Aromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

***Emission factors in lb/hp-hr were calculated using emission factors in lb/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Tables 3.3-1 and 3.4-1).

Potential Emission of Total HAPs (tons/yr, total)	6.50E-03
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Methodology

Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-1, 3.4-2, 3.4-3, and 3.4-4.

Potential Throughput (hp-hr/yr) = [Output Horsepower Rating (hp)] * [Maximum Hours Operated per Year]

Potential Emission (tons/yr) = [Potential Throughput (hp-hr/yr)] * [Emission Factor (lb/hp-hr)] / [2,000 lb/ton]

B.11: Emissions Calculations
Reciprocating Internal Combustion Engines - Diesel Fuel (ACBGen1)
Output Rating (<=600 HP)
Maximum Input Rate (<=4.2 MMBtu/hr)

Company Name: Amazon Data Services, Inc.
Site: SBN520
Source Address: 4751 E. 61st Avenue, Hobart, IN 46342
Permit Number:

The engine has been certified to comply with the emission standards in 40 CFR 60, Subpart IIII, New Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines. Therefore, the NSPS Subpart IIII emission standards for PM, NOx, VOC, and CO are used as the emission factors to determine the potential to emit (PTE).

Emissions calculated based on output rating (hp)

Maximum Output Horsepower Rating (bhp)	398.0	from Manufacturer data	NSPS Subpart IIII Emission Standards based on a: EPA Tier 3 standards
Maximum Mechanical Power Output Rating (kw)	296.8	calculated from maximum hp	
Maximum Electrical Power Output Rating (ekw)	250.0	from Manufacturer data	
Maximum Hours Operated per Year	500	(emergency generator or fire pump)	
Potential Throughput (hp-hr/yr)	199,000		
Potential Throughput (kw-hr/yr)	148,394		
Limited Hours Operated per Year	50		
Sulfur Content (S) of Fuel (% by weight)	0.0015	(ultra low sulfur diesel with sulfur content of 15 ppm pursuant to 40 CFR 60.4207(b))	

	Pollutant						
	PM	PM10*	direct PM2.5*	SO2	NOx ¹	VOC ¹	CO
AP-42 Emission Factor in lb/hp-hr		0.0022	0.0022	0.00205			
40 CFR 60 (NSPS), Subpart IIII, Emission Standard (g/kw-hr)	0.20				3.20	0.80	3.5
Potential Emissions ton/year							
Based on AP-42 lb/hr Emission Factor		0.22	0.22	0.20			
Based on g/kw-hr Emission Factor	0.03				0.52	0.13	0.57
PTE (lb/hr)	0.13	0.88	0.88	0.82	2.09	0.52	2.29
Potential Emission in tons/yr (each)	0.03	0.22	0.22	0.20	0.52	0.13	0.57
Potential Emission in tons/yr (Total)	0.03	0.22	0.22	0.20	0.52	0.13	0.57
Limited Potential Emissions in tons/yr (Total)	0.00	0.02	0.02	0.020	0.05	0.01	0.06

*PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensable.

Note 1: For engines that have a combined NOx + NMHC emission standard under NSPS Subpart IIII, the individual NOx and VOC emission standards were estimated from the combined NOx + NMHC emission standard assuming 80% NOx and 20% VOC (NMHC) based on the equation provided in 40 CFR 1039.740(c).

Hazardous Air Pollutants (HAPs)

	Pollutant							
	Benzene	Toluene	Xylene	1,3-Butadiene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs**
Emission Factor in lb/hp-hr***	6.53E-06	2.86E-06	2.00E-06	2.74E-07	8.26E-06	5.37E-06	6.48E-07	1.18E-06
Potential Emission in tons/yr	6.50E-04	2.85E-04	1.99E-04	2.72E-05	8.22E-04	5.34E-04	6.44E-05	1.17E-04

**PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

***Emission factors in lb/hp-hr were calculated using emission factors in lb/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Table 3.3-1).

Potential Emission of Total HAPs (tons/yr)	2.70E-03
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Methodology

Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.3-1 and 3.3-2.

Output Horsepower Rating (kw) = Output Horsepower Rating (hp) * (0.7457 kw/hp)

Potential Throughput (hp-hr/yr) = [Output Horsepower Rating (hp)] * [Maximum Hours Operated per Year]

Potential Throughput (kw-hr/yr) = [Output Horsepower Rating (kw)] * [Maximum Hours Operated per Year]

Potential Emission (tons/yr) = [Potential Throughput (hp-hr/yr)] * [Emission Factor (lb/hp-hr)] * [ton/2,000 lbs]

Potential Emission (tons/yr) = [Potential Throughput (kw-hr/yr)] * [Emission Factor (g/kw-hr)] * [lb / 453.592 g] * [ton/2,000 lbs]

Potential Emissions - Diesel Fuel Storage Tanks

Facility: **SBN520**

Address: **4751 E. 61st Avenue, Hobart, IN 46342**

Table B.12 - VOC Emission Calculations for Diesel Fuel Storage Tanks

Parameter Description ^(a)	Source/ Equation	Belly Tanks for CEG1 - CEG168	Belly Tank for AWB1	Belly Tank for ACB1	12,000-Gal Storage Tank
		Potential	Potential	Potential	Potential
		6,700-gal	2,640-gal	495-gal	12,000-gal
Material Stored	Facility Information	Diesel Fuel	Diesel Fuel	Diesel Fuel	Diesel Fuel
Location	Facility Information	Indoors	Indoors	Indoors	Outdoors
Tank Type	Facility Information	Horizontal	Horizontal	Horizontal	Horizontal
Roof Type	Facility Information	Fixed	Fixed	Fixed	Fixed
Bottom Type	Facility Information	Flat	Flat	Flat	Flat
Tank Color	Facility Information	Grey - Med	Grey - Med	Grey - Med	White
Roof Color	Facility Information	Grey - Med	Grey - Med	Grey - Med	White
Paint Condition	Facility Information	Average	Average	Average	Average
Heated	Facility Information	No	No	No	No
Tank Diameter (D), ft	Facility Information	N/A	N/A	N/A	8.00
Bottom Height (H _C), ft	Facility Information	N/A	N/A	N/A	N/A
Tank Width (W), ft	Facility Information	14.33	8.65	4.17	N/A
Tank Length (L), ft	Facility Information	37.50	20.83	9.53	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	4
Effective Diameter (D _E), ft	Horizontal tank: $D_E = (LD/(n/4))^{1/2}$				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	1.67	N/A
Effective Height (H _E), ft	Rectangular tank: $H_S = H_E$ Horizontal tank: $H_E = (n/4)D$	1.67	1.96	1.67	6.28
Tank Volume (V), ft ³	Horizontal tank: $V = nR_S^2L$ Rectangular tank: $V = WLH_S$	896	353	66	1604
Tank Volume (V), gal	$V = \text{ft}^3 * 7.48 \text{ gal/ft}^3$	6,700	2,640	495	12,000
Liquid Height (H _L), ft	Horizontal & rectangular tank: Assumed $H_L = 0.5H_S$	0.83	0.98	0.83	3.14
Tank Cone Roof Slope (S _R), ft/ft	Flat Roof: $S_R = 0$	0	0	0	0
Tank Roof Height (H _R), ft	Flat Roof: $H_R = S_R R_S$	0	0	0	0
Roof Outage (H _{RO}), ft	Flat Roof: $H_{RO} = 0$	0	1	0	0
Vapor Space Outage (H _{VO}), ft	Horizontal tank: $H_{VO} = 1/2H_E$	0.83	0.98	0.83	3.14
Vapor Space Volume (V _V), ft ³	Horizontal tank: $V_V = n/4(D_E^2 H_{VO})$ Rectangular tank: $H_{VO}WL$	447.86	176.45	33.10	802.15
Ideal Gas Constant (R), psia ft ³ /lb-mole R	Constant	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
Daily Minimum Ambient Temperature (T _{AN}), R	AP-42, Table 7.1-7 (Jackson, MS)	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
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	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	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
Vapor Pressure Constant, A	AP-42, Table 7.1-2, No 2 Fuel Oil	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
Vapor Pressure at T _{LA} (P _{VA}), psia	$P_{VA} = \exp[A - (B/T_{LA})]$	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	528.0 (Note 2)

Potential Emissions - Diesel Fuel Storage Tanks

Facility: **SBN520**

Address: **4751 E. 61st Avenue, Hobart, IN 46342**

Table B.12 - VOC Emission Calculations for Diesel Fuel Storage Tanks

Parameter Description ^(a)	Source/Equation	Belly Tanks for CEG1 - CEG168	Belly Tank for AWB1	Belly Tank for ACB1	12,000-Gal Storage Tank
		Potential	Potential	Potential	Potential
Vapor Density (W_v), lb/ft ³	$W_v = M_v P_{vA} / RT_v$	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
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
Vapor Pressure at T_{AN} (P_{vN}), psia	$P_{vN} = \exp[A - (B/T_{AN})]$	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
Daily Vapor Pressure Range (ΔP_v), psia	$\Delta P_v = P_{vX} - P_{vN}$	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
Atmospheric Pressure (P_A), psia	Constant	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
Vented Vapor Saturation Factor (K_S), dimensionless	$K_S = 1 / (1 + 0.053 P_{vA} H_{vO})$	1.0	1.0	1.0	1.0
Number of Days/Year in Operation	Constant	365	365	365	365
Standing Storage Losses (L_S), lb/year/tank	$L_S = 365 W_v V_v K_E K_S$	0.70	0.27	0.05	1.33
Maximum Throughput (Q), gal ^{2,3}	Facility Information	5,150	6,564	1,146	145,496
Maximum Throughput (V_Q), ft	Conversion	688.5	877.5	153.2	19,450.0
Tank Maximum Liquid Volume (V_{LX}), ft	Horizontal tank: Assumed $V_{LX} = 0.9V$	806.2	317.6	59.6	1443.9
Turnovers (N), dimensionless	$N = V_Q / V_{LX}$	0.9	2.8	2.6	13.5
Turnover Factor (K_N), dimensionless	For $N \leq 36$ $K_N = 1$, For $N > 36$ $K_N = (180 + N) / 6N$	1.0	1.0	1.0	1.0
Working Loss Factor (K_P), dimensionless	For Organic Liquids, $K_P = 1$	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
Working Losses (L_W), lb/year/tank	$L_W = V_Q K_N K_P W_v K_B$	0.12	0.15	0.03	3.66
Total Uncontrolled Losses (L_T), lb/year/tank	$L_T = L_S + L_W$	0.82	0.43	0.08	4.99
Total Uncontrolled Losses (L_T), lb/hr/tank	Calculated assuming 8,760 hr/yr	9.32E-05	4.88E-05	8.93E-06	5.70E-04
Total Uncontrolled Losses (L_T), ton/year/tank	2,000 lb/ton	4.08E-04	2.14E-04	3.91E-05	2.50E-03
Number of Tanks	Facility Information	168	1	1	6
Total Uncontrolled Losses (L_T), lb/hr (all tanks)	$L_T = \text{lb/hr/tank} * \# \text{ tanks}$	1.57E-02	4.88E-05	8.93E-06	3.42E-03
Total Uncontrolled Losses (L_T), ton/year (all tanks)	$L_T = \text{ton/year/tank} * \# \text{ tanks}$	6.86E-02	2.14E-04	3.91E-05	1.50E-02

Notes:

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

2. 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/(ft² day)) was taken from Table 7.1-7.

B.13: Emissions Calculations
Reciprocating Internal Combustion Engines - Diesel Fuel (CEG169-CEG740)
Output Rating (>600 HP)

Company Name: Amazon Data Services, Inc.
Site: SBN750
Source Address: 6197 Colorado St., Hobart, IN 46342
Permit Number:

Maximum Horsepower Rating (hp)	4,043	
Maximum Kilowatts Power Rating (kw)	3,015	
Maximum Output Kilowatts Power Rating (ekW)	2,750	
Maximum Hours Operated per Year	500	(emergency generator)
Potential Throughput (hp-hr/year)	2,021,500	
Potential Throughput (kw-hr/year)	1,507,433	
Sulfur Content (S) of Fuel (% by weight)	0.0015	(ultra low sulfur diesel with sulfur content of 15 ppm pursuant to 40 CFR 60.4207(b))
# of Engines	598	

Note: Cells highlighted in **orange** indicate usage of AP-42 Emission Factors, cells highlighted in **blue** indicate usage of EPA Tier 2 Emission Standards, cells highlighted in **green** indicate usage of manufacturer engine specifications, and cells highlighted in **gray** indicate where limits are included.

Uncontrolled PTE (tpy) based on AP-42 (per engine)							
	PM	PM10*	direct PM2.5*	SO2 (.00809S)	NOx	VOC	CO
Uncontrolled AP-42 Emission Factor in lb/hp-hr	---	4.01E-04	3.89E-04	1.21E-05	---	---	---
PTE (tpy) (per engine)	---	0.41	0.39	0.01	---	---	---

PTE (tpy) based on EPA Tier 2 Standards (per engine)							
	PM	PM10	direct PM2.5	SO2	NOx**	VOC**	CO
EPA Tier 2 Standards (g/kw-hr)	0.20	---	---	---	5.12	1.28	3.50
PTE (tpy) (per engine)	0.33	---	---	---	8.51	2.13	5.82

Uncontrolled PTE (tpy)							
	PM	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
PTE for 572 Engines (tpy)	198.73	242.44	235.24	7.33	5087.61	1271.90	3477.86

Note: EPA Tier 2 Standards are preferred. Therefore, for PM, NOx, VOC, and CO, EPA Tier 2 Emission Standards have been used. AP-42 Emission Factors have been used for the pollutants not specified under EPA's Tier 2 Standards (PM10, PM2.5, and SO2).

Controlled Emissions (tpy) Based on Engine Specs (per engine)							
	PM	PM10	direct PM2.5	SO2	NOx	VOC	CO
PTE based on engine specs (worst case scenario) (lb/hr)	0.40	0.40	0.40	---	4.44	0.53	3.12
PTE (tpy) (per engine)	0.10	0.10	0.10	---	1.11	0.13	0.78

Controlled Emissions (tpy)							
	PM	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
PTE for 572 Engines (tpy)	59.89	59.89	59.89	7.33	663.60	79.95	466.81

NOx, VOC, CO are calculated after control and prior to limits.

PTE after issuance (tpy)							
	PM	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Limited PTE for 572 Engines (tpy)	198.73	242.44	235.24	7.33	45.00	45.00	90.00

PTE after issuance for PM10, PM2.5 and SO2 is based on AP-2; PM is based on Tier 2; and NOx, VOC, and CO are limited.

Hazardous Air Pollutants (HAPs)

Pollutant (tpy)							
	Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs***
Uncontrolled AP-42 Emission Factor in lb/hp-hr****	5.43E-06	1.97E-06	1.35E-06	5.52E-07	1.78E-07	5.52E-08	1.48E-06
PTE (tpy) each engine	5.49E-03	1.99E-03	1.37E-03	5.58E-04	1.78E-04	5.58E-05	1.50E-03
Total PTE (tpy) for 168 engines	3.28	1.19	0.82	0.33	0.11	0.03	0.90

The HAP Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-3 and 3.4-4.

PTE of Total HAPs (tpy) each engine	0.01
PTE of Total HAPs (tpy) for 572 engines	6.66

Methodology

*The PM10 and PM2.5 emission factors for are from AP-42 Table 3.4-2. The PM10 emission factor is the sum of filterable PM10 and condensable particulate. The PM2.5 emission factor is the sum of filterable particulate less than 3 um and condensable particulate. Emission factors in lb/hp-hr were calculated using the emission factor in lb/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Tables 3.3-1 and 3.4-1).

** For engines that have a combined NOx + NMHC emission standard under NSPS Subpart IIII, the VOC emission standard was estimated from the combined NOx + NMHC emission standard assuming 80% NOx and 20% VOC (NMHC) based on the equation provided in 40 CFR 1039.740(c).

***PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

****Emission factors in lb/hp-hr were calculated using emission factors in lb/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Tables 3.3-1 and 3.4-1).

Maximum Output Power Rating (kw) = [Maximum Output Horsepower Rating (hp)] * [0.7457 kw/hp]

Potential Throughput (hp-hr/year) = [Maximum Output Horsepower Rating (hp)] * [Maximum Hours Operated per Year]

Potential Throughput (kw-hr/year) = [Maximum Output Power Rating (kw)] * [Maximum Hours Operated per Year]

PTE (tons/year, each engine)

Based on Uncontrolled AP-42 lb/hr Emission Factor: PTE (tons/year, each engine) = [Potential Throughput (hp-hr/year)] * [Uncontrolled Emission Factor (lb/hp-hr)] / [2,000 lb/ton]

Based on g/kw-hr Emission Standard: PTE (tons/year, each engine) = [Potential Throughput (kw-hr/year)] * [Emission Standard (g/kw-hr)] * [lb/453.592 grams] / [2,000 lb/ton]

Based on lbs/hr Emission Rate: PTE (tons/year, each engine) = [Emission Rate (lbs/hr)] * [Maximum Hours Operated per Year] / [2,000 lb/ton]

Total PTE (tons/year, 598 engines) = [PTE (tons/year, each engine)] * [598 engines]

B.14: Emissions Calculations
Reciprocating Internal Combustion Engines - Diesel Fuel (HEG1-HEG10)
Output Rating (>600 HP)
Maximum Input Rate (>4.2 MMBtu/hr)

Company Name: Amazon Data Services, Inc.
Site: SBN750
Source Address: 6197 Colorado St., Hobart, IN 46342
Permit Number:

The engine has been certified to comply with the emission standards in 40 CFR 60, Subpart IIII, New Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines. Therefore, the NSPS Subpart IIII emission standards for PM, NOx, VOC, and CO are used as the emission factors to determine the potential to emit (PTE).

Emissions calculated based on output rating (hp)

Maximum Output Horsepower Rating (bhp)	1,114.0	from Manufacturer data (C18 d EPA Tier 2 standards
Maximum Mechanical Power Output Rating (kw)	830.7	calculated from maximum hp
Maximum Electrical Power Output Rating (ekw)	750.0	from Manufacturer data
Maximum Hours Operated per Year per Unit	500	(emergency generator or fire pump)
Potential Throughput (hp-hr/yr)	557,000	
Potential Throughput (kw-hr/yr)	415,355	
Limited Hours Operated per Year	550	(HEG1 - HEG10 combined)
Sulfur Content (S) of Fuel (% by weight)	0.0015	(ultra low sulfur diesel with sulfur content of 15 ppm pursuant to 40 CFR 60.4207(b))
# of Proposed House Generators (HEG)	11	

	Pollutant						
	PM	PM10*	direct PM2.5*	SO2 (.00809S)	NOx ¹	VOC ¹	CO
AP-42 Emission Factor in lb/hp-hr		4.01E-04	3.89E-04	1.21E-05			
40 CFR 60 (NSPS), Subpart IIII, Emission Standard (g/kw-hr)	0.20				5.12	1.28	3.5
Potential Emissions ton/year							
Based on AP-42 lb/hr Emission Factor		0.11	0.11	3.38E-03			
Based on g/kw-hr Emission Factor	0.09				2.34	0.59	1.60
PTE (lb/hr)	0.37	0.45	0.43	0.01	9.38	2.34	6.41
Potential Emission in tons/yr (each)	0.09	0.11	0.11	0.00	2.34	0.59	1.60
Potential Emission in tons/yr (total 10 HEGs)	1.01	1.23	1.19	0.04	25.79	6.45	17.63
Limited Potential Emissions in tons/yr (Total)	0.10	0.12	0.12	0.00	2.58	0.64	1.76

*The PM10 and PM2.5 emission factors are from AP-42 Table 3.4-2. The PM10 emission factor is the sum of filterable PM10 and condensable particulate. The PM2.5 emission factor is the sum of filterable particulate less than 3 um and condensable particulate. Emission factors in lb/hp-hr were calculated using the emission factor in lb/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Tables 3.3-1 and 3.4-1).

Note 1: For engines that have a combined NOx + NMHC emission standard under NSPS Subpart IIII, the individual NOx and VOC emission standards were estimated from the combined NOx + NMHC emission standard assuming 80% NOx and 20% VOC (NMHC) based on the equation provided in 40 CFR 1039.740(c).

Hazardous Air Pollutants (HAPs)

	Pollutant						
	Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs**
Emission Factor in lb/hp-hr***	5.43E-06	1.97E-06	1.35E-06	5.52E-07	1.76E-07	5.52E-08	1.48E-06
Potential Emission in tons/yr (each gen)	1.51E-03	5.48E-04	3.76E-04	1.54E-04	4.91E-05	1.54E-05	4.13E-04
Potential Emission in tons/yr (total 10 HEGs)	1.66E-02	6.03E-03	4.14E-03	1.69E-03	5.40E-04	1.69E-04	4.55E-03

**PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

***Emission factors in lb/hp-hr were calculated using emission factors in lb/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Tables 3.3-1 and 3.4-1).

Potential Emission of Total HAPs (tons/yr, each gen)	3.07E-03
Potential Emission of Total HAPs (tons/yr, total 10 HGs)	3.38E-02

Methodology

Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-1 , 3.4-2, 3.4-3, and 3.4-4.

Potential Throughput (hp-hr/yr) = [Output Horsepower Rating (hp)] * [Maximum Hours Operated per Year]

Potential Emission (tons/yr) = [Potential Throughput (hp-hr/yr)] * [Emission Factor (lb/hp-hr)] / [2,000 lb/ton]

B.15: Emissions Calculations
Reciprocating Internal Combustion Engines - Diesel Fuel (AWB2)
Output Rating (>600 HP)
Maximum Input Rate (>4.2 MMBtu/hr)

Company Name: Amazon Data Services, Inc.
Site: SBN750
Source Address: 6197 Colorado St., Hobart, IN 46342
Permit Number:

The engine has been certified to comply with the emission standards in 40 CFR 60, Subpart IIII, New Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines. Therefore, the NSPS Subpart IIII emission standards for PM, NOx, VOC, and CO are used as the emission factors to determine the potential to emit (PTE).

Emissions calculated based on output rating (hp)

Maximum Output Horsepower Rating (bhp)	2,360.0	from Manufacturer data	NSPS Subpart IIII Emission Standards based on a: EPA Tier 2 standards
Maximum Mechanical Power Output Rating (kw)	1,759.9	calculated from maximum hp	
Maximum Electrical Power Output Rating (ekw)	1,600.0	from Manufacturer data	
Maximum Hours Operated per Year	500	(emergency generator or fire pump)	
Potential Throughput (hp-hr/yr)	1,180,000		
Potential Throughput (kw-hr/yr)	879,926		
Limited Hours Operated per Year	50		
Sulfur Content (S) of Fuel (% by weight)	0.0015	(ultra low sulfur diesel with sulfur content of 15 ppm pursuant to 40 CFR 60.4207(b))	
Number of Identical Gens	1		

	Pollutant						
	PM	PM10*	direct PM2.5*	SO2	NOx ¹	VOC ¹	CO
AP-42 Emission Factor in lb/hp-hr		4.01E-04	3.89E-04	1.21E-05			
40 CFR 60 (NSPS), Subpart IIII, Emission Standard (g/kw-hr)	0.20			(.00809S)	5.12	1.28	3.5
Potential Emissions ton/year							
Based on AP-42 lb/hr Emission Factor		0.24	0.23	0.01			
Based on g/kw-hr Emission Factor	0.19				4.97	1.24	3.39
PTE (lb/hr)	0.78	0.95	0.92	0.03	19.86	4.97	13.58
Potential Emission in tons/yr (each)	0.19	0.24	0.23	0.01	4.97	1.24	3.39
Potential Emission in tons/yr (Total)	0.19	0.24	0.23	0.01	4.97	1.24	3.39
Limited Potential Emissions in tons/yr (Total)	0.02	0.02	0.02	0.001	0.50	0.12	0.34

The PM10 and PM2.5 emission factors for are from AP-42 Table 3.4-2. The PM10 emission

Note 1: For engines that have a combined NOx + NMHC emission standard under NSPS Subpart IIII, the individual NOx and VOC emission standards were estimated from the combined NOx + NMHC emission standard assuming 80% NOx and 20% VOC (NMHC) based on the equation provided in 40 CFR 1039.740(c).

Hazardous Air Pollutants (HAPs)

	Pollutant						
	Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs**
Emission Factor in lb/hp-hr***	5.43E-06	1.97E-06	1.35E-06	5.52E-07	1.76E-07	5.52E-08	1.48E-06
Potential Emission in tons/yr, each engine	3.20E-03	1.16E-03	7.97E-04	3.26E-04	1.04E-04	3.25E-05	8.76E-04

**PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

***Emission factors in lb/hp-hr were calculated using emission factors in lb/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Tables 3.3 and 3.4-1).

Potential Emission of Total HAPs (tons/yr, total)	6.50E-03
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Methodology

Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-1 , 3.4-2, 3.4-3, and 3.4-4.

Potential Throughput (hp-hr/yr) = [Output Horsepower Rating (hp)] * [Maximum Hours Operated per Year]

Potential Emission (tons/yr) = [Potential Throughput (hp-hr/yr)] * [Emission Factor (lb/hp-hr)] / [2,000 lb/ton]

B.16: Emissions Calculations
Reciprocating Internal Combustion Engines - Diesel Fuel (CAB1)
Output Rating (<=600 HP)
Maximum Input Rate (<=4.2 MMBtu/hr)

Company Name: Amazon Data Services, Inc.
Site: SBN750
Source Address: 6197 Colorado St., Hobart, IN 46342
Permit Number:

The engine has been certified to comply with the emission standards in 40 CFR 60, Subpart IIII, New Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines. Therefore, the NSPS Subpart IIII emission standards for PM, NOx, VOC, and CO are used as the emission factors to determine the potential to emit (PTE).

Emissions calculated based on output rating (hp)

Maximum Output Horsepower Rating (bhp)	609.0	from Manufacturer data	NSPS Subpart IIII Emission Standards based on a: EPA Tier 3 standards
Maximum Mechanical Power Output Rating (kw)	454.1	calculated from maximum hp	
Maximum Electrical Power Output Rating (ekw)	400.0	from Manufacturer data	
Maximum Hours Operated per Year	500	(emergency generator or fire pump)	
Potential Throughput (hp-hr/yr)	304,500		
Potential Throughput (kw-hr/yr)	227,066		
Limited Hours Operated per Year	50		
Sulfur Content (S) of Fuel (% by weight)	0.0015	(ultra low sulfur diesel with sulfur content of 15 ppm pursuant to 40 CFR 60.4207(b))	
Number of Identical Gens	1		

	Pollutant						
	PM	PM10*	direct PM2.5*	SO2	NOx ¹	VOC ¹	CO
AP-42 Emission Factor in lb/hp-hr		0.0022	0.0022	0.00205			
40 CFR 60 (NSPS), Subpart IIII, Emission Standard (g/kw-hr)	0.20				3.20	0.80	3.5
Potential Emissions ton/year							
Based on AP-42 lb/hr Emission Factor		0.33	0.33	0.31			
Based on g/kw-hr Emission Factor	0.05				0.80	0.20	0.88
PTE (lb/hr)	0.20	1.34	1.34	1.25	3.20	0.80	3.50
Potential Emission in tons/yr (each)	0.05	0.33	0.33	0.31	0.80	0.20	0.88
Potential Emission in tons/yr (Total)	0.05	0.33	0.33	0.31	0.80	0.20	0.88
Limited Potential Emissions in tons/y	0.01	0.03	0.03	0.031	0.08	0.02	0.09

*PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensable.

Note 1: For engines that have a combined NOx + NMHC emission standard under NSPS Subpart IIII, the individual NOx and VOC emission standards were estimated from the combined NOx + NMHC emission standard assuming 80% NOx and 20% VOC (NMHC) based on the equation provided in 40 CFR 1039.740(c).

Hazardous Air Pollutants (HAPs)

	Pollutant							
	Benzene	Toluene	Xylene	1,3-Butadiene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs**
Emission Factor in lb/hp-hr***	6.53E-06	2.86E-06	2.00E-06	2.74E-07	8.26E-06	5.37E-06	6.48E-07	1.18E-06
Potential Emission in tons/yr, each engir	9.94E-04	4.36E-04	3.04E-04	4.17E-05	1.26E-03	8.17E-04	9.86E-05	1.79E-04

**PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

***Emission factors in lb/hp-hr were calculated using emission factors in lb/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Table 3.3-1).

Potential Emission of Total HAPs (tons/yr, total)	4.13E-03
--	-----------------

Methodology

Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.3-1 and 3.3-2.

Output Horsepower Rating (kw) = Output Horsepower Rating (hp) * (0.7457 kw/hp)

Potential Throughput (hp-hr/yr) = [Output Horsepower Rating (hp)] * [Maximum Hours Operated per Year]

Potential Throughput (kw-hr/yr) = [Output Horsepower Rating (kw)] * [Maximum Hours Operated per Year]

Potential Emission (tons/yr) = [Potential Throughput (hp-hr/yr)] * [Emission Factor (lb/hp-hr)] * [ton/2,000 lbs]

Potential Emission (tons/yr) = [Potential Throughput (kw-hr/yr)] * [Emission Factor (g/kw-hr)] * [lb / 453.592 g] * [ton/2,000 lbs]

B.17: Emissions Calculations
Reciprocating Internal Combustion Engines - Diesel Fuel (ACB2)
Output Rating (<=600 HP)
Maximum Input Rate (<=4.2 MMBtu/hr)

Company Name: Amazon Data Services, Inc.
Site: SBN750
Source Address: 6197 Colorado St., Hobart, IN 46342
Permit Number:

The engine has been certified to comply with the emission standards in 40 CFR 60, Subpart IIII, New Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines. Therefore, the NSPS Subpart IIII emission standards for PM, NOx, VOC, and CO are used as the emission factors to determine the potential to emit (PTE).

Emissions calculated based on output rating (hp)

Maximum Output Horsepower Rating (bhp)	398.0	from Manufacturer data	NSPS Subpart IIII Emission Standards based on a: EPA Tier 3 standards
Maximum Mechanical Power Output Rating (kw)	296.8	calculated from maximum hp	
Maximum Electrical Power Output Rating (ekw)	250.0	from Manufacturer data	
Maximum Hours Operated per Year	500	(emergency generator or fire pump)	
Potential Throughput (hp-hr/yr)	199,000		
Potential Throughput (kw-hr/yr)	148,394		
Limited Hours Operated per Year	50		
Sulfur Content (S) of Fuel (% by weight)	0.0015	(ultra low sulfur diesel with sulfur content of 15 ppm pursuant to 40 CFR 60.4207(b))	

	Pollutant						
	PM	PM10*	direct PM2.5*	SO2	NOx ¹	VOC ¹	CO
AP-42 Emission Factor in lb/hp-hr		0.0022	0.0022	0.00205			
40 CFR 60 (NSPS), Subpart IIII, Emission Standard (g/kw-hr)	0.20				3.20	0.80	3.5
Potential Emissions ton/year							
Based on AP-42 lb/hr Emission Factor		0.22	0.22	0.20			
Based on g/kw-hr Emission Factor	0.03				0.52	0.13	0.57
PTE (lb/hr)	0.13	0.88	0.88	0.82	2.09	0.52	2.29
Potential Emission in tons/yr (each)	0.03	0.22	0.22	0.20	0.52	0.13	0.57
Potential Emission in tons/yr (Total)	0.03	0.22	0.22	0.20	0.52	0.13	0.57
Limited Potential Emissions in tons/yr (Total)	0.00	0.02	0.02	0.020	0.05	0.01	0.06

*PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensable.

Note 1: For engines that have a combined NOx + NMHC emission standard under NSPS Subpart IIII, the individual NOx and VOC emission standards were estimated from the combined NOx + NMHC emission standard assuming 80% NOx and 20% VOC (NMHC) based on the equation provided in 40 CFR 1039.740(c).

Hazardous Air Pollutants (HAPs)

	Pollutant							Total PAH HAPs**
	Benzene	Toluene	Xylene	1,3-Butadiene	Formaldehyde	Acetaldehyde	Acrolein	
Emission Factor in lb/hp-hr***	6.53E-06	2.86E-06	2.00E-06	2.74E-07	8.26E-06	5.37E-06	6.48E-07	1.18E-06
Potential Emission in tons/yr	6.50E-04	2.85E-04	1.99E-04	2.72E-05	8.22E-04	5.34E-04	6.44E-05	1.17E-04

**PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

***Emission factors in lb/hp-hr were calculated using emission factors in lb/MMBtu and a brake specific fuel consumption of 7,000 Btu / hp-hr (AP-42 Table 3.3-1).

Potential Emission of Total HAPs (tons/yr)	2.70E-03
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Methodology

Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.3-1 and 3.3-2.

Output Horsepower Rating (kw) = Output Horsepower Rating (hp) * (0.7457 kw/hp)

Potential Throughput (hp-hr/yr) = [Output Horsepower Rating (hp)] * [Maximum Hours Operated per Year]

Potential Throughput (kw-hr/yr) = [Output Horsepower Rating (kw)] * [Maximum Hours Operated per Year]

Potential Emission (tons/yr) = [Potential Throughput (hp-hr/yr)] * [Emission Factor (lb/hp-hr)] * [ton/2,000 lbs]

Potential Emission (tons/yr) = [Potential Throughput (kw-hr/yr)] * [Emission Factor (g/kw-hr)] * [lb / 453.592 g] * [ton/2,000 lbs]

Potential Emissions - Diesel Fuel Storage Tanks

Facility: SB750
Address: 6197 Colorado St., Hobart, IN 46342

Table B.18 - VOC Emission Calculations for Diesel Fuel Storage Tanks

Parameter Description ^(a)	Source/Equation	Belly Tanks for CEG169-CEG740	Belly Tank for AWB2	Belly Tanks for HEG1 - HEG10	Belly Tank for CAB	Belly Tank for ACB2	12,000-Gal Storage Tank
		Potential 6,700-gal	Potential 2,640-gal	Potential 1,367-gal	Potential 770-gal	Potential 495-gal	Potential 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	14.33	8.65	3.31	5.00	4.17	N/A
Tank Length (L), ft	Facility Information	37.50	20.83	22.11	9.88	9.53	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: $D_E = (LD/(n/4))^{1/2}$						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	2.50	2.08	1.67	N/A
Effective Height (H _E), ft	Rectangular tank: $H_E = H_S$ Horizontal tank: $H_E = (n/4)D$	1.67	1.96	2.50	2.08	1.67	6.28
Tank Volume (V), ft ³	Horizontal tank: $V = nR_S^2L$ Rectangular tank: $V = WLH_S$	896	353	183	103	66	1604
Tank Volume (V), gal	$V = \text{ft}^3 \times 7.48 \text{ gal/ft}^3$	6,700	2,640	1,367	770	495	12,000
Liquid Height (H _L), ft	Horizontal & rectangular tank: Assumed $H_L = 0.5H_S$	0.83	0.98	1.25	1.04	0.83	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	1.25	1.04	0.83	3.14
Vapor Space Volume (V _V), ft ³	Horizontal tank: $V_V = n/4(D_E^2 H_{VO})$ Rectangular tank: $H_{VO}WL$	447.86	176.45	91.38	51.48	33.10	802.15
Ideal Gas Constant (R), psia ft ³ /lb-mole	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	$K_S = 1 / (1 + 0.053 P_{VA} H_{VO})$	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	$L_S = 365 W_V V_V K_E K_S$	0.70	0.27	0.14	0.08	0.05	1.33

Potential Emissions - Diesel Fuel Storage Tanks

Facility: SB750
Address: 6197 Colorado St., Hobart, IN 46342

Table B.18 - VOC Emission Calculations for Diesel Fuel Storage Tanks

Parameter Description ^(a)	Source/Equation	Belly Tanks for CEG169-CEG740	Belly Tank for AWB2	Belly Tanks for HEG1 - HEG10	Belly Tank for CAB	Belly Tank for ACB2	12,000-Gal Storage Tank
		Potential 6,700-gal	Potential 2,640-gal	Potential 1,367-gal	Potential 770-gal	Potential 495-gal	Potential 12,000-gal
Maximum Throughput (Q), gal ^{2,3}	Facility Information	5,150	6,564	3,216	1,680	1,146	156,235
Maximum Throughput (V _Q), ft	Conversion	688.5	877.5	429.9	224.6	153.2	20,885.6
Tank Maximum Liquid Volume (V _{LX}), ft	Horizontal tank: Assumed V _{LX} = 0.9V	806.2	317.6	164.5	92.7	59.6	1443.9
Turnovers (N), dimensionless	N = V _Q /V _{LX}	0.9	2.8	2.6	2.4	2.6	14.5
Turnover Factor (K _N), dimensionless	For N ≤ 36 K _N = 1, For N > 36 K _N = (180 + N)/6N	1.0	1.0	1.0	1.0	1.0	1.0
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_QK_NK_PW_yK_B	0.12	0.15	0.08	0.04	0.03	3.93
Total Uncontrolled Losses (L _T), lb/year/tank	L _T = L _S + L _W	0.82	0.43	0.22	0.12	0.08	5.26
Total Uncontrolled Losses (L _T), lb/hr/tank	Calculated assuming 8,760 hr/yr	9.32E-05	4.88E-05	2.48E-05	1.36E-05	8.93E-06	6.01E-04
Total Uncontrolled Losses (L _T), ton/year/tank	2,000 lb/ton	4.08E-04	2.14E-04	1.09E-04	5.96E-05	3.91E-05	2.63E-03
Number of Tanks	Facility Information	598	1	11	1	1	20
Total Uncontrolled Losses (L_T), lb/hr (all tanks)	L_T = lb/hr/tank * # tanks	5.57E-02	4.88E-05	2.73E-04	1.36E-05	8.93E-06	1.20E-02
Total Uncontrolled Losses (L_T), ton/year (all tanks)	L_T = ton/year/tank * # tanks	2.44E-01	2.14E-04	1.19E-03	5.96E-05	3.91E-05	5.26E-02

Notes:

- Emissions calculated according to the methodology presented in AP-42, Section 7.1 for fixed-roof tanks.
- 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/(ft² day)) was taken from Table 7.1-7.

**APPENDIX C
GENERATOR SPECIFICATION SHEETS:**

**CEG NO. 1 – 766 (2,750 KW GENERATOR):
CATERPILLAR 3516E
MIRATECH CONTROL SYSTEM
CATERPILLAR CONTROL SYSTEM
SAFETY POWER CONTROL SYSTEM**

**AWB1 & AWB2 (1,600 KW GENERATOR):
CATERPILLAR 3512C**

**HEG1 – HEG11 (750 KW GENERATOR):
CATERPILLAR C18 OR C27**

**CAB (400 KW GENERATOR):
CATERPILLAR C13**

**ACB1 & ACB2 (250 KW GENERATOR):
CATERPILLAR C9**

Amazon Data Services, Inc. - Application for New Source Minor PSD/Emission Offset Constructon Approval and FESOP

CATERPILLAR 3516E 2,750 KW GENERATOR

PERFORMANCE DATA[EM5402]

August 22, 2025

Performance Number: EM5402

Change Level: 02

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	0.340	0.334	194.0	190.3	0.500	0.491
2,475.0	90	3,655	337	0.336	0.330	173.2	169.9	0.497	0.487
2,200.0	80	3,266	302	0.339	0.333	156.3	153.3	0.504	0.494
2,062.5	75	3,072	284	0.342	0.335	148.0	145.2	0.509	0.499
1,925.0	70	2,878	266	0.345	0.338	139.9	137.2	0.516	0.506
1,650.0	60	2,490	230	0.354	0.347	124.1	121.7	0.534	0.523
1,375.0	50	2,102	194	0.365	0.358	108.2	106.1	0.558	0.548
1,100.0	40	1,714	158	0.375	0.368	90.5	88.8	0.584	0.573
825.0	30	1,325	122	0.387	0.380	72.3	70.9	0.622	0.610
687.5	25	1,131	104	0.397	0.389	63.3	62.1	0.653	0.641
550.0	20	937	87	0.412	0.404	54.5	53.4	0.702	0.689
275.0	10	549	51	0.476	0.467	36.9	36.2	0.951	0.933

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	88.8	122.8	1,271.4	69.2	919.3	96	468.5
2,475.0	90	3,655	78.6	104.1	1,202.7	60.8	881.4	85	431.2
2,200.0	80	3,266	70.6	100.7	1,170.5	54.1	872.8	77	402.8
2,062.5	75	3,072	66.7	99.5	1,156.5	50.9	870.2	73	389.5
1,925.0	70	2,878	62.7	98.4	1,142.8	47.7	867.7	68	376.4
1,650.0	60	2,490	54.6	96.0	1,115.7	41.7	862.5	60	349.1
1,375.0	50	2,102	46.2	93.2	1,089.7	35.5	860.3	51	317.9
1,100.0	40	1,714	35.8	92.1	1,053.4	28.3	853.8	40	275.4
825.0	30	1,325	25.0	90.4	993.3	21.0	830.1	28	228.2
687.5	25	1,131	20.0	89.5	944.6	17.8	802.8	23	205.3
550.0	20	937	15.6	88.8	887.7	15.0	768.3	18	184.3
275.0	10	549	7.8	82.1	862.4	8.1	763.0	10	157.4

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
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PERFORMANCE DATA[EM5402]

August 22, 2025

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	8,093.3	22,081.8	35,955.3	37,408.9	7,873.1	7,193.7
2,475.0	90	3,655	7,572.0	19,968.3	33,543.4	34,770.8	7,320.6	6,710.0
2,200.0	80	3,266	7,091.5	18,457.9	31,248.7	32,358.1	6,811.0	6,258.1
2,062.5	75	3,072	6,835.3	17,696.5	30,034.4	31,084.7	6,542.4	6,016.4
1,925.0	70	2,878	6,572.7	16,933.8	28,808.0	29,800.5	6,272.5	5,773.0
1,650.0	60	2,490	6,034.1	15,406.2	26,338.7	27,218.0	5,728.9	5,285.6
1,375.0	50	2,102	5,457.5	13,815.0	23,689.8	24,456.7	5,145.8	4,755.4
1,100.0	40	1,714	4,738.0	11,818.0	20,353.0	20,995.1	4,423.9	4,095.3
825.0	30	1,325	3,962.0	9,612.2	16,930.3	17,443.3	3,664.3	3,400.9
687.5	25	1,131	3,597.8	8,539.5	15,298.9	15,747.7	3,325.6	3,092.0
550.0	20	937	3,273.1	7,553.6	13,892.0	14,278.0	3,024.3	2,819.0
275.0	10	549	2,768.1	6,269.8	11,737.8	11,999.5	2,521.3	2,374.7

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	90,586	22,342	53,492	171,445	419,468	446,839
2,475.0	90	3,655	46,700	8,321	141,538	78,262	19,956	47,423	154,983	374,677	399,125
2,200.0	80	3,266	43,252	7,985	129,537	71,516	18,018	40,903	138,521	338,278	360,350
2,062.5	75	3,072	41,519	7,846	123,724	68,322	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	6.70	5.40	4.08	4.17	9.51
TOTAL CO	G/KW-HR	0.93	0.45	0.46	1.35	2.75
TOTAL HC	G/KW-HR	0.10	0.13	0.17	0.29	0.46

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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		1.00	0.83	0.88	1.04	0.90

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	8.05	6.48	4.89	5.01	11.42
TOTAL CO	G/KW-HR	1.55	0.75	0.76	2.25	4.60
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	0.28
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)

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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	4,002	3,807	4,043
1,000	4,043	4,043	4,043	4,043	4,043	4,043	4,043	4,043	4,043	4,043	3,921	3,726	4,043
2,000	4,043	4,043	4,043	4,043	4,043	4,043	4,043	4,043	4,035	3,953	3,820	3,622	4,043
3,000	3,915	3,915	3,914	3,913	3,912	3,904	3,808	3,672	3,534	3,399	3,256	3,130	3,912
4,000	3,802	3,800	3,799	3,797	3,795	3,758	3,648	3,496	3,363	3,221	3,083	3,003	3,796
5,000	3,706	3,704	3,702	3,700	3,698	3,661	3,543	3,386	3,252	3,115	2,976	2,891	3,700
6,000	3,611	3,609	3,606	3,604	3,601	3,560	3,438	3,280	3,149	3,014	2,868	2,783	3,605
7,000	3,484	3,481	3,479	3,476	3,473	3,430	3,306	3,151	3,022	2,878	2,731	2,643	3,478
8,000	3,350	3,347	3,344	3,341	3,338	3,294	3,172	3,019	2,882	2,736	2,581	2,485	3,344
9,000	3,222	3,219	3,216	3,213	3,210	3,167	3,046	2,884	2,746	2,590	2,430	2,333	3,217
10,000	3,116	3,112	3,109	3,106	3,102	3,058	2,929	2,765	2,619	2,459	2,293	2,194	3,112
11,000	3,037	3,033	3,030	3,027	3,023	2,975	2,846	2,677	2,526	2,365	2,196	2,100	3,034
12,000	2,959	2,956	2,953	2,949	2,945	2,896	2,765	2,586	2,438	2,269	2,105	2,011	2,958
13,000	2,884	2,881	2,877	2,873	2,870	2,818	2,680	2,499	2,345	2,178	2,018	1,942	2,884
14,000	2,789	2,785	2,781	2,778	2,774	2,718	2,573	2,389	2,233	2,071	1,933	1,854	2,789
15,000	2,653	2,649	2,645	2,641	2,637	2,583	2,439	2,248	2,095	1,956	1,819	1,728	2,654

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	
6351348	GG3123	6316330	PG571	XJ	JC700001	
5644208	LL2333	6390340	PG266	-	JD700001	
5644208	LL2333	6607570	PG266	-	JD700001	
5644208	LL2333	6655945	PG266	-	JD700001	

Supplementary Data

Type	Classification	Performance Number
ALTITUDE DATA	HIGH RESOLUTION	EM7712

Performance Parameter Reference

Parameters Reference:DM9600-15
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%
Specific fuel consumption (C7-C18) +/- 4%
Fuel rate +/- 5%
Specific DEF consumption +/- 3%
DEF rate +/- 5%
Heat rejection +/- 5%
Heat rejection exhaust only +/- 10%

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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

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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 : 03/12/24

Amazon Data Services, Inc. - Application for New Source Minor PSD/Emission Offset Constructiton Approval and FESOP

MIRATECH CONTROL SYSTEM

Application & Performance Warranty Data

Project Information

Site Location:USA

Project Name:AWS 2026 Units (Titus)

Application:Standby Power

Number Of Engines:400

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 ₂ O
%		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	22,081.8	919.3	194.0	6	1.16	0.1	0.1	0.07	9.7	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	503	981	8.046	17.74	0.5	0.22	42	82	0.671	1.48	91.7%
CO	1.16	0.52	160	311	1.556	3.43	0.35	0.16	48	94	0.469	1.03	69.8%
NMHC**	0.1	0.04	24	47	0.134	0.3	0.05	0.02	12	23	0.067	0.15	50%
PM ₁₀	0.07	0.03	23	44	0.094	0.21	0.02	0.01	7	14	0.03	0.07	68.6%
NH ₃							0.04	0.02	10	19	0.059	0.13	

* MW referenced as NO₂

** MW referenced as CH₄. 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.

Amazon Data Services, Inc. - Application for New Source Minor PSD/Emission Offset Constructon Approval and FESOP

CATERPILLAR CONTROL SYSTEM



Electric Power Division
P.O. Box 610- AC6109
Mossville, IL 61552

Feb 14, 2025

Project Reference: Caterpillar Aftertreatment Systems for AWS MacGuyver IAD107 Project

PROJECT DETAILS										
Site Location		Virginia								
Application		Standby Power								
Number of Engines		26								
Operating Hours per Year		100								
ENGINE DETAILS										
Engine Model		3516E								
Engine Serial Number		N/A								
Performance Number		EM5402-01								
Power		4,043 Bhp @ 100% load								
Rated Speed		1,800 rpm								
Exhaust Flow Rate		22,081 acfm @ 100% load								
Engine Outlet Temp		919 °F @ 100% load								
Fuel:		ULSD								
EMISSIONS DETAILS										
PSV Emissions @ 100% load	Engine Out Emissions					Target Post-Aftertreatment Emissions				
	g/hr	mg/Nm3 @ 5% O2	g/hp-hr	g/kw-hr	lbs/hr	g/hr	mg/Nm3 @ 5% O2	g/hp-hr	g/kw-hr	lbs/hr
NOx	240002	2783.00	6.00	8.16	52.91	19920.17	230.99	0.50	0.68	4.39
CO	4637	536.70	1.16	1.58	10.22	1159.25	134.18	0.29	0.40	2.56
HC	405	40.80	0.10	0.14	0.89	222.75	22.44	0.06	0.08	0.49
PM10	289.7	28.10	0.07	0.10	0.64	90.97	8.82	0.02	0.03	0.20

AFTERTREATMENT SYSTEM DESCRIPTION	
5X4X3 SCR + DPF system - CEM Part #: 547-2580	
Estimated CEM Backpressure: 6.2 kPa +/- 1 kPa @ 100% load	

Amazon Data Services, Inc. - Application for New Source Minor PSD/Emission Offset Constructiton Approval and FESOP

SAFETY POWER CONTROL SYSTEM

DESIGN PARAMETERS

The design of the Safety Power emissions reduction system is based on the following conditions.

Note: NO_x is calculated as NO₂.

Table 1 – Engine Data

Engine Type:	CAT 3516E*
Application	Stand-by
Engine Power	2,750 ekW
Exhaust Temperature	919 °F
Design Exhaust Flow Rate	22,082 (CFM)
Fuel Type	Diesel

** CAT Performance Data EM5402*

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)	NO _x	6.0	0.50	0.50	0.67	1.62	40	91.7
	CO *	1.16	2.60	0.23	0.31	0.75	31	80.0
	VOC *	0.10	0.14	0.06	0.08	0.18	5	40.0
	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.

*Please note that any % reductions used for air permitting purposes should be based off of NTE values.

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 NO_x 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	**
System Inlet/Outlet ANSI Flange Inches	**

**please refer to shop drawing package for pressure loss and inlet/outlet size.

Amazon Data Services, Inc. - Application for New Source Minor PSD/Emission Offset Constructon Approval and FESOP

CATERPILLAR 3512C 1,600 KW GENERATOR

PERFORMANCE DATA[EM5857]

August 22, 2025

Performance Number: EM5857

Change Level: 00

SALES MODEL:	3512C	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	1,800
MACHINE SALES MODEL:		HERTZ:	60
ENGINE POWER (BHP):	2,360	FAN POWER (HP):	114.0
GEN POWER WITH FAN (EKW):	1,600.0	ASPIRATION:	TA
COMPRESSION RATIO:	14.7	AFTERCOOLER TYPE:	ATAAC
RATING LEVEL:	PRIME-DCP	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:	GTB5518BN-52T-1.12
CAMSHAFT TYPE:	STANDARD	CERTIFICATION YEAR:	2016
IGNITION TYPE:	CI	CRANKCASE BLOWBY RATE (FT3/HR):	2,358.8
INJECTOR TYPE:	EUI	FUEL RATE (RATED RPM) NO LOAD (GAL/HR):	8.3
FUEL INJECTOR:	3920221	PISTON SPD @ RATED ENG SPD (FT/MIN):	2,539.4
UNIT INJECTOR TIMING (IN):	64.34		
REF EXH STACK DIAMETER (IN):	10		
MAX OPERATING ALTITUDE (FT):	2,789		

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

General Performance Data

FOR DATA CENTER APPLICATIONS ONLY. RATING IS AVAILABLE THROUGH DESIGN TO ORDER (DTO) WITH AN APPROVED SPECIAL RATING REQUEST. DCP POWER OUTPUT AVAILABLE WITH VARYING LOAD FOR UNLIMITED TIME. AVERAGE POWER OUTPUT IS NOT TO EXCEED 100% ADVERTISED POWER. TYPICAL PEAK DEMAND FOR DATA CENTER APPLICATION IS 100% OF THE DCP 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.

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)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR
1,760.0	110	2,584	318	0.334	0.328	121.8	119.5
1,600.0	100	2,360	291	0.329	0.322	109.4	107.3
1,440.0	90	2,136	263	0.332	0.326	100.0	98.1
1,280.0	80	1,911	235	0.337	0.330	90.7	89.0
1,200.0	75	1,799	221	0.340	0.333	86.1	84.5
1,120.0	70	1,686	208	0.343	0.336	81.5	79.9
960.0	60	1,462	180	0.352	0.345	72.5	71.1
800.0	50	1,237	152	0.366	0.359	63.8	62.6
640.0	40	1,012	125	0.382	0.375	54.6	53.5
480.0	30	788	97	0.401	0.394	44.6	43.7
400.0	25	676	83	0.410	0.402	39.0	38.3
320.0	20	563	69	0.419	0.411	33.3	32.7
160.0	10	339	42	0.467	0.458	22.3	21.9

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
1,760.0	110	2,584	77.0	121.0	1,175.8	59.3	848.4	82	431.4
1,600.0	100	2,360	68.4	114.3	1,119.4	51.5	820.4	73	388.3
1,440.0	90	2,136	61.9	111.6	1,095.1	46.3	811.3	66	365.8
1,280.0	80	1,911	54.8	111.8	1,085.8	40.9	816.6	59	346.7
1,200.0	75	1,799	50.9	111.2	1,080.1	38.1	819.4	55	335.8
1,120.0	70	1,686	47.2	108.3	1,068.4	35.5	817.6	51	321.9
960.0	60	1,462	40.6	104.5	1,046.5	30.9	814.7	44	295.7
800.0	50	1,237	34.7	103.1	1,026.1	26.8	813.5	38	269.7
640.0	40	1,012	27.7	101.8	993.4	22.1	805.6	30	236.0
480.0	30	788	20.1	101.3	945.6	17.1	788.8	22	204.3
400.0	25	676	16.0	99.4	895.6	14.6	753.7	18	185.6
320.0	20	563	12.0	97.1	827.6	12.0	703.4	14	166.2
160.0	10	339	6.1	92.9	636.6	8.2	569.1	8	130.1

General Performance Data (Continued)

PERFORMANCE DATA[EM5857]

August 22, 2025

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
1,760.0	110	2,584	5,708.5	14,298.4	24,662.6	25,527.3	5,374.6	4,942.3
1,600.0	100	2,360	5,365.1	12,943.5	22,818.8	23,594.8	4,971.4	4,580.6
1,440.0	90	2,136	5,047.9	12,019.6	21,384.8	22,093.1	4,649.8	4,290.3
1,280.0	80	1,911	4,612.0	11,078.3	19,636.5	20,280.2	4,267.8	3,942.3
1,200.0	75	1,799	4,384.2	10,575.9	18,701.8	19,312.4	4,065.4	3,757.5
1,120.0	70	1,686	4,199.0	10,092.5	17,867.4	18,444.7	3,885.0	3,593.3
960.0	60	1,462	3,872.1	9,222.7	16,392.6	16,906.7	3,558.3	3,297.0
800.0	50	1,237	3,557.6	8,410.0	14,978.0	15,430.9	3,247.8	3,015.2
640.0	40	1,012	3,182.9	7,410.8	13,285.9	13,673.1	2,879.7	2,677.5
480.0	30	788	2,725.0	6,273.0	11,415.7	11,731.8	2,470.4	2,303.7
400.0	25	676	2,492.6	5,564.3	10,466.9	10,744.4	2,254.7	2,107.0
320.0	20	563	2,258.2	4,837.2	9,509.9	9,746.7	2,044.9	1,916.4
160.0	10	339	1,944.2	3,649.8	8,128.3	8,285.9	1,744.3	1,653.6

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
1,760.0	110	2,584	33,967	7,341	99,767	53,671	14,105	31,452	109,585	264,829	282,110
1,600.0	100	2,360	32,243	6,802	88,304	46,689	12,668	25,895	100,092	237,840	253,359
1,440.0	90	2,136	30,057	6,587	81,865	42,801	11,580	22,356	90,566	217,408	231,595
1,280.0	80	1,911	27,002	6,484	76,728	39,743	10,510	18,926	81,040	197,323	210,199
1,200.0	75	1,799	25,598	6,422	73,884	38,074	9,973	17,238	76,277	187,237	199,455
1,120.0	70	1,686	24,788	6,308	70,277	36,208	9,435	15,647	71,514	177,146	188,704
960.0	60	1,462	22,990	6,099	63,830	32,943	8,393	12,867	61,989	157,583	167,865
800.0	50	1,237	21,377	5,936	57,638	29,952	7,394	10,237	52,463	138,815	147,873
640.0	40	1,012	20,852	5,758	49,609	26,048	6,318	7,178	42,937	118,624	126,364
480.0	30	788	17,896	5,332	41,802	21,469	5,161	4,700	33,411	96,892	103,215
400.0	25	676	17,053	5,018	36,012	18,024	4,518	3,611	28,648	84,829	90,364
320.0	20	563	16,307	4,673	29,628	14,237	3,858	2,649	23,886	72,430	77,156
160.0	10	339	13,712	3,892	18,473	7,393	2,584	1,200	14,359	48,505	51,670

Sound Data

SOUND PRESSURE DATA FOR THIS RATING CAN BE FOUND IN PERFORMANCE NUMBER - DM8779.

Emissions Data

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN	EKW	1,760.0	1,600.0	1,200.0	800.0	400.0	160.0
PERCENT LOAD	%	110	100	75	50	25	10
ENGINE POWER	BHP	2,584	2,360	1,799	1,237	676	339
TOTAL NOX (AS NO2)	G/HR	13,263	11,589	7,549	3,869	1,827	1,711
TOTAL CO	G/HR	1,339	1,451	1,404	1,013	815	946
TOTAL HC	G/HR	305	281	243	232	243	295
TOTAL CO2	KG/HR	1,283	1,169	906	666	405	233
PART MATTER	G/HR	133.8	132.9	140.3	143.5	83.4	75.4

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TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,390.8	2,307.7	1,912.1	1,341.9	1,040.9	1,844.0
TOTAL CO	(CORR 5% O2)	MG/NM3	242.2	293.7	354.1	356.2	464.0	1,013.5
TOTAL HC	(CORR 5% O2)	MG/NM3	47.7	47.8	53.7	69.5	119.0	272.7
PART MATTER	(CORR 5% O2)	MG/NM3	20.3	21.9	30.9	41.4	40.0	71.9
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,165	1,124	931	654	507	898
TOTAL CO	(CORR 5% O2)	PPM	194	235	283	285	371	811
TOTAL HC	(CORR 5% O2)	PPM	89	89	100	130	222	509
TOTAL NOX (AS NO2)		G/HP-HR	5.15	4.92	4.20	3.13	2.71	5.05
TOTAL CO		G/HP-HR	0.52	0.62	0.78	0.82	1.21	2.79
TOTAL HC		G/HP-HR	0.12	0.12	0.14	0.19	0.36	0.87
PART MATTER		G/HP-HR	0.05	0.06	0.08	0.12	0.12	0.22
TOTAL NOX (AS NO2)		LB/HR	29.24	25.55	16.64	8.53	4.03	3.77
TOTAL CO		LB/HR	2.95	3.20	3.10	2.23	1.80	2.08
TOTAL HC		LB/HR	0.67	0.62	0.54	0.51	0.53	0.65
TOTAL CO2		LB/HR	2,829	2,578	1,998	1,467	893	514
PART MATTER		LB/HR	0.30	0.29	0.31	0.32	0.18	0.17
OXYGEN IN EXH		%	10.0	10.3	10.9	11.6	12.9	15.2
DRY SMOKE OPACITY		%	2.1	2.4	3.0	3.6	2.8	3.0
BOSCH SMOKE NUMBER			0.73	0.84	1.10	1.32	1.04	1.11

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN	EKW	1,760.0	1,600.0	1,200.0	800.0	400.0	160.0
PERCENT LOAD	%	110	100	75	50	25	10
ENGINE POWER	BHP	2,584	2,360	1,799	1,237	676	339
TOTAL NOX (AS NO2)	G/HR	15,916	13,907	9,059	4,642	2,193	2,053
TOTAL CO	G/HR	2,411	2,612	2,528	1,823	1,466	1,702
TOTAL HC	G/HR	406	374	323	308	323	392
PART MATTER	G/HR	187.3	186.0	196.4	200.9	116.7	105.6
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,869.0	2,769.3	2,294.5	1,610.3	1,249.1
TOTAL CO	(CORR 5% O2)	MG/NM3	436.0	528.6	637.4	641.2	835.1
TOTAL HC	(CORR 5% O2)	MG/NM3	63.4	63.6	71.4	92.5	158.3
PART MATTER	(CORR 5% O2)	MG/NM3	28.4	30.6	43.3	58.0	55.9
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,397	1,349	1,118	784	608
TOTAL CO	(CORR 5% O2)	PPM	349	423	510	513	668
TOTAL HC	(CORR 5% O2)	PPM	118	119	133	173	296
TOTAL NOX (AS NO2)	G/HP-HR	6.18	5.91	5.04	3.76	3.25	6.06
TOTAL CO	G/HP-HR	0.94	1.11	1.41	1.48	2.17	5.03
TOTAL HC	G/HP-HR	0.16	0.16	0.18	0.25	0.48	1.16
PART MATTER	G/HP-HR	0.07	0.08	0.11	0.16	0.17	0.31
TOTAL NOX (AS NO2)	LB/HR	35.09	30.66	19.97	10.23	4.83	4.53
TOTAL CO	LB/HR	5.31	5.76	5.57	4.02	3.23	3.75
TOTAL HC	LB/HR	0.89	0.83	0.71	0.68	0.71	0.87
PART MATTER	LB/HR	0.41	0.41	0.43	0.44	0.26	0.23

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

PERFORMANCE DATA[EM5857]

August 22, 2025

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	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,338	2,360
1,000	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,332	2,293	2,255	2,360
2,000	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,329	2,288	2,249	2,210	2,174	2,360
3,000	2,343	2,343	2,343	2,343	2,343	2,328	2,286	2,245	2,205	2,167	2,131	2,095	2,343
4,000	2,262	2,262	2,262	2,262	2,262	2,243	2,203	2,163	2,125	2,089	2,053	2,019	2,262
5,000	2,184	2,184	2,184	2,184	2,184	2,161	2,122	2,084	2,047	2,012	1,978	1,746	2,184
6,000	2,110	2,110	2,110	2,110	2,110	2,081	2,044	2,007	1,972	1,935	1,676	1,463	2,110
7,000	2,038	2,038	2,038	2,038	2,038	2,004	1,968	1,933	1,770	1,581	1,369	1,204	2,038
8,000	1,969	1,969	1,969	1,969	1,966	1,929	1,894	1,676	1,487	1,274	1,133	1,015	1,969
9,000	1,902	1,902	1,902	1,902	1,891	1,794	1,605	1,392	1,204	1,086	968	897	1,902
10,000	1,838	1,838	1,838	1,838	1,699	1,510	1,298	1,156	1,038	920	850	779	1,838
11,000	1,776	1,776	1,776	1,605	1,416	1,227	1,086	991	897	826	755	708	1,776
12,000	1,717	1,717	1,534	1,322	1,156	1,038	944	850	779	732	684	661	1,628
13,000	1,628	1,416	1,227	1,109	991	897	826	755	708	684	637	614	1,416
14,000	1,322	1,180	1,062	944	873	779	732	708	661	637	590		1,204
15,000	1,109	991	897	826	755	708	684	637	614	590			1,086

Cross Reference

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
5957806	LL8925	5157730	PG041	-	LYP00001	

Supplementary Data

Type	Classification	Performance Number
SOUND	SOUND PRESSURE	DM8779

Performance Parameter Reference

Parameters Reference:DM9600-15
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%

Specific fuel consumption (C7-C18) +/- 4%

Fuel rate +/- 5%

Specific DEF consumption +/- 3%

DEF rate +/- 5%

PERFORMANCE DATA[EM5857]

August 22, 2025

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

PERFORMANCE DATA[EM5857]

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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 : 03/12/24

Amazon Data Services, Inc. - Application for New Source Minor PSD/Emission Offset Constructon Approval and FESOP

CATERPILLAR C18 OR C27, 750 KW GENERATOR

PERFORMANCE DATA[EM3842]

August 22, 2025

Performance Number: EM3842

Change Level: 03

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	0.338	53.6	53.1	0.507	0.502
675.0	90	1,002	399	0.345	0.342	48.8	48.3	0.513	0.508
600.0	80	894	356	0.355	0.352	44.8	44.3	0.529	0.524
562.5	75	840	334	0.362	0.358	42.8	42.4	0.540	0.535
525.0	70	787	313	0.357	0.354	39.6	39.2	0.535	0.530
450.0	60	680	271	0.347	0.344	33.3	33.0	0.524	0.519
375.0	50	575	229	0.350	0.347	28.4	28.1	0.537	0.532
300.0	40	471	187	0.356	0.352	23.6	23.4	0.559	0.553
225.0	30	367	146	0.365	0.362	18.9	18.7	0.596	0.591
187.5	25	315	125	0.373	0.369	16.6	16.4	0.627	0.621
150.0	20	262	104	0.384	0.381	14.2	14.1	0.672	0.666
75.0	10	155	62	0.436	0.432	9.5	9.5	0.903	0.894

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

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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	9,808.8	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 15% 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

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August 22, 2025

TOTAL NOX (AS NO2)	G/KW-HR	7.26	5.02	4.81	5.73	6.73
TOTAL CO	G/KW-HR	0.30	0.37	0.18	1.33	9.93
TOTAL HC	G/KW-HR	0.08	0.11	0.11	0.23	3.96
PART MATTER	G/KW-HR	0.04	0.06	0.05	0.11	0.64
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	7.85	5.43	5.20	6.19	7.27
TOTAL CO	G/KW-HR	0.55	0.70	0.33	2.49	18.57
TOTAL HC	G/KW-HR	0.15	0.20	0.21	0.44	7.49
PART MATTER	G/KW-HR	0.08	0.11	0.10	0.21	1.25
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)

PERFORMANCE DATA[EM3842]

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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:DM9600-15
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%

Specific fuel consumption (C7-C18) +/- 4%

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:

PERFORMANCE DATA[EM3842]

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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:

PERFORMANCE DATA[EM3842]

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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 : 03/12/24

PERFORMANCE DATA[DM9071]

August 22, 2025

Performance Number: DM9071

Change Level: 04

SALES MODEL:	C27	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	1,800
MACHINE SALES MODEL:		HERTZ:	60
ENGINE POWER (BHP):	1,141	FAN POWER (HP):	37.5
GEN POWER WITH FAN (EKW):	750.0	ASPIRATION:	TA
COMPRESSION RATIO:	16.5	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):	210.2
MANIFOLD TYPE:	DRY	TURBO CONFIGURATION:	PARALLEL
GOVERNOR TYPE:	ADEM4	TURBO QUANTITY:	2
ELECTRONICS TYPE:	ADEM4	TURBOCHARGER MODEL:	GTA5008BS-56T-1.60
IGNITION TYPE:	CI	CERTIFICATION YEAR:	2006
INJECTOR TYPE:	EUI	PISTON SPD @ RATED ENG SPD (FT/MIN):	1,800.0
REF EXH STACK DIAMETER (IN):	10		
MAX OPERATING ALTITUDE (FT):	10,000		

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)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR
750.0	100	1,114	297	0.330	0.322	51.8	50.6
675.0	90	1,004	268	0.335	0.327	47.4	46.3
600.0	80	896	239	0.341	0.333	43.0	42.0
562.5	75	843	225	0.344	0.335	40.8	39.8
525.0	70	789	211	0.345	0.337	38.4	37.5
450.0	60	683	182	0.347	0.339	33.4	32.6
375.0	50	578	154	0.348	0.340	28.4	27.7
300.0	40	474	127	0.352	0.344	23.6	23.0
225.0	30	371	99	0.360	0.352	18.8	18.4
187.5	25	318	85	0.367	0.358	16.4	16.1
150.0	20	264	71	0.378	0.369	14.1	13.7
75.0	10	153	41	0.439	0.428	9.5	9.3

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
750.0	100	1,114	51.5	119.8	1,204.2	35.8	945.7	54	335.3
675.0	90	1,004	46.8	116.4	1,176.6	32.4	931.7	49	316.3
600.0	80	896	42.0	113.3	1,148.2	29.0	914.7	44	298.2
562.5	75	843	39.3	111.4	1,132.6	27.2	905.1	41	286.8
525.0	70	789	36.1	109.0	1,113.1	25.1	894.3	38	272.2
450.0	60	683	29.4	103.9	1,064.7	20.7	866.4	31	243.3
375.0	50	578	22.7	99.1	1,003.6	16.3	830.2	24	214.7
300.0	40	474	16.8	96.8	923.0	12.8	774.0	18	186.6
225.0	30	371	11.5	94.9	822.7	9.7	698.7	13	158.4
187.5	25	318	9.0	94.1	764.6	8.4	653.4	10	144.1
150.0	20	264	6.8	93.3	700.1	7.2	601.6	8	131.1
75.0	10	153	3.7	91.8	548.5	5.5	474.1	5	113.2

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	1,114	2,047.9	5,523.3	8,813.1	9,180.6	1,932.4	1,751.0

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675.0	90	1,004	1,943.4	5,168.6	8,352.2	8,688.5	1,826.5	1,659.7
600.0	80	896	1,842.2	4,822.6	7,905.6	8,211.2	1,725.3	1,572.8
562.5	75	843	1,785.4	4,620.1	7,641.5	7,931.0	1,664.4	1,519.5
525.0	70	789	1,711.2	4,361.8	7,314.5	7,586.8	1,583.9	1,447.8
450.0	60	683	1,549.1	3,852.2	6,603.9	6,840.9	1,428.3	1,308.9
375.0	50	578	1,379.7	3,349.0	5,865.3	6,066.5	1,276.5	1,173.4
300.0	40	474	1,228.7	2,857.7	5,210.7	5,377.9	1,138.9	1,051.3
225.0	30	371	1,085.8	2,365.3	4,598.2	4,731.8	1,004.0	932.2
187.5	25	318	1,016.7	2,116.4	4,304.7	4,421.4	934.9	871.2
150.0	20	264	955.9	1,883.0	4,046.4	4,146.4	872.4	816.6
75.0	10	153	875.3	1,504.7	3,701.7	3,769.1	792.3	751.1

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	1,114	18,168	6,121	41,248	23,382	6,001	7,653	47,258	112,670	120,022
675.0	90	1,004	16,830	5,599	38,360	21,557	5,489	6,721	42,591	103,055	109,779
600.0	80	896	15,354	5,086	35,666	19,722	4,986	5,885	38,003	93,613	99,721
562.5	75	843	14,621	4,822	34,127	18,699	4,728	5,431	35,732	88,766	94,559
525.0	70	789	13,886	4,536	32,294	17,513	4,447	4,898	33,459	83,488	88,936
450.0	60	683	12,429	3,947	28,414	14,931	3,870	3,801	28,962	72,655	77,396
375.0	50	578	10,977	3,350	24,232	12,266	3,285	2,735	24,499	61,668	65,692
300.0	40	474	10,408	2,784	19,378	9,542	2,730	1,876	20,121	51,252	54,597
225.0	30	371	9,659	2,224	14,770	6,845	2,180	1,164	15,715	40,931	43,602
187.5	25	318	9,060	1,943	12,725	5,538	1,904	861	13,480	35,756	38,089
150.0	20	264	8,158	1,664	11,023	4,279	1,631	608	11,205	30,622	32,620
75.0	10	153	5,369	1,121	8,709	1,888	1,099	302	6,505	20,638	21,985

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	1,114	843	578	318	153
TOTAL NOX (AS NO2)	G/HR	5,621	3,210	2,049	1,405	936
TOTAL CO	G/HR	284	371	344	284	311
TOTAL HC	G/HR	27	46	51	47	58
TOTAL CO2	KG/HR	514	404	279	161	93
PART MATTER	G/HR	23.1	35.3	82.6	53.4	36.0
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	2,551.8	1,859.1	1,733.2	2,096.3	2,549.5
TOTAL CO	(CORR 5% O2) MG/NM3	129.2	216.7	291.7	444.0	904.6
TOTAL HC	(CORR 5% O2) MG/NM3	10.4	23.5	37.4	64.3	146.5
PART MATTER	(CORR 5% O2) MG/NM3	8.6	17.6	59.4	68.1	90.3
TOTAL NOX (AS NO2)	(CORR 5% O2) PPM	1,243	906	844	1,021	1,242
TOTAL CO	(CORR 5% O2) PPM	103	173	233	355	724
TOTAL HC	(CORR 5% O2) PPM	19	44	70	120	273
TOTAL NOX (AS NO2)	G/HP-HR	5.09	3.83	3.56	4.43	6.12
TOTAL CO	G/HP-HR	0.26	0.44	0.60	0.90	2.03
TOTAL HC	G/HP-HR	0.02	0.06	0.09	0.15	0.38
PART MATTER	G/HP-HR	0.02	0.04	0.14	0.17	0.24
TOTAL NOX (AS NO2)	LB/HR	12.39	7.08	4.52	3.10	2.06
TOTAL CO	LB/HR	0.63	0.82	0.76	0.63	0.68
TOTAL HC	LB/HR	0.06	0.10	0.11	0.10	0.13
TOTAL CO2	LB/HR	1,133	891	615	354	204
PART MATTER	LB/HR	0.05	0.08	0.18	0.12	0.08
OXYGEN IN EXH	%	9.0	10.2	11.4	13.7	16.3
DRY SMOKE OPACITY	%	0.4	1.6	3.1	4.6	3.4

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BOSCH SMOKE NUMBER	0.20	0.55	1.16	1.56	1.24
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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	1,114	843	578	318	153
TOTAL NOX (AS NO2)	G/HR	6,801	3,884	2,480	1,700	1,133
TOTAL CO	G/HR	531	693	642	531	581
TOTAL HC	G/HR	51	88	96	89	109
PART MATTER	G/HR	45.0	68.8	161.0	104.2	70.2
TOTAL NOX (AS NO2) (CORR 5% O2)	MG/NM3	3,087.7	2,249.5	2,097.2	2,536.5	3,084.9
TOTAL CO (CORR 5% O2)	MG/NM3	241.6	405.2	545.4	830.3	1,691.5
TOTAL HC (CORR 5% O2)	MG/NM3	19.7	44.5	70.6	121.6	276.9
PART MATTER (CORR 5% O2)	MG/NM3	16.7	34.3	115.9	132.9	176.2
TOTAL NOX (AS NO2) (CORR 5% O2)	PPM	1,504	1,096	1,022	1,235	1,503
TOTAL CO (CORR 5% O2)	PPM	193	324	436	664	1,353
TOTAL HC (CORR 5% O2)	PPM	37	83	132	227	517
TOTAL NOX (AS NO2)	G/HP-HR	6.16	4.64	4.31	5.37	7.41
TOTAL CO	G/HP-HR	0.48	0.83	1.12	1.68	3.80
TOTAL HC	G/HP-HR	0.05	0.10	0.17	0.28	0.71
PART MATTER	G/HP-HR	0.04	0.08	0.28	0.33	0.46
TOTAL NOX (AS NO2)	LB/HR	14.99	8.56	5.47	3.75	2.50
TOTAL CO	LB/HR	1.17	1.53	1.42	1.17	1.28
TOTAL HC	LB/HR	0.11	0.19	0.21	0.20	0.24
PART MATTER	LB/HR	0.10	0.15	0.36	0.23	0.15

Regulatory Information

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

EPA EMERGENCY STATIONARY		2011 - ----		
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 60 SUBPART IIII AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE EMERGENCY STATIONARY REGULATIONS.				
Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	STATIONARY	EMERGENCY STATIONARY	CO: 3.5 NOx + HC: 6.4 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	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141
1,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141
2,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141
3,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141
4,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141
5,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141
6,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141
7,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141
8,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,127	1,108	1,141

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9,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,140	1,120	1,101	1,082	1,064	1,141
10,000	1,141	1,141	1,141	1,141	1,141	1,135	1,114	1,094	1,075	1,056	1,038	1,021	1,141
11,000	1,141	1,141	1,141	1,131	1,109	1,089	1,069	1,050	1,031	1,014	996	980	1,141
12,000	1,141	1,128	1,106	1,084	1,064	1,044	1,025	1,007	989	972	956	940	1,137
13,000	1,103	1,081	1,060	1,039	1,020	1,001	983	965	948	932	916	901	1,098
14,000	1,057	1,036	1,016	996	977	959	942	925	909	893	878	863	1,060
15,000	1,012	992	973	954	936	919	902	886	870	855	841	827	1,023

Cross Reference

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
0K7492	PP5659	2671232	GS327	-	MJE00001	
3704840	GG0522	3495619	GS603	LS	MJE00001	
0K4032	GG0384	3541450	GS582	-	PEN00001	
3704840	GG0522	3884919	GS603	-	MJE00001	
3704840	GG0522	6034727	PG458	-	MJE00001	

Performance Parameter Reference

Parameters Reference:DM9600-15
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%

Specific fuel consumption (C7-C18) +/- 4%

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

PERFORMANCE DATA[DM9071]

August 22, 2025

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 auxilliary load from the corrected gross flywheel out put power. Typical auxilliary 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

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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 : 03/12/24

Amazon Data Services, Inc. - Application for New Source Minor PSD/Emission Offset Constructiton Approval and FESOP

CATERPILLAR C13 400 KW GENERATOR

PERFORMANCE DATA[EM1694]

August 22, 2025

Performance Number: EM1694

Change Level: 03

SALES MODEL:	C13	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	1,800
MACHINE SALES MODEL:		HERTZ:	60
ENGINE POWER (BHP):	609	FAN POWER (HP):	20.1
GEN POWER WITH FAN (EKW):	400.0	ADDITIONAL PARASITICS (HP):	10.4
COMPRESSION RATIO:	16.3	ASPIRATION:	TA
RATING LEVEL:	STANDBY	AFTERCOOLER TYPE:	ATAAC
PUMP QUANTITY:	1	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
FUEL TYPE:	DIESEL	INLET MANIFOLD AIR TEMP (F):	120
MANIFOLD TYPE:	DRY	JACKET WATER TEMP (F):	192.2
GOVERNOR TYPE:	ELEC	TURBO CONFIGURATION:	SINGLE
ELECTRONICS TYPE:	ADEM4	TURBO QUANTITY:	1
CAMSHAFT TYPE:	STANDARD	TURBOCHARGER MODEL:	GTA5002BS 1.60A/R
IGNITION TYPE:	CI	CERTIFICATION YEAR:	2015
INJECTOR TYPE:	EUI	PISTON SPD @ RATED ENG SPD (FT/MIN):	1,854.3
REF EXH STACK DIAMETER (IN):	5		
MAX OPERATING ALTITUDE (FT):	1,640		

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
400.0	100	609	351	0.326	0.323	28.0	27.7	0.497	0.492
360.0	90	546	315	0.326	0.323	25.1	24.8	0.494	0.489
320.0	80	486	280	0.355	0.351	24.3	24.0	0.538	0.533
300.0	75	457	263	0.367	0.364	23.6	23.4	0.559	0.554
280.0	70	428	247	0.373	0.369	22.5	22.3	0.570	0.564
240.0	60	372	214	0.381	0.378	20.0	19.8	0.591	0.585
200.0	50	316	182	0.387	0.383	17.3	17.1	0.612	0.606
160.0	40	261	151	0.389	0.385	14.3	14.2	0.635	0.629
120.0	30	206	119	0.390	0.387	11.3	11.2	0.669	0.663
100.0	25	178	102	0.392	0.388	9.8	9.7	0.696	0.690
80.0	20	149	86	0.396	0.392	8.3	8.3	0.739	0.732
40.0	10	90.8	52	0.427	0.423	5.5	5.4	0.971	0.961

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	609	56.6	117.0	1,287.5	38.0	1,058.8	61	357.2
360.0	90	546	50.2	112.8	1,239.3	32.8	1,026.2	54	330.0
320.0	80	486	53.7	115.3	1,243.0	36.2	1,014.2	58	344.8
300.0	75	457	54.1	115.3	1,242.2	36.6	1,006.9	59	347.3
280.0	70	428	51.8	113.2	1,230.3	34.6	994.7	56	338.9
240.0	60	372	45.8	108.4	1,193.6	30.2	964.8	50	314.6
200.0	50	316	37.8	103.0	1,140.2	25.0	927.6	41	280.3
160.0	40	261	27.4	96.5	1,080.7	18.9	889.3	30	234.0
120.0	30	206	17.1	90.3	998.9	12.9	840.0	19	186.1
100.0	25	178	12.4	87.5	948.6	10.3	810.6	14	163.5
80.0	20	149	8.5	85.3	886.6	8.2	770.9	10	143.6
40.0	10	90.8	3.6	82.6	689.5	5.6	609.6	5	114.6

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

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400.0	100	609	978.1	2,936.2	4,292.2	4,490.4	950.7	854.7
360.0	90	546	915.9	2,656.6	3,998.8	4,176.7	879.0	792.5
320.0	80	486	970.5	2,788.5	4,248.8	4,421.0	930.2	846.5
300.0	75	457	982.7	2,801.1	4,301.0	4,468.6	939.1	857.4
280.0	70	428	963.1	2,705.2	4,203.1	4,362.5	914.6	836.0
240.0	60	372	901.9	2,463.5	3,915.9	4,057.6	850.3	779.2
200.0	50	316	812.5	2,156.6	3,510.3	3,632.6	764.3	702.0
160.0	40	261	687.0	1,781.4	2,955.8	3,057.3	649.3	597.7
120.0	30	206	559.5	1,398.1	2,396.3	2,476.6	528.9	488.0
100.0	25	178	501.9	1,216.0	2,144.3	2,213.9	470.7	434.8
80.0	20	149	454.1	1,050.9	1,934.8	1,994.0	419.9	388.7
40.0	10	90.8	397.9	789.9	1,686.8	1,725.7	363.2	341.4

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	609	8,952	2,925	23,022	13,776	3,243	4,130	25,831	60,887	64,860
360.0	90	546	8,186	2,654	20,622	12,177	2,905	3,479	23,152	54,534	58,093
320.0	80	486	7,906	2,618	21,212	12,600	2,812	3,904	20,601	52,796	56,241
300.0	75	457	7,710	2,546	21,145	12,570	2,738	3,995	19,365	51,406	54,761
280.0	70	428	7,378	2,442	20,304	12,022	2,604	3,800	18,150	48,885	52,075
240.0	60	372	6,706	2,418	18,182	10,623	2,315	3,233	15,765	43,469	46,305
200.0	50	316	6,033	2,483	15,558	8,900	1,999	2,492	13,418	37,535	39,984
160.0	40	261	5,465	2,508	12,515	6,965	1,660	1,628	11,079	31,161	33,194
120.0	30	206	4,843	2,208	9,534	5,102	1,312	920	8,725	24,624	26,230
100.0	25	178	4,472	1,897	8,187	4,276	1,137	653	7,535	21,350	22,743
80.0	20	149	4,040	1,542	6,945	3,504	965	452	6,327	18,124	19,307
40.0	10	90.8	2,963	1,112	4,536	1,834	634	216	3,852	11,904	12,681

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	609	457	316	178	90.8
TOTAL NOX (AS NO2)	G/HR	2,757	989	544	534	343
TOTAL CO	G/HR	741	456	592	620	414
TOTAL HC	G/HR	6	18	30	30	43
TOTAL CO2	KG/HR	275	236	172	98	55
PART MATTER	G/HR	31.4	33.7	19.4	16.5	22.7
TOTAL NOX (AS NO2) (CORR 5% O2)	MG/NM3	2,297.5	963.2	721.7	1,293.0	1,373.1
TOTAL CO (CORR 5% O2)	MG/NM3	615.3	450.6	793.8	1,542.8	1,663.2
TOTAL HC (CORR 5% O2)	MG/NM3	4.0	15.1	34.9	67.5	179.3
PART MATTER (CORR 5% O2)	MG/NM3	21.1	27.1	21.7	34.3	97.2
TOTAL NOX (AS NO2) (CORR 15% O2)	MG/NM3	852.5	357.4	267.8	479.8	509.5
TOTAL CO (CORR 15% O2)	MG/NM3	228.3	167.2	294.5	572.5	617.1
TOTAL HC (CORR 15% O2)	MG/NM3	1.5	5.6	13.0	25.1	66.5
PART MATTER (CORR 15% O2)	MG/NM3	7.8	10.1	8.0	12.7	36.1
TOTAL NOX (AS NO2) (CORR 15% O2)	PPM	1,119	469	352	630	669
TOTAL CO (CORR 5% O2)	PPM	492	361	635	1,234	1,331
TOTAL HC (CORR 5% O2)	PPM	7	28	65	126	335
TOTAL NOX (AS NO2) (CORR 15% O2)	PPM	415	174	130	234	248
TOTAL CO (CORR 15% O2)	PPM	183	134	236	458	494
TOTAL HC (CORR 15% O2)	PPM	3	10	24	47	124
TOTAL NOX (AS NO2)	G/HP-HR	4.61	2.19	1.73	3.02	3.80
TOTAL CO	G/HP-HR	1.24	1.01	1.88	3.50	4.57
TOTAL HC	G/HP-HR	0.01	0.04	0.10	0.17	0.48

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PART MATTER	G/HP-HR	0.05	0.07	0.06	0.09	0.25
TOTAL NOX (AS NO2)	G/KW-HR	6.18	2.93	2.32	4.05	5.09
TOTAL CO	G/KW-HR	1.66	1.35	2.53	4.70	6.13
TOTAL HC	G/KW-HR	0.01	0.05	0.13	0.23	0.64
PART MATTER	G/KW-HR	0.07	0.10	0.08	0.12	0.34
TOTAL NOX (AS NO2)	LB/HR	6.08	2.18	1.20	1.18	0.76
TOTAL CO	LB/HR	1.63	1.00	1.31	1.37	0.91
TOTAL HC	LB/HR	0.01	0.04	0.07	0.07	0.10
TOTAL CO2	LB/HR	605	520	378	215	121
PART MATTER	LB/HR	0.07	0.07	0.04	0.04	0.05
OXYGEN IN EXH	%	7.4	9.6	10.8	11.8	14.4
DRY SMOKE OPACITY	%	1.7	1.1	1.1	3.0	2.0
BOSCH SMOKE NUMBER		1.06	0.90	0.88	1.38	1.13

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	609	457	316	178	90.8
TOTAL NOX (AS NO2)	G/HR	2,977	1,068	588	577	371
TOTAL CO	G/HR	1,386	852	1,107	1,159	773
TOTAL HC	G/HR	11	34	57	58	82
PART MATTER	G/HR	61.3	65.7	37.7	32.1	44.3
TOTAL NOX (AS NO2) (CORR 5% O2)	MG/NM3	2,481.2	1,040.3	779.4	1,396.4	1,483.0
TOTAL CO (CORR 5% O2)	MG/NM3	1,150.6	842.7	1,484.4	2,885.1	3,110.1
TOTAL HC (CORR 5% O2)	MG/NM3	7.5	28.5	66.0	127.6	338.9
PART MATTER (CORR 5% O2)	MG/NM3	41.1	52.9	42.2	66.9	189.6
TOTAL NOX (AS NO2) (CORR 15% O2)	MG/NM3	920.7	386.0	289.2	518.2	550.3
TOTAL CO (CORR 15% O2)	MG/NM3	427.0	312.7	550.8	1,070.6	1,154.1
TOTAL HC (CORR 15% O2)	MG/NM3	2.8	10.6	24.5	47.4	125.7
PART MATTER (CORR 15% O2)	MG/NM3	15.2	19.6	15.7	24.8	70.3
TOTAL NOX (AS NO2) (CORR 5% O2)	PPM	1,209	507	380	680	722
TOTAL CO (CORR 5% O2)	PPM	920	674	1,188	2,308	2,488
TOTAL HC (CORR 5% O2)	PPM	14	53	123	238	633
TOTAL NOX (AS NO2) (CORR 15% O2)	PPM	448	188	141	252	268
TOTAL CO (CORR 15% O2)	PPM	342	250	441	856	923
TOTAL HC (CORR 15% O2)	PPM	5	20	46	88	235
TOTAL NOX (AS NO2)	G/HP-HR	4.98	2.36	1.87	3.26	4.10
TOTAL CO	G/HP-HR	2.32	1.88	3.52	6.55	8.55
TOTAL HC	G/HP-HR	0.02	0.08	0.18	0.33	0.90
PART MATTER	G/HP-HR	0.10	0.15	0.12	0.18	0.49
TOTAL NOX (AS NO2)	G/KW-HR	6.68	3.17	2.51	4.37	5.50
TOTAL CO	G/KW-HR	3.11	2.53	4.72	8.79	11.46
TOTAL HC	G/KW-HR	0.02	0.10	0.24	0.44	1.21
PART MATTER	G/KW-HR	0.14	0.19	0.16	0.24	0.66
TOTAL NOX (AS NO2)	LB/HR	6.56	2.36	1.30	1.27	0.82
TOTAL CO	LB/HR	3.05	1.88	2.44	2.55	1.71
TOTAL HC	LB/HR	0.02	0.07	0.13	0.13	0.18
PART MATTER	LB/HR	0.14	0.14	0.08	0.07	0.10

Regulatory Information

EPA EMERGENCY STATIONARY		2011 - ----		CYCLE :D2
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

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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	609	609	609	609	609	609	609	609	609	600	590	580	609
1,000	609	609	609	609	609	609	609	598	588	578	568	558	609
2,000	609	609	609	609	609	609	597	587	576	566	556	547	607
3,000	609	609	609	597	586	575	564	554	545	535	526	517	588
4,000	609	597	586	574	564	553	543	533	524	515	506	498	570
5,000	586	575	563	552	542	532	522	513	504	495	487	479	552
6,000	564	552	542	531	521	511	502	493	484	476	468	460	534
7,000	542	531	520	510	501	492	483	474	466	458	450	442	517
8,000	520	510	500	490	481	472	464	455	447	440	432	425	500
9,000	500	490	480	471	462	454	445	437	430	422	415	408	484
10,000	480	470	461	452	444	435	427	420	412	405	398	392	467
11,000	460	451	442	434	426	418	410	403	396	389	382	376	452
12,000	442	433	424	416	408	401	393	386	380	373	367	361	437
13,000	424	415	407	399	392	384	377	371	364	358	352	346	422
14,000	406	398	390	382	375	368	362	355	349	343	337	331	407
15,000	389	381	374	366	359	353	346	340	334	328	323	318	393

Cross Reference

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
0K9333	PP7710	4343726	PG045	LS	PW300001	

Performance Parameter Reference

Parameters Reference:DM9600-15
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%

Specific fuel consumption (C7-C18) +/- 4%

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%

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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.

PERFORMANCE DATA[EM1694]

August 22, 2025

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 : 03/12/24

Amazon Data Services, Inc. - Application for New Source Minor PSD/Emission Offset Constructiton Approval and FESOP

CATERPILLAR C9 250 KW GENERATOR

PERFORMANCE DATA[DM8501]

August 22, 2025

Performance Number: DM8501

Change Level: 03

SALES MODEL:	C9	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	1,800
MACHINE SALES MODEL:		HERTZ:	60
ENGINE POWER (BHP):	398	FAN POWER (HP):	30.2
GEN POWER W/O FAN (EKW):	265.0	ASPIRATION:	TA
GEN POWER WITH FAN (EKW):	250.0	AFTERCOOLER TYPE:	ATAAC
COMPRESSION RATIO:	16.1	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
RATING LEVEL:	STANDBY	INLET MANIFOLD AIR TEMP (F):	122
PUMP QUANTITY:	1	JACKET WATER TEMP (F):	192.2
FUEL TYPE:	DIESEL	TURBO CONFIGURATION:	SINGLE
MANIFOLD TYPE:	DRY	TURBO QUANTITY:	1
GOVERNOR TYPE:	ELEC	TURBOCHARGER MODEL:	S310-1.25
CAMSHAFT TYPE:	STANDARD	CERTIFICATION YEAR:	2005
IGNITION TYPE:	CI	PISTON SPD @ RATED ENG SPD (FT/MIN):	1,759.8
INJECTOR TYPE:	EUI		
REF EXH STACK DIAMETER (IN):	4		
MAX OPERATING ALTITUDE (FT):	3,281		

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

General Performance Data

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR
250.0	100	398	326	0.341	0.337	19.1	18.9
225.0	90	359	294	0.346	0.343	17.5	17.3
200.0	80	321	263	0.355	0.351	16.0	15.9
187.5	75	302	247	0.360	0.356	15.3	15.2
175.0	70	284	232	0.364	0.361	14.6	14.4
150.0	60	247	202	0.374	0.371	13.0	12.9
125.0	50	211	172	0.385	0.381	11.4	11.3
100.0	40	176	144	0.394	0.390	9.8	9.7
75.0	30	141	116	0.404	0.400	8.0	8.0
62.5	25	124	101	0.410	0.406	7.2	7.1
50.0	20	106	87	0.418	0.414	6.2	6.2
25.0	10	68.9	56	0.445	0.441	4.3	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
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

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

PERFORMANCE DATA[DM8501]

August 22, 2025

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

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

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN	EKW	250.0	187.5	125.0	62.5	25.0
PERCENT LOAD	%	100	75	50	25	10
ENGINE POWER	BHP	398	302	211	124	68.9
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
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

PERFORMANCE DATA[DM8501]

August 22, 2025

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
PERCENT LOAD	%	100	75	50	25	10
ENGINE POWER	BHP	398	302	211	124	68.9
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

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	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

PERFORMANCE DATA[DM8501]

August 22, 2025

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

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

Parameters Reference:DM9600-15
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%

Specific fuel consumption (C7-C18) +/- 4%

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.

PERFORMANCE DATA[DM8501]

August 22, 2025

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

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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 : 03/12/24