



**Department of Energy**  
**National Nuclear Security Administration**  
**Sandia Field Office**  
**P.O. Box 5400**  
**Albuquerque, NM 87185**



**APR 08 2021**

Carina G. Munoz-Dyer  
Environmental Health Supervisor, Permitting Division  
Air Quality Program  
1 Civic Plaza NW, Room 3023  
P.O. Box 1293  
Albuquerque, New Mexico 87103

**Subject: Response to 1st Administrative Incomplete Determination for Air Quality  
Construction Permit Application No. 3436 - Building No. 726**

Dear Ms. Munoz-Dyer:

In a letter dated March 19, 2021, the City of Albuquerque Environmental Health Department Air Quality Program deemed the application for an emergency generator at Building No. 726 administratively incomplete. Responses to the identified items have been included in the enclosure, along with the updated application package.

If you have questions, please contact Carolyn Holloway of our staff at (505) 845-5248 or Carolyn.Holloway@nnsa.doe.gov.

Sincerely,

**William V.  
Wechsler**

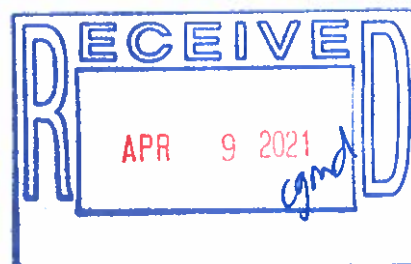
Digitally signed by  
William V. Wechsler  
Date: 2021.04.08  
08:02:16 -06'00'

William V. Wechsler  
Assistant Manager for Engineering

Enclosure

cc w/enclosure:  
Rosemary Avery, SNL/NM  
Carolyn Holloway, SFO

cc w/o enclosure:  
William Wechsler, SFO/ENG  
NNSA-2021-001788





Response to Air Quality Construction Permit Application #3436  
DOE SNL Building 726: 1<sup>st</sup> Administrative Incomplete Determination

**Item 1: Engine horsepower**

“In Section 2 of the application form, the emergency engine is listed with a horsepower of 2,682-horsepower (hp), and the emissions calculations and performance sheet show 2,937- hp.”

The correct horsepower for the engine is 2,937 and Section 2 of the application form has been corrected. (See Attachment 1, Part 3.a., Required Permit Application Forms)

**Item 2: Hourly particulate matter emissions**

“The particulate matter (PM) hourly emissions in Section 5 of the application form are not consistent with the PM hourly emissions provided in the Public Notice or in the Performance sheet. The application form has an emission rate of 0.69 pound per hour (pph), the emissions calculation has an emission rate of 0.26 pph, and the performance sheet has an emission rate of 0.23 pph.”

Section 5 has been updated to reflect the more conservative PM rate of 0.26 pph, as is found in the emissions calculations (and public notices). This rate is calculated from the 0.04 g/hp-hr, “Emissions (Potential Site Variation)” provided in *Caterpillar Spec Sheet*. (See Attachment 1, Part 3.a., Required Permit Application Forms)

**Item 3: Stack and emission rate information**

“Please verify that the stack and emission information provided in Section 3 of the application form is correct. The form has a flow rate of 6,205 cubic feet per min(cfm) manufacturer data shows an exhaust gas flow rate of 15, 292.8 cfm.”

After confirming with the project manager, we have changed the exhaust parameters in the application to reflect the information in the *Caterpillar Spec Sheet*. This includes the flow rate, stack height, and stack diameter. (See Attachment 1, Part 3.a., Required Permit Application Forms)

**Item 4: Insufficient application review fees**

“The application review fees paid in the application were for year 2020. The application was submitted to the Program in 2021 and it should use the Permit Application Review Fee Checklist for the year 2021, which is available in our website. Please provide payment for the outstanding balance. An invoice with this pending amount is included with this letter.”

The 2020 Review Fee Checklist in the attached application has been replaced with the Permit Application Review Fee Checklist for 2021. The check for the outstanding balance (\$42.00) is being processed and will be mailed from Sandia’s Accounts Payable organization.

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## **Attachment 1**

Corrected application forms

(Two hard copies of the corrected forms will be sent to the City of Albuquerque, Air Quality Program via FedEx.)

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## EXECUTIVE SUMMARY

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In accordance with 20.11.41.29 NMAC, the U.S. Department of Energy (DOE) is submitting this application to install a new 2000 kW emergency generator. The new generator will be located at Sandia National Laboratories/New Mexico (SNL/NM) Building 726.

Per City of Albuquerque Air Quality Program's Internal Combustion Engine Permitting Policy, SNL/NM personnel and the DOE are requesting to operate the emergency generator for a maximum of 500 hours per year. The generator will only be operated during unavoidable loss of commercial power or during required maintenance/exercising.

Building 726 does not have associated existing permits or registrations and the only emission unit associated with the facility will be the new 2000 kW emergency generator.

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# 1. PRE-PERMIT APPLICATION MEETING

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Per email dated November 25, 2020, Regan Eyeran granted a waiver from performing a pre-permit application meeting to SNL/NM personnel and the DOE (see attached email) for this application to install a new emergency generator. The Pre-permit Application Meeting Checklist is attached to this section.

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## 1.a. Pre-permit Application Meeting Waiver

**From:** [Everman, Regan V.](#)  
**To:** [Avery, Penny](#)  
**Cc:** [Pope, Callan](#); [Holloway, Carolyn \(EGDS\)](#); [Stonesifer, Jeff W.](#); [Munoz-Dyer, Carina G.](#)  
**Subject:** [EXTERNAL] RE: Two new emergency generator applications  
**Date:** Wednesday, November 25, 2020 10:53:21 AM

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Good morning Penny, Carolyn and Callan,  
Thank you for contacting the City of Albuquerque Environmental Health Department Air Quality Program (Program). Everything is fine, as much as it can be. We are all still teleworking and looking forward to the holiday season.

Per 20.11.41.13A. NMAC, the Program waives the pre-application meeting requirement for DOE/SNL's two planned permitting projects. The link to the regulation is below:  
<http://164.64.110.134/parts/title20/20.011.0041.html>

We will provide a memo of neighborhood associations and coalitions to contact around the base.  
How are you doing on your supply of weather proof-signs?

I hope you have a great Thanksgiving!



**Regan Eyerman, P.E.**  
senior environmental health scientist | environmental health department  
o 505.767.5625  
[cabq.gov/environmentalhealth/](http://cabq.gov/environmentalhealth/)

**From:** Avery, Penny <rpavery@sandia.gov>  
**Sent:** Thursday, November 19, 2020 15:31  
**To:** Eyerman, Regan V. <reyerman@cabq.gov>  
**Cc:** Pope, Callan <epope@sandia.gov>; Holloway, Carolyn (EGDS) <carolyn.holloway@nnsa.doe.gov>; Stonesifer, Jeff W. <JStonesifer@cabq.gov>  
**Subject:** Two new emergency generator applications



**External**

Hi Regan,

Hope everything's going well and you and your family are staying healthy and safe.

We're still mostly working from home, but need to start the process to apply for a couple of new emergency generators.

1. We will be applying to convert Registration #2111 to a Construction permit to add an emergency generator to Building 810. Registration #2111 is for three 2MMBtu/hr natural gas-fired boilers used for comfort heating. Although the boilers are exempt from Construction permitting according to 20.11.41.2.F(3)(a) NMAC, we will be including the relevant equipment information in the "Exempted Sources" table in the application. Please let us know if we should also include the emissions information in any of the other tables.
2. We will also be applying for a Construction permit to install an emergency generator at Building 726

Since emergency generators are exempt from dispersion modeling requirements (October 2019 City of Albuquerque Air Quality Program's Air Dispersion Modeling Guidelines for Air Quality Permitting) and we're familiar with the permitting process including timelines, fees, and public notice, I'm thinking we won't need to schedule a pre-application meeting.

On behalf of Carolyn Holloway (DOE/NNSA/SFO) I would like to request that the Air Quality Program waive the requirement for pre-application meetings for the installation of these two new emergency generators.

When you can, please provide a current list of emails of the neighborhood associations and coalitions within 0.5 miles of the KAFB fence line for us to notify prior to our application submittal.

Thanks and if I don't talk to you before then, have a great Thanksgiving holiday!  
Penny



**Penny Avery**  
Sandia National Laboratories

*Air Quality Compliance Program Lead (00641)*  
*Environmental Compliance & Monitoring*  
[psb@sandia.gov](mailto:psb@sandia.gov)  
(505) 283-3185 | Cell: (505) 273-1047 | Surge 2208

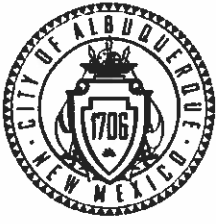
*We are integrated ESH technical experts solving national and global challenges.*

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This message has been analyzed by Deep Discovery Email Inspector.

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## 1.b. Pre-Permit Application Meeting Checklist



# City of Albuquerque

## Environmental Health Department Air Quality Program



### Pre-Permit Application Meeting Checklist

Any person seeking a permit under 20.11.41 NMAC, Authority-to-Construct Permits, shall do so by filing a written application with the Department. Prior to submitting an application, the applicant shall contact the department in writing and request a pre-application meeting for information regarding the contents of the application and the application process. This checklist is provided to aid the applicant and **a copy must be submitted with the application.**

Applications that are ruled incomplete because of missing information will delay any determination or the issuance of the permit. The Department reserves the right to request additional relevant information prior to ruling the application complete in accordance with 20.11.41 NMAC.

Name: Building 726 - New Emergency Generator

Contact: Carolyn Holloway (505) 845-5248/Penny Avery (505) 273-1047

Company/Business: Dept. of Energy/Sandia Field Office (DOE/SFO)/Sandia National Laboratories/New Mexico (SNL/NM)

- Fill out and submit a Pre-Permit Application Meeting Request form
  - ⇒ Available online at <http://www.cabq.gov/airquality>
  - ⇒ The department waived the pre-application meeting requirement in an email from Regan Eyerman on November 25, 2020.
  
- Emission Factors and Control Efficiencies  
Notes: N/A
  
- Air Dispersion modeling guidelines and protocol  
Notes: N/A
  
- Department Policies  
Notes: N/A
  
- Air quality permit fees  
Notes: N/A
  
- Public notice requirements
  - Replacement Part 41 Implementation
    - 20.11.41.13 B. Applicant's public notice requirements
      - Providing public notice to neighborhood association/coalitions
        - Neighborhood association: \_\_\_\_\_
        - Coalition: \_\_\_\_\_
  
- Notes: N/A

- Posting and maintaining a weather-proof sign  
Notes: N/A

**Regulatory timelines**

- 30 days to rule application complete
- 90 days to issue completed permit
- Additional time allotted if there is significant public interest and/or a significant air quality issue
  - Public Information Hearing
  - Complex permitting action

Notes: N/A

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## 2. PUBLIC NOTICE

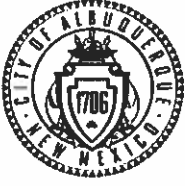
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Attached to this section are all completed public notice requirements including:

- a) Notice of Intent to Construct Form
- b) Public Sign Notice Guidelines
- c) Public Notice Sign Photograph

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## 2.a. Notice of Intent to Construct Form



# Notice of Intent to Construct



Under 20.11.41.13B NMAC, the owner/operator is required to provide public notice by certified mail or electronic mail to the designated representative(s) of the recognized neighborhood associations and recognized coalitions that are within one-half-mile of the exterior boundaries of the property on which the source is or is proposed to be located if they propose to construct or establish a new facility or make modifications to an existing facility that is subject to 20.11.41 NMAC – Construction Permits. **A copy of this form must be included with the application.**

**Applicant's name and address:**

*Nombre y domicilio del solicitante:* Department of Energy  
Sandia Field Office (SFO)  
P.O. Box 5400, Albuquerque, NM, 87185

**Owner or operator's name and address:**

*Nombre y domicilio del propietario u operador:* Sandia National Laboratories  
P.O. Box 5800 MS 1512, Albuquerque, NM 87185-1512

**Actual or estimated date the application will be submitted to the department:**

*Fecha actual o estimada en que se entregará la solicitud al departamento:* January 29, 2021

**Description of the source:**

*Descripción de la fuente:* Emergency Generator

**Exact location of the source or proposed source:**

*Ubicación exacta de la fuente o fuente propuesta:* Building 726 (14<sup>th</sup> Street and L Street)

**Nature of business:**

*Tipo de negocio:* Research and Development

**Process or change for which the permit is requested:**

*Proceso or cambio para el cuál de solicita el permiso:* Addition of an emergency diesel generator

**Preliminary estimate of the maximum quantities of each regulated air contaminant the source will emit:**

*Estimación preliminar de las cantidades máximas de cada contaminante de aire regulado que la fuente va a emitir:*

Air Contaminant <i>Contaminante de aire</i>	Proposed Construction Permit <i>Permiso de Construcción Propuesto</i>		Net Changes (for permit modification or technical revision) <i>Cambio Neto de Emisiones (para modificación de permiso o revisión técnica)</i>	
	pounds per hour <i>libras por hora</i>	tons per year <i>toneladas por año</i>	pounds per hour <i>libras por hora</i>	tons per year <i>toneladas por año</i>
CO	3.50	0.87	N/A	N/A
NOx	42.48	10.62	N/A	N/A
VOC	0.91	0.23	N/A	N/A
SO2	0.029	0.007	N/A	N/A
PM10	0.26	0.06	N/A	N/A
PM2.5	0.26	0.06	N/A	N/A



HAP	N/A	N/A	N/A	N/A
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**Maximum operating schedule:**

*Horario máximo de operaciones:* 365 days/yr, 24 hrs/day

**Normal operating schedule:**

*Horario normal de operaciones:* 6 AM to 5 PM

**Current contact information for comments and inquires:**

*Datos actuales para comentarios y preguntas:*

Name (*Nombre*): Tami Moore - DOE Public Affairs Director

Address (*Domicilio*): PO Box 5400, Albuquerque, NM 87185

Phone Number (*Número Telefónico*): (505) 845-5264

E-mail Address (*Correo Electrónico*): tami.moore@nnsa.doe.gov

If you have any comments about the construction or operation of the above facility, and you want your comments to be made part of the permit review process, you must submit your comments in writing to the address below:

Environmental Health Manager  
Permitting Division  
Albuquerque Environmental Health Department  
Air Quality Program  
P.O. Box 1293  
Albuquerque, New Mexico 87103  
(505) 768-1972

Other comments and questions may be submitted verbally.

Please refer to the company name and facility name, as used in this notice or send a copy of this notice along with your comments, since the Department may not have received the permit application at the time of this notice. Please include a legible mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, if required, the Department's notice will be published on the City of Albuquerque's website, <https://www.cabq.gov/airquality/air-quality-permits> and sent to neighborhood associations and neighborhood coalitions near the facility location or near the facility proposed location.



**Environmental Health Department**

**Air Quality Program**

**Interoffice Memorandum**



**TO:** PENNY AVERY, PROGRAM MANAGER, AIR QUALITY COMPLIANCE PROGRAM LEAD  
**FROM:** NOEL BEGAY, PROGRAM SPECIALIST  
**SUBJECT:** VERIFICATION OF NEIGHBORHOOD ASSOCIATIONS AND COALITIONS WITHIN 0.5 MILES OF KIRTLAND AIR FORCE BASE PROPERTY, ALBUQUERQUE, NM  
**DATE:** 12/4/2020

**DETERMINATION:**

On 12/4/2020, I used the City of Albuquerque Zoning Advanced Map Viewer (<http://coagisweb.cabq.gov/>) to verify which City of Albuquerque Neighborhood Associations (NA), Homeowner Associations (HOA) and Neighborhood Coalitions (NC) are located within 0.5 miles of Kirtland Air Force Base Property, Albuquerque, NM in Bernalillo County.

I then used the City of Albuquerque (COA) Office of Neighborhood Coordination Monthly Neighborhood Association List dated November 2020 and the Bernalillo County (BC) Monthly Neighborhood Association November 2020 Excel file to determine the contact information for each NA, HOA and NC populated by the Albuquerque Zoning Advanced Map Viewer.

Duplicates have been deleted. Contact information is as follows:

COA/BC Association or Coalition	Name	Email or Mailing Address
District 6 Coalition of NA	Mandy Warr Patricia Willson	<a href="mailto:mandy@theremedaydayspa.com">mandy@theremedaydayspa.com</a> <a href="mailto:info@willsonstudio.com">info@willsonstudio.com</a>
East Gateway Coalition	Michael Brasher James Andrews Association E-mail	<a href="mailto:brasher@aps.edu">brasher@aps.edu</a> <a href="mailto:jamesw.andrews01@gmail.com">jamesw.andrews01@gmail.com</a> <a href="mailto:eastgatewaycoalition@gmail.com">eastgatewaycoalition@gmail.com</a>
East Mountain District 5 Coalition	Paul Butler Lisa Davis	<a href="mailto:info@eatmountaincoalition.org">info@eatmountaincoalition.org</a> <a href="mailto:ldavis@eastmountaincoalition.org">ldavis@eastmountaincoalition.org</a>
Elder Homestead NA	Sandra Perea Marian Jordan	<a href="mailto:sp-wonderwoman@comcast.net">sp-wonderwoman@comcast.net</a> <a href="mailto:marianjor@aol.com">marianjor@aol.com</a>
Four Hills Village Association	Steve Brugge Dave Wallace	<a href="mailto:s.brugge@yahoo.com">s.brugge@yahoo.com</a> <a href="mailto:cactuscrownm@yahoo.com">cactuscrownm@yahoo.com</a>
Juan Tabo Hills NA	Richard Lujan Catherine Cochrane	<a href="mailto:richtriple777@msn.com">richtriple777@msn.com</a> <a href="mailto:catcochrane1@gmail.com">catcochrane1@gmail.com</a>
La Mesa Community Improvement	Dayna Mares Idalia Lechuga-Tena Association E-mail	<a href="mailto:dayna.mares76@gmail.com">dayna.mares76@gmail.com</a> <a href="mailto:idalialt@gmail.com">idalialt@gmail.com</a> <a href="mailto:lamesainternationaldistrict@gmail.com">lamesainternationaldistrict@gmail.com</a>
Parkland Hills NA	Mary Darling Robert Leming	<a href="mailto:mldarling56@yahoo.com">mldarling56@yahoo.com</a> <a href="mailto:phnapresident@gmail.com">phnapresident@gmail.com</a>
Siesta Hills NA	Rachel Baca	<a href="mailto:rbaca@bizjournals.com">rbaca@bizjournals.com</a>

	Kathy Pierson Association Email	<a href="mailto:kp-shna@centurylink.net">kp-shna@centurylink.net</a> <a href="mailto:siesta2na.pres@gmail.com">siesta2na.pres@gmail.com</a>
South Los Altos	Jim Ahrend Arthur Bazan	<a href="mailto:notices@slananm.org">notices@slananm.org</a> <a href="mailto:sla4onc@gmail.com">sla4onc@gmail.com</a>
South San Pedro NA	Khadijah Bottom Zabdiel Aldaz	<a href="mailto:khadijahasili@vizionz.org">khadijahasili@vizionz.org</a> <a href="mailto:zabdiel505@gmail.com">zabdiel505@gmail.com</a>
Southeast Heights NA	Pete Belletto John Pate	<a href="mailto:pmbdoc@yahoo.com">pmbdoc@yahoo.com</a> <a href="mailto:jpate@molzencorbin.com">jpate@molzencorbin.com</a>
Trumbull Village NA	Alyce Ice Joanne Landry	<a href="mailto:alyceice@gmail.com">alyceice@gmail.com</a> <a href="mailto:landry54@msn.com">landry54@msn.com</a>
Victory Hills NA	Erin Engelbrecht Association Email	<a href="mailto:e2brecht@gmail.com">e2brecht@gmail.com</a> <a href="mailto:victoryhillsabq@gmail.com">victoryhillsabq@gmail.com</a>
Willow Wood NA	Pamela Meyer Samantha Martinez	<a href="mailto:pmeyer@sentrymgmt.com">pmeyer@sentrymgmt.com</a> <a href="mailto:samijoster@gmail.com">samijoster@gmail.com</a>
Yale Village NA	Donald Love Kim Love Association Email	<a href="mailto:donaldlove08@comcast.net">donaldlove08@comcast.net</a> <a href="mailto:klove726@gmail.com">klove726@gmail.com</a> <a href="mailto:yalevillage@comcast.net">yalevillage@comcast.net</a>

**From:** [Moore, Tami L.](#)  
**To:** "[mandy@theremedaydayspa.com](#)"; "[info@wilsonstudio.com](#)"; "[brasher@aps.edu](#)"; "[jamesw.andrews01@gmail.com](#)"; "[eastotewaycoalition@gmail.com](#)"; "[info@eastmountaincoalition.org](#)"; "[ldavis@eastmountaincoalition.org](#)"; "[so-wonderwoman@comcast.net](#)"; "[marianjor@aol.com](#)"; "[s.brugge@yahoo.com](#)"; "[cactuscrownm@yahoo.com](#)"; "[nichtriple777@msn.com](#)"; "[catrochrane1@gmail.com](#)"; "[dayna.mares76@gmail.com](#)"; "[idalajit@gmail.com](#)"; "[jamesinternationaldistrict@gmail.com](#)"; "[mldaring56@yahoo.com](#)"; "[ohnapresident@gmail.com](#)"; "[rbaca@bizjournals.com](#)"; "[ko-shna@centurylink.net](#)"; "[siesta2na.pres@gmail.com](#)"; "[notices@slanm.org](#)"; "[khadijahs11@vizonz.org](#)"; "[zabdel505@gmail.com](#)"; "[sladonc@gmail.com](#)"; "[ombdoc@yahoo.com](#)"; "[ipate@molzencorbin.com](#)"; "[alyceice@gmail.com](#)"; "[landry54@msn.com](#)"; "[e2brecht@gmail.com](#)"; "[victoryhill.sabo@gmail.com](#)"; "[omever@sentrymgt.com](#)"; "[samjoster@gmail.com](#)"; "[donaldlove08@comcast.net](#)"; "[klove726@gmail.com](#)"; "[yalevilla0e@comcast.net](#)  
**Cc:** [Pope, Callan](#); [Holloway, Carolyn](#) (EGDS)  
**Subject:** [EXTERNAL] Public Notice of Proposed Air Quality Construction Permit Application for Sandia National Laboratories (Bldg. 726)  
**Date:** Wednesday, January 6, 2021 11:50:48 AM  
**Attachments:** [726 Notice of Intent 11242020.pdf](#)

Dear Neighborhood Association/Coalition Representative(s),

***Why did I receive this public notice?***

You are receiving this notice in accordance with New Mexico Administrative Code (NMAC) 20.11.41.13.B(1) which requires any applicant seeking an Air Quality Construction Permit pursuant to 20.11.41 NMAC to provide public notice by certified mail or electronic mail to the designated representative(s) of the recognized neighborhood associations and recognized coalitions that are within one-half mile of the exterior boundaries of the property on which the source is or is proposed to be located.

***What is the Air Quality Permit application review process?***

The City of Albuquerque, Environmental Health Department, Air Quality Program (Program) is responsible for the review and issuance of Air Quality Permits for any stationary source of air contaminants within Bernalillo County. Once the application is received, the Program reviews each application and rules it either complete or incomplete. Complete applications will then go through a 30-day public comment period. Within 90 days after the Program has ruled the application complete, the Program shall issue the permit, issue the permit subject to conditions, or deny the requested permit or permit modification. The Program shall hold a Public Information Hearing pursuant to 20.11.41.15 NMAC if the Director determines there is significant public interest and a significant air quality issue is involved.

***What do I need to know about this proposed application?***

Applicant Name	United States Department of Energy (DOE)
Site or Facility Name	Building 726
Site or Facility Address	14 <sup>th</sup> Street and L Street
New or Existing Source	New Source
Anticipated Date of Application Submittal	January 29, 2021
Summary of Proposed Source to Be Permitted	Installation of a new Tier II emergency diesel generator.

***What emission limits and operating schedule are being requested?***

See attached Notice of Intent to Construct form for this information.

***How do I get additional information regarding this proposed application?***

For inquiries regarding the proposed source, contact:

- Tami Moore – DOE Public Affairs Director
- [tami.moore@mnsa.doe.gov](mailto:tami.moore@mnsa.doe.gov)
- (505) 845-5264

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For inquiries regarding the air quality permitting process, contact:

- City of Albuquerque Environmental Health Department Air Quality Program
- [aqd@cabq.gov](mailto:aqd@cabq.gov)
- (505) 768-1972

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## 2.b. Public Sign Notice Guidelines



# City of Albuquerque

## Environmental Health Department Air Quality Program



### Public Notice Sign Guidelines

Any person seeking a permit under 20.11.41 NMAC, Authority-to-Construct Permits, shall do so by filing a written application with the Department. *Prior to submitting an application, the applicant shall post and maintain a weather-proof sign provided by the department. The applicant shall keep the sign posted until the department takes final action on the permit application; if an applicant can establish to the department's satisfaction that the applicant is prohibited by law from posting, at either location required, the department may waive the posting requirement and may impose different notification requirements. A copy of this form must be submitted with your application.*

Applications that are ruled incomplete because of missing information will delay any determination or the issuance of the permit. The Department reserves the right to request additional relevant information prior to ruling the application complete in accordance with 20.11.41 NMAC.

Name: Department of Energy

Contact: Tami Moore (DOE)

Company/Business: Address: PO Box 5400, Albuquerque NM, 87185

Phone: (505) 845-5264

Email: tami.moore@nnsa.doe.gov

- The sign must be posted at the more visible of either the proposed or existing facility entrance (or, if approved in advance and in writing by the department, at another location on the property that is accessible to the public)
- The sign shall be installed and maintained in a condition such that members of the public can easily view, access, and read the sign at all times.
- The lower edge of the sign board should be mounted a minimum of 2' above the existing ground surface to facilitate ease of viewing
- Attach a picture of the completed, properly posted sign to this document
- Check here if the department has waived the sign posting requirement.**  
Alternative public notice details:

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## 2.c. Public Notice Sign Photograph







**Proposed Air Quality Construction Permit**  
**Permiso de Construcción de Calidad del Aire Propuesto**



- Applicant's Name:** U.S. Department of Energy  
Nombre del solicitante  
**Owner or Operator Name:** Sandia National Laboratories  
Nombre del Proprietario u Operador
- Actual or Estimated Date the Application will be Submitted to the Department:** January 28, 2021  
Fecha Actual o Estimada en que se Entregará la Solicitud al Departamento
- Exact Location of the Source or Proposed Source:** Building 726, 14th St. and L St  
Ubicación Exacta de la Fuente o Fuente Propuesta
- Description of the Source:** Research and Development - Emergency Generator  
Descripción del Fuente  
**Nature of Business:** Research and Development  
Ejemplo de Negocio  
**Process or change for which a permit is requested:** Addition of an emergency generator  
Proceso o cambio para el cual se solicita el permiso

**Preliminary estimate of the maximum quantities of each regulated air contaminant the source will emit:**  
Estimación preliminar de las cantidades máximas de cada contaminante de aire regulado que la fuente va a emitir:

Air Contaminant Contaminante de Aire	Proposed Construction Permit Permiso de Construcción Propuesta		Net Change Emissions (for permit modification or technical revision) Cambio Neto de Emisiones (para modificación de permiso o revisión técnica)	
	Pounds per hour libras por hora	Tons per year toneladas por año	Pounds per hour libras por hora	Tons per year toneladas por año
CO	3.50	0.87	N/A	N/A
NOx	48.48	10.62		
SO2	0.029	0.007		
PM10	0.26	0.06		
PM2.5	0.26	0.06		
HAP	N/A	N/A		
VOC	0.91	0.23		

- Maximum Operating Schedule:** 365 days/yr, 24 hrs/day  
Horario Máximo de Operaciones  
**Normal Operation Schedule:** 6am to 5pm  
Horario Normal de Operaciones
- Current Contact Information for Comments and Inquiries**  
Datos actuales para Comentarios y Preguntas  
**Name (Nombre):** Tami Moore - DOE Public Affairs Director  
**Address (Dirección):** PO Box 5400  
**Phone Number (Número Telefónico):** (505) 845-5264  
**Email Address (Correo Electrónico):** Tami.moore@nsls.doe.gov

Call 311 for additional information concerning this project, the Air Quality Program, or to file a complaint.  
Llame al 311 para obtener información adicional sobre este proyecto, del Programa de Calidad del Aire, o para presentar una queja.  
 Gọi 311 để biết thêm thông tin hoặc để khiếu nại về dự án này. Chương Trình Chất Lượng Không Khí

City of Albuquerque, Environmental Health Department, Air Quality Program - Stationary Source Permitting  
Ciudad de Albuquerque, Departamento de Salud Ambiental, Programa de Calidad del Aire - Permisos para Fuentes Estacionarias  
 (505) 768-1973, eaq@labq.gov

**THIS SIGN SHALL REMAIN POSTED UNTIL THE DEPARTMENT TAKES FINAL ACTION ON THE PERMIT APPLICATION**  
**ESTE SIGNO DEBERÁ DE MANTENERSE PUESTO HASTA QUE EL DEPARTAMENTO TOMA UNA DECISIÓN SOBRE LA SOLICITUD DE PERMISO**

### 3. AIR PERMIT APPLICATION

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Attached to this section are as follows:

- a) Required Permit Application Forms:
  - o Permit Application Checklist
  - o Permit Application Review Fee Checklist
  - o Emergency Generator Application Form
- b) Plot Pan identifying the location of the new emergency generator
  - o USGS 7.5'- Quadrangle Map
  - o Google Map
- c) Process flow diagram
- d) Emission calculations and supporting information used to calculate emissions
- e) Regulatory Requirements
- f) Operational and Maintenance Strategy
- g) Air Dispersion Modeling Ambient Impact Analysis

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### 3.a. Required Permit Application Forms



# City of Albuquerque

## Environmental Health Department Air Quality Program



### Permit Application Checklist

Any person seeking a permit under 20.11.41 NMAC, Authority-to-Construct Permits, shall do so by filing a written application with the Department. Prior to ruling a submitted application complete each application submitted shall contain the required items listed below. **This checklist must be returned with the application.**

Applications that are ruled incomplete because of missing information will delay any determination or the issuance of the permit. The Department reserves the right to request additional relevant information prior to ruling the application complete in accordance with 20.11.41 NMAC.

All applicants shall:

1.  Fill out and submit the *Pre-permit Application Meeting Request* form
  - a.  Attached is a waiver from the Pre-permit Application Meeting Request
2.  Attend the pre-permit application meeting
  - a.  Attached is a waiver from the *Pre-permit Application Meeting Checklist*
3.  Provide public notice to the appropriate parties
  - a.  Attach a copy of the completed *Notice of Intent to Construct* form to this form
    - i. Neighborhood Association(s): See Attached Memo from Regan
    - ii. Coalition(s): \_\_\_\_\_
  - b.  Attach a copy of the completed *Public Sign Notice Guideline* form
4. Fill out and submit the *Permit Application*. All applications shall:
  - A.  be made on a form provided by the Department. Additional text, tables, calculations or clarifying information may also be attached to the form.
  - B.  at the time of application, include documentary proof that all applicable permit application review fees have been paid as required by 20 NMAC 11.02. Please refer to the attached permit application worksheet.
  - C.  contain the applicant's name, address, and the names and addresses of all other owners or operators of the emission sources.
  - D.  contain the name, address, and phone number of a person to contact regarding questions about the facility.

- E.  indicate the date the application was completed and submitted
- F.  contain the company name, which identifies this particular site.
- G.  contain a written description of the facility and/or modification including all operations affecting air emissions.
- H.  contain the maximum and standard operating schedules for the source after completion of construction or modification in terms of hours per day, days per week, and weeks per year.
- I.  provide sufficient information to describe the quantities and nature of any regulated air contaminant (including any amount of a hazardous air pollutant) that the source will emit during:
  - Normal operation
  - Maximum operation
  - Abnormal emissions from malfunction, start-up and shutdown
- J.  include anticipated operational needs to allow for reasonable operational scenarios to avoid delays from needing additional permitting in the future.
- K.  contain a map, such as a 7.5-minute USGS topographic quadrangle, showing the exact location of the source; and include physical address of the proposed source.
- L.  contain an aerial photograph showing the proposed location of each process equipment unit involved in the proposed construction, modification, relocation, or technical revision of the source except for federal agencies or departments involved in national defense or national security as confirmed and agreed to by the department in writing.
- M.  contain the UTM zone and UTM coordinates.
- N.  include the four digit Standard Industrialized Code (SIC) and the North American Industrial Classification System (NAICS).
- O.  contain the types and **potential emission rate** amounts of any regulated air contaminants the new source or modification will emit. Complete appropriate sections of the application; attachments can be used to supplement the application, but not replace it.
- P.  contain the types and **controlled** amounts of any regulated air contaminants the new source or modification will emit. Complete appropriate sections of the application; attachments can be used to supplement the application, but not replace it.
- Q.  contain the basis or source for each emission rate (include the manufacturer's specification sheets, AP-42 Section sheets, test data, or other data when used as the source).

- R.  contain all calculations used to estimate potential emission rate and controlled emissions.
- S.  contain the basis for the estimated control efficiencies and sufficient engineering data for verification of the control equipment operation, including if necessary, design drawings, test reports, and factors which affect the normal operation (e.g. limits to normal operation).
- T.  contain fuel data for each existing and/or proposed piece of fuel burning equipment.
- U.  contain the anticipated maximum production capacity of the entire facility and the requested production capacity after construction and/or modification.
- V.  contain the stack and exhaust gas parameters for all existing and proposed emission stacks.
- W.  provide an ambient impact analysis using a atmospheric dispersion model approved by the US Environmental Protection Agency (EPA), and the Department to demonstrate compliance with the ambient air quality standards for the City of Albuquerque and Bernalillo County (See 20.11.01 NMAC). If you are modifying an existing source, the modeling must include the emissions of the entire source to demonstrate the impact the new or modified source(s) will have on existing plant emissions.
- X.  contain a preliminary operational plan defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown.
- Y.  contain a process flow sheet, including a material balance, of all components of the facility that would be involved in routine operations. Indicate all emission points, including fugitive points.
- Z.  contain a full description, including all calculations and the basis for all control efficiencies presented, of the equipment to be used for air pollution control. This shall include a process flow sheet or, if the Department so requires, layout and assembly drawings, design plans, test reports and factors which affect the normal equipment operation, including control and/or process equipment operating limitations.
- AA.  contain description of the equipment or methods proposed by the applicant to be used for emission measurement.
- BB.  be signed under oath or affirmation by a corporate officer, authorized to bind the company into legal agreements, certifying to the best of his or her knowledge the truth of all information submitted.



# City of Albuquerque

## Environmental Health Department

### Air Quality Program



### Permit Application Review Fee Instructions

All source registration, authority-to-construct, and operating permit applications for stationary or portable sources shall be charged an application review fee according to the fee schedule in 20.11.2 NMAC. These filing fees are required for both new construction, reconstruction, and permit modifications applications. Qualified small businesses as defined in 20.11.2 NMAC may be eligible to pay one-half of the application review fees and 100% of all applicable federal program review fees.

Please fill out the permit application review fee checklist and submit with a check or money order payable to the "City of Albuquerque Fund 242" and either:

1. be delivered in person to the Albuquerque Environmental Health Department, 3<sup>rd</sup> floor, Suite 3023 or Suite 3027, Albuquerque-Bernalillo County Government Center, south building, One Civic Plaza NW, Albuquerque, NM or,
2. mailed to Attn: Air Quality Program, Albuquerque Environmental Health Department, P.O. Box 1293, Albuquerque, NM 87103.

The department will provide a receipt of payment to the applicant. The person delivering or filing a submittal shall attach a copy of the receipt of payment to the submittal as proof of payment. Application review fees shall not be refunded without the written approval of the manager. If a refund is requested, a reasonable professional service fee to cover the costs of staff time involved in processing such requests shall be assessed. Please refer to 20.11.2 NMAC (effective January 10, 2011) for more detail concerning the "Fees" regulation as this checklist does not relieve the applicant from any applicable requirement of the regulation.





# City of Albuquerque

## Environmental Health Department Air Quality Program



### Permit Application Review Fee Checklist Effective January 1 - December 31, 2021

Please completely fill out the information in each section. Incompleteness of this checklist may result in the Albuquerque Environmental Health Department not accepting the application review fees. If you should have any questions concerning this checklist, please call 768-1972.

#### I. COMPANY INFORMATION:

Company Name	United States Department of Energy (DOE)		
Company Address	1515 Wyoming Boulevard SE		
Facility Name	Sandia National Laboratories/New Mexico		
Facility Address	14 <sup>th</sup> Street and L Street (Building 726)		
Contact Person	Carolyn Holloway (SFO)/ Penny Avery (SNL/NM)		
Contact Person Phone Number	(505) 845-5248/ (505) 273-1047		
Are these application review fees for an existing permitted source located within the City of Albuquerque or Bernalillo County?	Yes	<input checked="" type="radio"/> No	
If yes, what is the permit number associated with this modification?	Permit #		
Is this application review fee for a Qualified Small Business as defined in 20.11.2 NMAC? (See Definition of Qualified Small Business on Page 4)	Yes	<input checked="" type="radio"/> No	

#### II. STATIONARY SOURCE APPLICATION REVIEW FEES:

If the application is for a new stationary source facility, please check all that apply. If this application is for a modification to an existing permit please see Section III.

Check All That Apply	Stationary Sources	Review Fee	Program Element
<b>Air Quality Notifications</b>			
	AQN New Application	\$581.00	2801
	AQN Technical Amendment	\$318.00	2802
	AQN Transfer of a Prior Authorization	\$318.00	2803
X	<i>Not Applicable</i>	<i>See Sections Below</i>	
<b>Stationary Source Review Fees (Not Based on Proposed Allowable Emission Rate)</b>			
	Source Registration required by 20.11.40 NMAC	\$ 592.00	2401
	A Stationary Source that requires a permit pursuant to 20.11.41 NMAC or other board regulations and are not subject to the below proposed allowable emission rates	\$ 1,185.00	2301
X	<i>Not Applicable</i>	<i>See Sections Below</i>	
<b>Stationary Source Review Fees (Based on the Proposed Allowable Emission Rate for the single highest fee pollutant)</b>			
	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	\$ 889.00	2302
X	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	\$1,777.00	2303
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	\$3,554.00	2304
	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	\$5,331.00	2305
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	\$7,108.00	2306
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	\$8,885.00	2307
	<i>Not Applicable</i>	<i>See Section Above</i>	

<b>Federal Program Review Fees (In addition to the Stationary Source Application Review Fees above)</b>			
X	40 CFR 60 - "New Source Performance Standards" (NSPS)	\$1,185.00	2308
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	\$1,185.00	2309
	40 CFR 63 - (NESHAPs) Promulgated Standards	\$1,185.00	2310
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	\$11,847.00	2311
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	\$5,924.00	2312
	20.11.60 NMAC, Non-Attainment Area Permit	\$5,924.00	2313
	<i>Not Applicable</i>	<i>Not Applicable</i>	

**III. MODIFICATION TO EXISTING PERMIT APPLICATION REVIEW FEES:**

If the permit application is for a modification to an existing permit, please check all that apply. If this application is for a new stationary source facility, please see Section II.

Check All That Apply	Modifications	Review Fee	Program Element
<b>Modification Application Review Fees (Not Based on Proposed Allowable Emission Rate)</b>			
	Proposed modification to an existing stationary source that requires a permit pursuant to 20.11.41 NMAC or other board regulations and are not subject to the below proposed allowable emission rates	\$ 1,185.00	2321
X	<i>Not Applicable</i>	<i>See Sections Below</i>	
<b>Modification Application Review Fees (Based on the Proposed Allowable Emission Rate for the single highest fee pollutant)</b>			
	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	\$889.00	2322
	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	\$1,777.00	2323
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	\$3,554.00	2324
	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	\$5,331.00	2325
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	\$7,108.00	2326
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	\$8,885.00	2327
X	<i>Not Applicable</i>	<i>See Section Above</i>	
<b>Major Modifications Review Fees (In addition to the Modification Application Review Fees above)</b>			
	20.11.60 NMAC, Permitting in Non-Attainment Areas	\$5,924.00	2333
	20.11.61 NMAC, Prevention of Significant Deterioration	\$5,924.00	2334
X	<i>Not Applicable</i>	<i>Not Applicable</i>	
<b>Federal Program Review Fees (This section applies only if a Federal Program Review is triggered by the proposed modification) (These fees are in addition to the Modification and Major Modification Application Review Fees above)</b>			
	40 CFR 60 - "New Source Performance Standards" (NSPS)	\$1,185.00	2328
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	\$1,185.00	2329
	40 CFR 63 - (NESHAPs) Promulgated Standards	\$1,185.00	2330
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	\$11,847.00	2331
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	\$5,924.00	2332
	20.11.60 NMAC, Non-Attainment Area Permit	\$5,924.00	2333
X	<i>Not Applicable</i>	<i>Not Applicable</i>	

**IV. ADMINISTRATIVE AND TECHNICAL REVISION APPLICATION REVIEW FEES:**

If the permit application is for an administrative or technical revision of an existing permit issued pursuant to 20.11.41 NMAC, please check one that applies.

Check One	Revision Type	Review Fee	Program Element
	Administrative Revisions	\$ 250.00	2340
	Technical Revisions	\$ 500.00	2341
X	Not Applicable	See Sections II, III or V	

**V. PORTABLE STATIONARY SOURCE RELOCATION FEES:**

If the permit application is for a portable stationary source relocation of an existing permit, please check one that applies.

Check One	Portable Stationary Source Relocation Type	Review Fee	Program Element
	No New Air Dispersion Modeling Required	\$ 500.00	2501
	New Air Dispersion Modeling Required	\$ 750.00	2502
X	Not Applicable	See Sections II, III or V	

**VI. Please submit a check or money order in the amount shown for the total application review fee. (Note: a previous check was provided for this application for \$2,920.00. A separate check for the amount of \$42.00 will be sent to the City.)**

Section Totals	Review Fee Amount
Section II Total	\$ 2,962.00
Section III Total	\$ 0.00
Section IV Total	\$ 0.00
Section V Total	\$ 0.00
<b>Total Application Review Fee</b>	<b>\$ 2,962.00</b>

I, the undersigned, a responsible official of the applicant company, certify that to the best of my knowledge, the information stated on this checklist, give a true and complete representation of the permit application review fees which are being submitted. I also understand that an incorrect submittal of permit application reviews may cause an incompleteness determination of the submitted permit application and that the balance of the appropriate permit application review fees shall be paid in full prior to further processing of the application.

Signed this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_

William V. Wechsler  
Print Name

Assistant Manager for Engineering  
Print Title

William V. Wechsler  
Signature

Digitally signed by William V. Wechsler  
Date: 2021.04.08 08:56:40 -0500

**Definition of Qualified Small Business as defined in 20.11.2 NMAC:**

“Qualified small business” means a business that meets all of the following requirements:

- (1) a business that has 100 or fewer employees;
- (2) a small business concern as defined by the federal Small Business Act;
- (3) a source that emits less than 50 tons per year of any individual regulated air pollutant, or less than 75 tons per year of all regulated air pollutants combined; and
- (4) a source that is not a major source or major stationary source.

**Note:** Beginning January 1, 2011, and every January 1 thereafter, an increase based on the consumer price index shall be added to the application review fees. The application review fees established in Subsection A through D of 20.11.2.18 NMAC shall be adjusted by an amount equal to the increase in the consumer price index for the immediately-preceding year. Application review fee adjustments equal to or greater than fifty cents (\$0.50) shall be rounded up to the next highest whole dollar. Application review fee adjustments totaling less than fifty cents (\$0.50) shall be rounded down to the next lowest whole dollar. The department shall post the application review fees on the city of Albuquerque environmental health department air quality program website.



City of Albuquerque  
Environmental Health Department  
Air Quality Program

Please mail this application to **P.O. Box 1293, Albuquerque, NM 87103**  
or hand deliver between 8:00am - 5:00pm Monday - Friday to:  
**3rd Floor, Suite 3023 - One Civic Plaza NW, Albuquerque, New Mexico 87103**  
**(505) 768 - 1972 aqd@caba.gov (505) 768 - 1977 (Fax)**



20.11.41 NMAC Air Quality Permit Application  
For

**EMERGENCY DIESEL ENGINES**

SUBJECT TO FEDERAL (USEPA) NEW SOURCE PERFORMANCE STANDARDS (NSPS)

**Section 1. General Information**

Date Submitted: \_\_\_ / \_\_\_ / 20\_\_

1. Company Name: United States Department of Energy (DOE) Ph: (505) 845-5178 Email: william.wechsler@nnsa.doe.gov
2. Company Address: 1515 Wyoming Boulevard S.E. City: Albuquerque State: NM Zip: 87123
3. Company Mailing Address (if different): Sandia Field Office (SFO) Post Office Box 5400, Albuquerque, NM Zip: 87185
4. Company Contact: William V. Wechsler Title: Assistant Manager, Engineering Ph: (505) 845-5201 Email: william.wechsler@nnsa.doe.gov
5. Facility Name: Sandia National Laboratories / New Mexico (SNL/NM) Facility Hours: 6:00 am TO 5:00 pm
6. Facility Address: Building 726, 14th St and L Ave. City: Albuquerque State: NM Zip: 87123
7. Local Business Mailing Address (if different): Post Office Box 5800, Mail Stop 1512, Albuquerque, NM, 87185-1512 Email: william.wechsler@nnsa.doe.gov
8. Facility Environmental Contact: Carolyn Holloway/Penny Avery Title: General Engineer/AOC Program Lead Ph: (505)845-5248/ (505) 844-6055  
Fax: N/A
9. Email: carolyn.holloway@nnsa.doe.gov/rpavery@sandia.gov 10. Type of Business: Research and Development
11. Environmental Consultant Name and Email Address (if applicable): N/A
12. North American Industry Classification System (NAICS): 541712 13. Standard Industrial Classification (SIC): 8733
14. UTM coordinates (required): E - 359327 N - 3879585 15. Facility Ph: (505) 845-5248 Fax: (505) 845 - 4710
16. Billing Contact: Penny Avery Title: Air Quality Compliance Program Lead Ph: (505) 273 - 1047 Fax: N/A
17. Billing Address: See "Local Business Mailing Address" above City: N/A State: N/A Zip: N/A
18. Is this an Initial Installation; OR Modification of an Existing Unit:  Initial  Modification 19. Current or requested operating hrs/yr: 500
20. Is engine or genset installed:  Yes  No If yes, date installed: \_\_\_ / \_\_\_ / \_\_\_ If no, anticipated installation date: 06 / 01 / 2021

**Provide an engine spec sheet and a detailed site plan or plat of the property where engine or genset is to be installed.**

**Section 2. Compression Ignition Internal Combustion Engine for Stationary Emergency Engines**

**Provide engine rating in horsepower (Hp) as determined by manufacturer's spec sheet.**

Process Equipment Unit	Manufacturer	Model Number	Serial Number	Manufacturer Date	Modification Date	Engine Size In Horsepower (Hp)	Size of Generator In kilowatts (kW)
Example Engine	Unigen	B-2500	A56732195C-222	02/2008	N/A	375	N/A
Example Generator	Gentor	A56789B234	XYZ13247586	02/2008	N/A	N/A	280 kW
Engine							N/A
Generator	Caterpillar	3516C	TBD	*TBD	TBD	2937.0 Hp	2000.0 kW

\* Manufacturer Date will likely be 2019 or later.



**Section 3. Stack and Emissions Information**

Stack Height Above Ground & Stack Diameter In Feet		Stack Temperature	Stack Flow Rate & Exit Direction
Example	18 feet – Height	0.42 feet – Diameter	625 °F
	9.83 feet - Height	1 foot - Diameter	752 °F
			3,000 ft <sup>3</sup> /min – Flow Rate Exit - upward
			15,292.8 ft <sup>3</sup> /min – Flow Rate Exit - upward

**Section 4. Potential Emission Rate (Uncontrolled Emissions)**

Use manufacturer's data, compliance performance stack test data or the attached USEPA Emission Factors in grams per horsepower-hour (g/Hp-hr) associated with the Engine's Horsepower Rating and Model Year

Model Year	Pollutant	Emission Factors g/Hp-hr	T I M E S	Actual Engine Hp	E Q U A L S	Emission In Grams Per Hour	D I V I D E	Grams Per Pound	E Q U A L S	Emission in Pounds Per Hour	T I M E S	Potential Operating Hours Per Year	D I V I D E	Pounds Per Ton	E Q U A L S	Emission In Tons Per Year		
E X A M P L E 2008	CO	2.6	x	375 Hp	=	975	+	453.6	=	2.15	x	8,760	+	2,000	=	9.4		
	NO <sub>x</sub>	0.3	x		=	112.5	+		=	0.25	x		8,760		+	2,000	=	1.1
	NMHC	0.14	x		=	52.5	+		=	0.12	x		8,760		+	2,000	=	0.53
	*NO <sub>x</sub> + NMHC	3.0	x		=	1,125	+		=	2.48	x		8,760		+	2,000	=	10.86
	**SO <sub>x</sub>	0.93	x		=	348.8	+		=	0.77	x		8,760		+	2,000	=	3.37
	***PM	0.15	x		=	56.25	+		=	0.12	x		8,760		+	2,000	=	0.53
	CO	0.54														15.31		
	NO <sub>x</sub>	6.56														186.04		
	NMHC	0.14														3.97		
	*NO <sub>x</sub> + NMHC	N/A														N/A		
	**SO <sub>x</sub>	15 ppm														0.13		
	***PM	0.04														1.13		

See attached Emission Calculations

- \* If the USEPA Emission Factor or manufacturer's data is given as combined NO<sub>x</sub> + NMHC, also provide individual emission factors for NO<sub>x</sub> and NMHC from the manufacturer or other approved methodology for estimating individual emission factors.
- \*\* Manufacturer's SO<sub>x</sub> factor shall be used when larger than the USEPA Emission Factor.
- \*\*\* Particulate Matter (PM) emissions are considered to be < 1µm (micron). Therefore, PM emissions also reflect PM<sub>10</sub> & PM<sub>2.5</sub>.

**Section 5. Potential to Emit (Requested allowable rate) (Controlled Emissions)**

Transfer each pollutant Emission in Pounds Per Hour from column above to the Emission in Pounds Per Hour column below. Complete the equation after inserting the Requested Operating Hours Per Year. Pound Per Hour rate for each pollutant must be met if performance testing is requested.

Pollutant	Emission in Pounds Per Hour	T I M E S	Requested Operating Hours Per Year	E Q U A L S	Pounds Per Year	D I V I D E	Pounds Per Ton	E Q U A L S	Emission In Tons Per Year
EXAMPLE CO	2.15	x	200	=	430	+	2,000	=	0.22
NO <sub>x</sub>		x		=		+		=	
NMHC		x		=		+		=	
*NO <sub>x</sub> + NMHC	2.48	x	200	=	496	+	2,000	=	0.25
**SO <sub>x</sub>	0.77	x	200	=	154	+	2,000	=	0.08
***PM	0.12	x	200	=	24	+	2,000	=	0.012
CO	3.50								0.87
NO <sub>x</sub>	42.48								10.62
NMHC	0.91								0.23
*NO <sub>x</sub> + NMHC	N/A								N/A
**SO <sub>x</sub>	0.029								0.007
***PM	0.26								0.06

See attached Emission Calculations

I, the undersigned, a responsible officer of the applicant company, certify that to the best of my knowledge, the information stated on this application, together with associated drawings, specifications, and other data, give a true and complete representation of the existing, modified existing, or planned new stationary source with respect to air pollution sources and control equipment. I also understand that any significant omissions, errors, or misrepresentations in these data will be cause for revocation of part or all of the resulting source registration and air quality permit.

<u>William V. Wechsler</u>	<u>William V. Wechsler</u>	<small>Digitally signed by William V. Wechsler Date: 2021.04.08 09:00:25 -0600'</small>	<u>Assistant Manager for Engineering</u>	<u>    </u> / <u>    </u> / <u>20</u>
Print Name	Sign Name		Title	Date

**Federal New Source Performance Standards (NSPS) for Stationary EMERGENCY Diesel Engines (40CFR 60.4202 & 60.4205) in Grams Per Horsepower Hour (g/hp-hr) for Engines with a Displacement of < 10 Liters Per Cylinder**

Horsepower / kW	Tier (CFR Section)	Year Of Manufacture	CO (g/hp-hr)	NOx <sup>1</sup> (g/hp-hr)	NMHC <sup>1</sup> (g/hp-hr)	NOx + NMHC <sup>1</sup> (g/hp-hr)	SOx <sup>2</sup> (g/hp-hr)	Particulate Matter (PM) (g/hp-hr)	Notes
< 11 Hp < 8 kW	1 (60.4205)	Pre 2007 <sup>1</sup>	6.0			7.8	0.93*	0.75	* Use AP-42 Section 3.3 SOx factors if <600Hp and Section 3.4 if >600Hp, as shown on this table, or manufacturer's factors. Manufacturer's factors shall be used when larger than AP-42 factors.
		2007 2008 +	6.0 6.0			5.6 5.6	0.93* 0.93*	0.6 0.3	
≥ 11 Hp < 25 Hp	1 (60.4205)	Pre 2007 <sup>1</sup>	4.9			7.1	0.93*	0.6	
		2007	4.9			5.6	0.93*	0.6	
≥ 8 kW < 19 kW	4 (60.4202)	2008 +	4.9			5.6	0.93*	0.3	
		Pre 2007 <sup>3</sup>	4.1			7.1	0.93*	0.6	
≥ 25 Hp < 50 Hp	2 (60.4202) - (89.112)	2007	4.1			5.6	0.93*	0.45	
		2008 +	4.1			5.6	0.93*	0.22	
≥ 19 kW < 37 kW	4 (60.4202)	Pre 2007 <sup>3</sup>	3.03**	6.9	1.12**	6.9	0.93*	1.0**	
		2007	3.7			5.6	0.93*	0.3	
≥ 50 Hp < 100 Hp	2 (60.4202) - (89.112)	2008 +	3.7			3.5	0.93*	0.3	
		Pre 2007 <sup>3</sup>	3.03**	6.9	1.12**	6.9	0.93*	1.0**	
≥ 37 kW < 75 kW	3 (60.4202) - (89.112)	2007 +	3.7			3.0	0.93*	0.22	
		Pre 2007 <sup>3</sup>	8.5	6.9	1.0	3.0	0.93* for < 600Hp or 3.67* for > 600Hp	0.4	
≥ 100 Hp < 175 Hp	1 (60.4205)	2007 +	2.6			3.0	0.93*	0.15	
		Pre 2007 <sup>3</sup>	8.5	6.9	1.0	3.0	0.93* for < 600Hp or 3.67* for > 600Hp	0.4	
≥ 75 kW < 130 kW	3 (60.4202) - (89.112)	2007 +	2.6			4.8	3.67	0.15	
		Pre 2007 <sup>3</sup>	8.5	6.9	1.0	4.8	3.67	0.15	
≥ 175 Hp ≤ 750 Hp	1 (60.4205)	2007 +	2.6			4.8	3.67	0.15	
		Pre 2007 <sup>3</sup>	8.5	6.9	1.0	4.8	3.67	0.15	
≥ 130 kW ≤ 560 kW	3 (60.4202) - (89.112)	2007 +	2.6			4.8	3.67	0.15	
		Pre 2007 <sup>3</sup>	8.5	6.9	1.0	4.8	3.67	0.15	
> 750 Hp	1 (60.4205)	Pre 2007 <sup>3</sup>	8.5	6.9	1.0	4.8	3.67	0.15	
> 560 kW	3 (60.4202) - (89.112)	2007***	2.6			4.8	3.67	0.15	
		*** 2007 - 2010 Model Year Engines > 3,000 Hp shall meet the Pre 2007 standards and beginning with the 2011 model year, Engines > 3,000 Hp shall meet the 2007 standards							

<sup>1</sup> When an emission factor is given for combined NOx + NMHC, individual emission factors for NOx and NMHC must be obtained from the manufacturer.

<sup>2</sup> SOx emission factors shall be based on AP-42 Section 3.3 for engines less than (<) 600 Hp and Section 3.4 for engines greater than (>) 600 Hp, or manufacturer's factors since SOx emission standards were not established for non-road diesel engine rulemaking. Manufacturer's factors shall be used when larger than the AP-42 factors. For engines > 600 Hp, the "S" multiplier is 0.05 (5%) if calculating SOx to reflect the current low sulfur diesel fuel standard of 500 ppm. Percent sulfur in diesel fuel transitions to Ultra Low Sulfur Diesel (15 ppm) by October 2010. For engines operated after October 2010, with a year of manufacture of 2010 or later, the "S" multiplier is 0.0015 (0.15%) if calculating SOx to reflect the proposed new standard.

<sup>3</sup> Pre 2007 means each stationary Compression Ignition Internal Combustion Engine (CI ICE) whose construction, modification or reconstruction commenced after July 11, 2005. The date of construction is the date the engine is ordered by the owner or operator. Stationary CI ICE manufactured prior to April 1, 2006, that are not fire pump engines are not subject to NSPS, unless the engines are modified or reconstructed after July 11, 2005. A modified or reconstructed CI ICE must meet the emission standards for the model year in which the engine was originally new, not the year the engine is modified or reconstructed (Preamble language - Section II. E).

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### 3.b. Plot Pans Identifying the Location of the New Emergency Generator

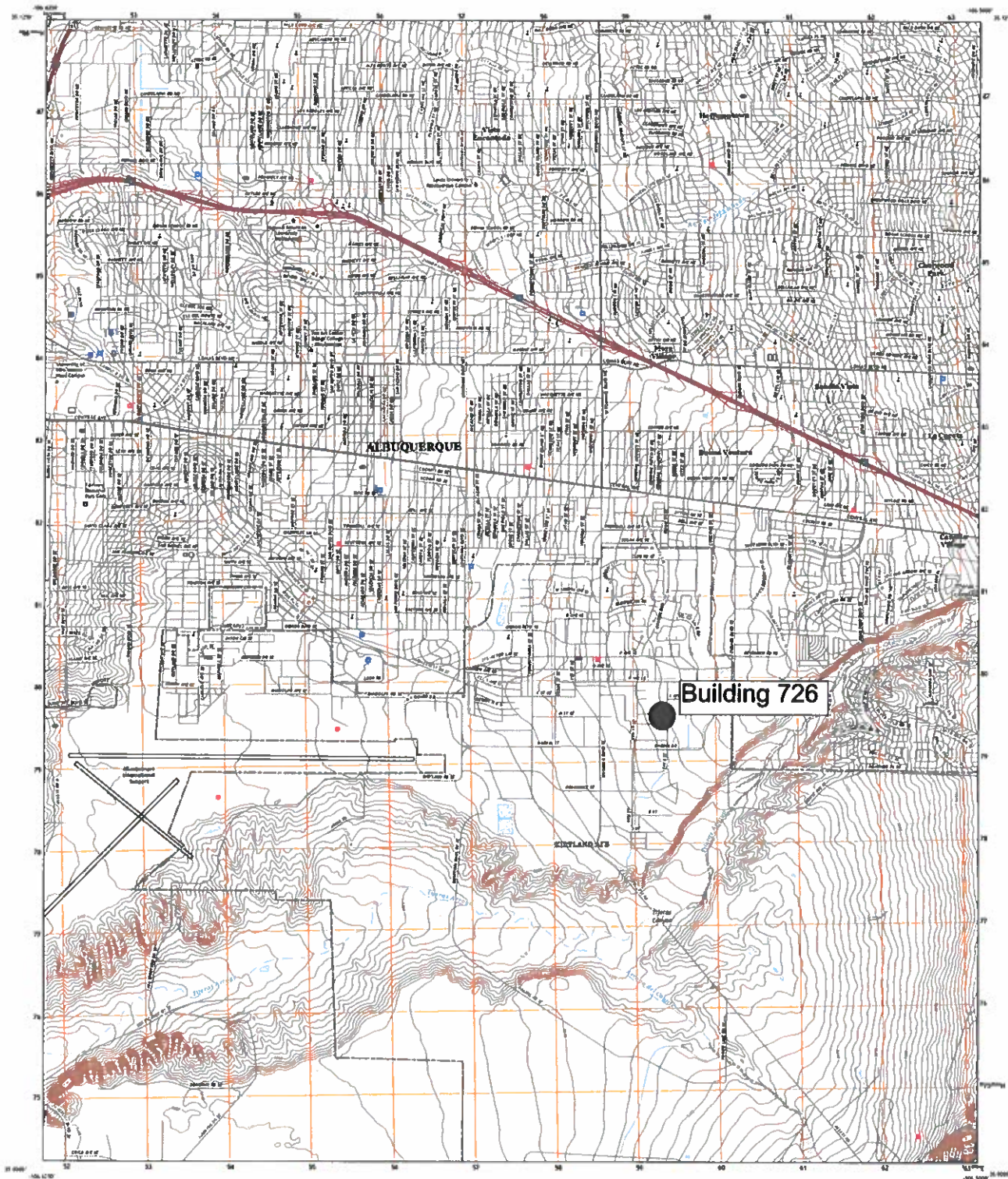




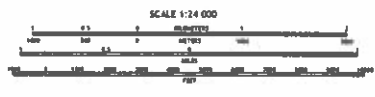
U.S. DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY



ALBUQUERQUE EAST QUADRANGLE  
NEW MEXICO - BERNALILLO COUNTY  
7.5-MINUTE SERIES



Produced by the United States Geological Survey  
Map Information System of 1982 (MIS)  
Using Contour Interval of 100 Feet  
1:24,000 Scale  
This map is not a legal document. Boundary data is  
generalized for this map scale. Users should refer to  
appropriate legal documents for boundary information.

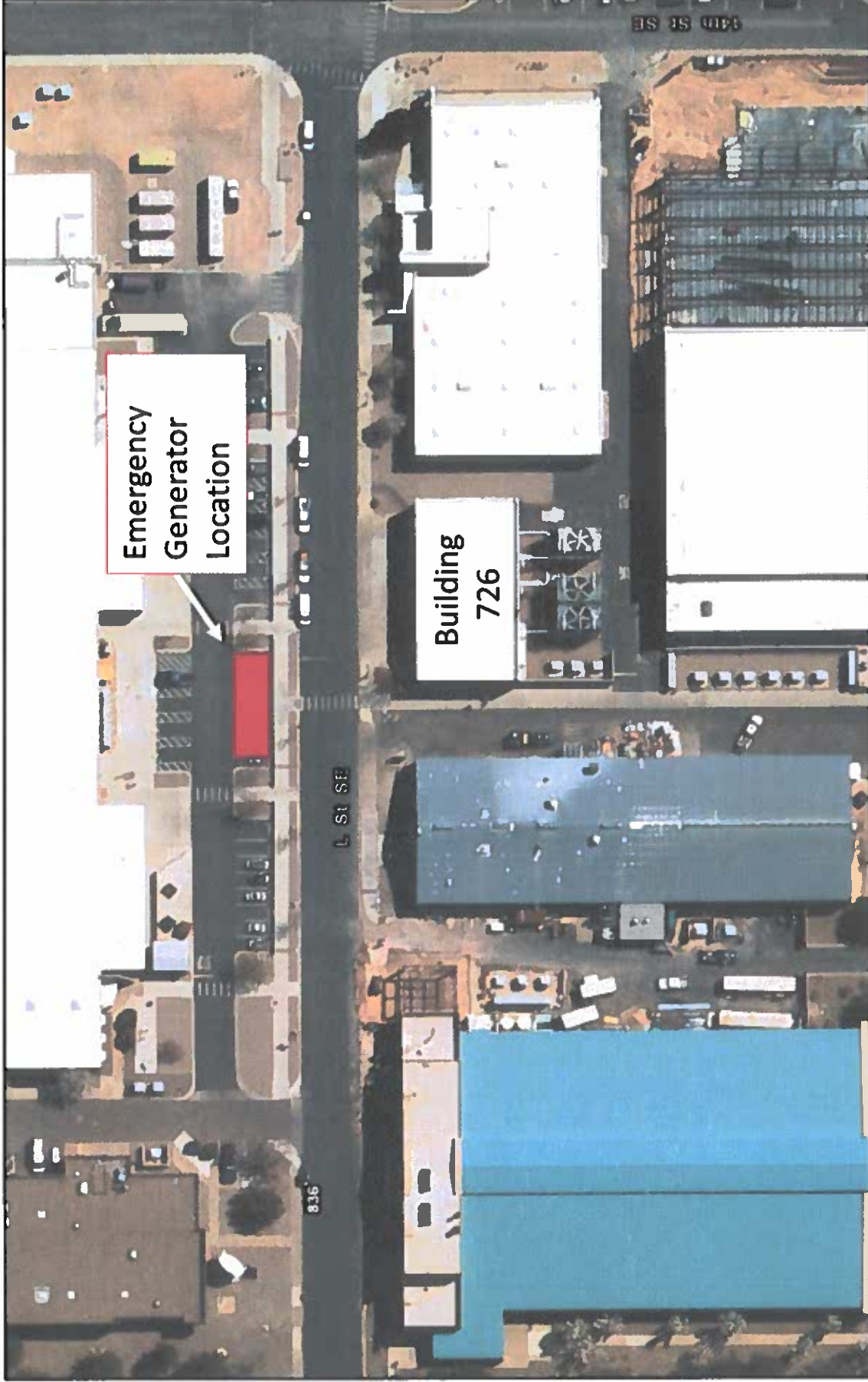


1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10

ROAD CLASSIFICATION	
Expressway	Interchange
Arterial	Local Road
Loop	Imp
Intermittent Road	US Route
	State Route

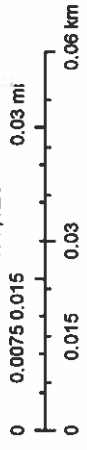
ALBUQUERQUE EAST, NM  
2020

# ArcGIS WebMap



November 17, 2020

1:1,128

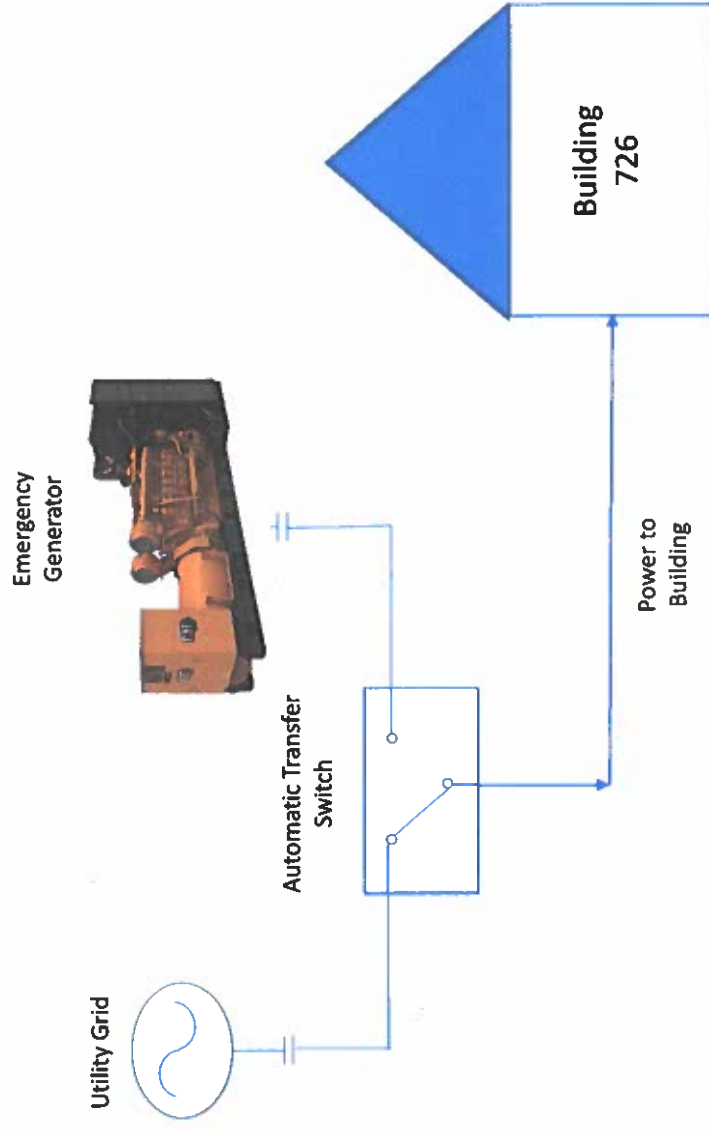


Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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### 3.c. Process Flow Diagram

# Building 726 Process Flow Diagram



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### 3.d. Emission Calculations and Supporting Information used to Calculate Emissions

Emissions Calculations  
Caterpillar 3516C (2000kW)

System Information		
Quantity	Value	Units
Engine Specifications	2000.00	kW
	2937.00	hp
	20.56	MMBtu/hr
	138.00	gal/hr
Uncontrolled Runtime	8,760	hrs
Controlled Runtime	500	hrs
Mass Conversion	453.6	g/lb
	2.205	lb/kg
BSFC	7,000	Btu/hp-hr
Concentration	15.00	ppm(wt)
	0.0015%	---
Density	7.10	lb/gal
MW SO <sub>2</sub>	64.06	lb SO <sub>2</sub> / lb-mol
MW S	32.06	lb S / lb-mol

Pollutant	Pollutant Emissions					
	Emission Factors		Uncontrolled Emissions		Controlled Emissions	
	EF	Units	lb/hr	tpy	lb/hr	tpy
NO <sub>x</sub> <sup>*</sup>	6.56E+00	g/hp-hr	42.48	186.04	42.48	10.62
CO <sup>*</sup>	5.40E-01	g/hp-hr	3.50	15.31	3.50	0.87
PM <sup>*</sup>	4.00E-02	g/hp-hr	0.26	1.13	0.26	0.06
SO <sub>2</sub> <sup>**</sup>	2.13E-04	lb/gal	0.029	0.13	0.029	0.007
HC <sup>*</sup>	1.40E-01	g/hp-hr	0.91	3.97	0.91	0.23

\* Emissions factors are based on the manufacture guarantee. A sample calculation is provided below for NO<sub>x</sub>:

$$NO_x \text{ (lb/hr)} = \frac{6.56 \text{ g}}{\text{hp-hr}} \times \frac{2937 \text{ hp}}{1} \times \frac{1 \text{ lb}}{453.6 \text{ g}} = 42.48 \text{ lb/hr}$$

$$NO_x \text{ (tpy)} = \frac{42.48 \text{ lb}}{\text{hr}} \times \frac{8760 \text{ hr}}{\text{yr}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 186.04 \text{ tpy}$$

\*\* SO<sub>2</sub> emissions are based on 15 ppm weight% of sulfur. A sample calculation is provided below for SO<sub>2</sub>:

$$SO_2 \text{ (lb/hr)} = \frac{15 \text{ ppm S}}{1000000 \text{ ppm S}} \times \frac{1 \text{ wt\% S}}{1} \times \frac{138 \text{ gal}}{\text{hr}} \times \frac{7.1 \text{ lb}}{\text{gal}} \times \frac{64.06 \text{ lb SO}_2/\text{lb-mol}}{32.06 \text{ lb S / lb-mol}} = 0.029 \text{ lb/hr}$$

$$SO_2 \text{ (tpy)} = \frac{0.03 \text{ lb}}{\text{hr}} \times \frac{8760 \text{ hr}}{\text{yr}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 0.13 \text{ tpy}$$

# Cat® 3516C

## Diesel Generator Sets

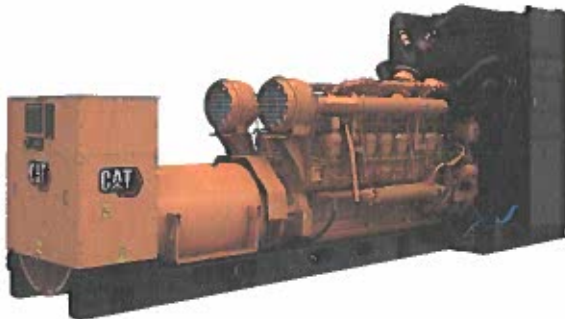


Image shown may not reflect actual configuration

Bore – mm (in)	170 (6.69)
Stroke – mm (in)	190 (7.48)
Displacement – L (in³)	69 (4210.64)
Compression Ratio	14.7:1
Aspiration	TA
Fuel System	EUI
Governor Type	ADEM™ A3

Standby 60 Hz kW (kVA)	Mission Critical 60 Hz kW (kVA)	Prime 60 Hz kW (kVA)	Continuous 60 Hz kW (kVA)	Emissions Performance
2000 (2500)	2000 (2500)	1825 (2281)	1650 (2063)	U.S. EPA Stationary Emergency Use Only (Tier 2)

### Standard Features

#### Cat® Diesel Engine

- Meets U.S. EPA Stationary Emergency Use Only (Tier 2) emission standards
- Reliable performance proven in thousands of applications worldwide

#### Generator Set Package

- Accepts 100% block load in one step and meets NFPA 110 loading requirements
- Conforms to ISO 8528-5 G3 load acceptance requirements
- Reliability verified through torsional vibration, fuel consumption, oil consumption, transient performance, and endurance testing

#### Alternators

- Superior motor starting capability minimizes need for oversizing generator
- Designed to match performance and output characteristics of Cat diesel engines

#### Cooling System

- Cooling systems available to operate in ambient temperatures up to 50°C (122°F)
- Tested to ensure proper generator set cooling

#### EMCP 4 Control Panels

- User-friendly interface and navigation
- Scalable system to meet a wide range of installation requirements
- Expansion modules and site specific programming for specific customer requirements

#### Warranty

- 24 months/1000-hour warranty for standby and mission critical ratings
- 12 months/unlimited hour warranty for prime and continuous ratings
- Extended service protection is available to provide extended coverage options

#### Worldwide Product Support

- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- Your local Cat dealer provides extensive post-sale support, including maintenance and repair agreements

#### Financing

- Caterpillar offers an array of financial products to help you succeed through financial service excellence
- Options include loans, finance lease, operating lease, working capital, and revolving line of credit
- Contact your local Cat dealer for availability in your region

## Optional Equipment

### Engine

#### Air Cleaner

- Single element
- Dual element

#### Muffler

- Industrial grade (15 dB)

#### Starting

- Standard batteries
- Oversized batteries
- Standard electric starter(s)
- Heavy duty electric starter(s)
- Dual electric starter(s)
- Air starter(s)
- Dual air starter(s)
- Jacket water heater
- Block heater

### Alternator

#### Output voltage

- 380V     6300V
- 440V     6600V
- 480V     6900V
- 600V     12470V
- 2400V    13200V
- 4160V    13800V

#### Temperature Rise (over 40°C ambient)

- 150°C
- 125°C/130°C
- 105°C
- 80°C

#### Winding type

- Random wound
- Form wound

#### Excitation

- Internal excitation (IE)
- Permanent magnet (PM)

#### Attachments

- Anti-condensation heater
- Stator and bearing temperature monitoring and protection

### Power Termination

#### Type

- Bus bar
- Circuit breaker
- 1600A     2000A
- 2500A     3000A
- 3200A     4000A
- 5000A
- IEC         UL
- 3-pole      4-pole
- Manually operated
- Electrically operated

#### Trip Unit

- LSI         LSI-G
- LSI-G-P

### Control System

#### Controller

- EMCP 4.2B
- EMCP 4.3
- EMCP 4.4

#### Attachments

- Local annunciator module
- Remote annunciator module
- Expansion I/O module
- Remote monitoring software

#### Charging

- Battery charger – 10A
- Battery charger – 20A
- Battery charger – 35A

### Vibration Isolators

- Rubber
- Spring
- Seismic rated

### Cat Connect

#### Connectivity

- Ethernet
- Cellular
- Satellite

### Extended Service Options

#### Terms

- 2 year (prime)
- 3 year
- 5 year
- 10 year

#### Coverage

- Silver
- Gold
- Platinum
- Platinum Plus

### Ancillary Equipment

- Automatic transfer switch (ATS)
- Uninterruptible power supply (UPS)
- Paralleling switchgear
- Paralleling controls

### Certifications

- UL 2200 Listed
- CSA
- IBC seismic certification
- OSHPD pre-approval

*Note: Some options may not be available on all models. Certifications may not be available with all model configurations. Consult factory for availability.*



## 3516C Diesel Generator Sets Electric Power



### Package Performance

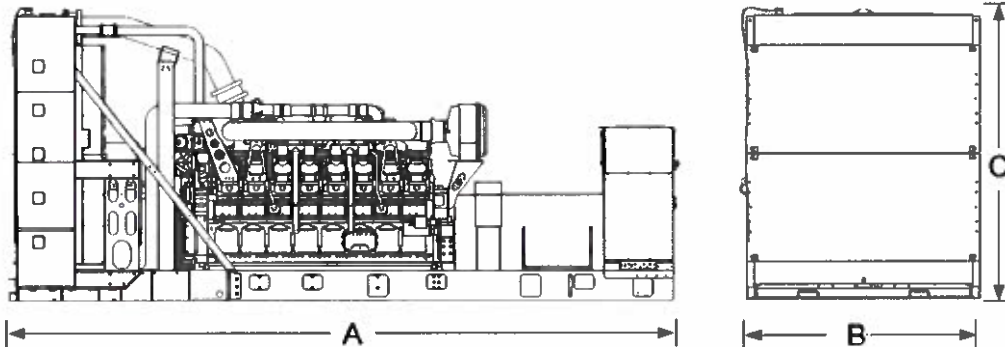
Performance	Standby	Mission Critical	Prime	Continuous
Frequency	60 Hz	60 Hz	60 Hz	60 Hz
Gen set power rating with fan	2000 ekW	2000 ekW	1825 ekW	1640 ekW
Gen set power rating with fan @ 0.8 power factor	2500 kVA	2500 kVA	2281 kVA	2050 kVA
Emissions	EPA ESE (TIER 2)	EPA ESE (TIER 2)	EPA ESE (TIER 2)	EPA ESE (TIER 2)
Performance number	EM1896-01	EM1897-01	DM8264-05	DM8265-04
<b>Fuel Consumption</b>				
100% load with fan – L/hr (gal/hr)	522.5 (138.0)	522.5 (138.0)	480.9 (127.0)	441.9 (116.7)
75% load with fan – L/hr (gal/hr)	406.8 (107.5)	406.8 (107.5)	378.8 (100.1)	349.4 (92.3)
50% load with fan – L/hr (gal/hr)	293.6 (77.5)	293.6 (77.5)	269.9 (71.3)	246.2 (65.0)
25% load with fan – L/hr (gal/hr)	169.7 (44.8)	169.7 (44.8)	159.2 (42.1)	148.9 (39.3)
<b>Cooling System</b>				
Radiator air flow restriction (system) – kPa (in. water)	0.12 (0.48)	0.12 (0.48)	0.12 (0.48)	0.12 (0.48)
Radiator air flow – m <sup>3</sup> /min (cfm)	2204 (77834)	2204 (77834)	2204 (77834)	2204 (77834)
Engine coolant capacity – L (gal)	233.2 (61.6)	233.2 (61.6)	233.2 (61.6)	233.2 (61.6)
Radiator coolant capacity – L (gal)	180.0 (47.6)	180.0 (47.6)	180.0 (47.6)	180.0 (47.6)
Total coolant capacity – L (gal)	413.2 (109.2)	413.2 (109.2)	413.2 (109.2)	413.2 (109.2)
<b>Inlet Air</b>				
Combustion air inlet flow rate – m <sup>3</sup> /min (cfm)	185.5 (6548.9)	185.5 (6548.9)	180.0 (6357.6)	174.3 (6155.8)
<b>Exhaust System</b>				
Exhaust stack gas temperature – °C (°F)	400.1 (752.1)	400.1 (752.1)	382.8 (721.1)	370.7 (699.3)
Exhaust gas flow rate – m <sup>3</sup> /min (cfm)	433.1 (15292.8)	433.1 (15292.8)	408.1 (14410.4)	385.3 (13605.7)
Exhaust system backpressure (maximum allowable) – kPa (in. water)	6.7 (27.0)	6.7 (27.0)	6.7 (27.0)	6.7 (27.0)
<b>Heat Rejection</b>				
Heat rejection to jacket water – kW (Btu/min)	759 (43150)	759 (43150)	715 (40666)	673 (38277)
Heat rejection to exhaust (total) – kW (Btu/min)	1788 (101696)	1788 (101696)	1645 (93554)	1522 (86577)
Heat rejection to aftercooler – kW (Btu/min)	672 (38240)	672 (38240)	612 (34784)	553 (31421)
Heat rejection to atmosphere from engine – kW (Btu/min)	133 (7564)	133 (7564)	127 (7230)	123 (6983)
Heat rejection from alternator – kW (Btu/min)	96 (5464)	96 (5464)	86 (4895)	76 (4326)
<b>Emissions* (Nominal)</b>				
NOx mg/Nm <sup>3</sup> (g/hp-h)	2754.3 (5.46)	2754.3 (5.46)	2488.9 (5.05)	2202.3 (4.37)
CO mg/Nm <sup>3</sup> (g/hp-h)	143.3 (0.30)	143.3 (0.30)	129.7 (0.27)	112.3 (0.24)
HC mg/Nm <sup>3</sup> (g/hp-h)	44.7 (0.11)	44.7 (0.11)	55.6 (0.13)	67.4 (0.16)
PM mg/Nm <sup>3</sup> (g/hp-h)	10.4 (0.03)	10.4 (0.03)	10.9 (0.03)	12.0 (0.03)
<b>Emissions* (Potential Site Variation)</b>				
NOx mg/Nm <sup>3</sup> (g/hp-h)	3305.2 (6.56)	3305.2 (6.56)	2986.6 (6.06)	2642.7 (5.24)
CO mg/Nm <sup>3</sup> (g/hp-h)	258.0 (0.54)	258.0 (0.54)	233.4 (0.49)	202.1 (0.43)
HC mg/Nm <sup>3</sup> (g/hp-h)	59.5 (0.14)	59.5 (0.14)	73.9 (0.18)	89.6 (0.22)
PM mg/Nm <sup>3</sup> (g/hp-h)	14.6 (0.04)	14.6 (0.04)	15.3 (0.04)	16.8 (0.04)

\*mg/Nm<sup>3</sup> levels are corrected to 5% O<sub>2</sub>. Contact your local Cat dealer for further information.

## 3516C Diesel Generator Sets Electric Power



### Weights and Dimensions



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
6542 (257.6)	2339 (92.1)	2997 (118.0)	16 275 (35,880)

**Note:** For reference only. Do not use for installation design.  
Contact your local Cat dealer for precise weights and dimensions.

### Ratings Definitions

#### Standby

Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

#### Mission Critical

Output available with varying load for the duration of the interruption of the normal source power. Average power output is 85% of the mission critical power rating. Typical peak demand up to 100% of rated power for up to 5% of the operating time. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

#### Prime

Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand is 100% of prime rated kW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year.

#### Continuous

Output available with non-varying load for an unlimited time. Average power output is 70-100% of the continuous power rating. Typical peak demand is 100% of continuous rated kW for 100% of the operating hours.

#### Applicable Codes and Standards

AS 1359, CSA C22.2 No. 100-04, UL 142, UL 489, UL 869, UL 2200, NFPA 37, NFPA 70, NFPA 99, NFPA 110, IBC, IEC 60034-1, ISO 3046, ISO 8528, NEMA MG1-22, NEMA MG1-33, 2014/35/EU, 2006/42/EC, 2014/30/EU.

**Note:** Codes may not be available in all model configurations. Please consult your local Cat dealer for availability.

#### Data Center Applications

- ISO 8528-1 Data Center Power (DCP) compliant per DCP application of Cat diesel generator set prime power rating.
- All ratings Tier III/Tier IV compliant per Uptime Institute requirements.
- All ratings ANSI/TIA-942 compliant for Rated-1 through Rated-4 data centers.

#### Fuel Rates

Fuel rates are based on fuel oil of 35° API [16°C (60°F)] gravity having an LHV of 42,780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.)

[www.cat.com/electricpower](http://www.cat.com/electricpower)  
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Materials and specifications are subject to change without notice.  
The International System of Units (SI) is used in this publication.

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# PERFORMANCE DATA[EM1896]

November 10, 2020

Performance Number: EM1896

Change Level: 02

SALES MODEL:	3518C	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	1,800
ENGINE POWER (BHP):	2,937	HERTZ:	60
GEN POWER WITH FAN (EKW):	2,000.0	FAN POWER (HP):	114.0
COMPRESSION RATIO:	14.7	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):	122
MANIFOLD TYPE:	DRY	JACKET WATER TEMP (F):	219.2
GOVERNOR TYPE:	ADEM3	TURBO CONFIGURATION:	PARALLEL
ELECTRONICS TYPE:	ADEM3	TURBO QUANTITY:	4
CAMSHAFT TYPE:	STANDARD	TURBOCHARGER MODEL:	GTA5518BN-56T-1.12
IGNITION TYPE:	CI	CERTIFICATION YEAR:	2008
INJECTOR TYPE:	EUI	CRANKCASE BLOWBY RATE (FT3/HR):	2,937.9
FUEL INJECTOR:	3920220	FUEL RATE (RATED RPM) NO LOAD (GAL/HR):	13.6
UNIT INJECTOR TIMING (IN):	64.34	PISTON SPD @ RATED ENG SPD (FT/MIN):	2,244.1
REF EXH STACK DIAMETER (IN):	12		
MAX OPERATING ALTITUDE (FT):	3,117		

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

## General Performance Data

THIS STANDBY RATING IS FOR A STANDBY ONLY ENGINE ARRANGEMENT. RERATING THE ENGINE TO A PRIME OR CONTINUOUS RATING IS NOT PERMITTED.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP
EKW	%	BHP	PSI	LB/BHP-HR	GAL/HR	IN-HG	DEG F	DEG F	IN-HG	DEG F
2,000.0	100	2,937	307	0.329	136.2	78.3	121.2	1,118.5	71.5	752.1
1,800.0	90	2,641	276	0.331	123.3	73.1	119.6	1,067.5	65.7	716.0
1,600.0	80	2,353	246	0.337	111.6	68.0	118.2	1,027.0	60.0	693.3
1,500.0	75	2,212	231	0.340	106.1	65.2	117.5	1,008.1	57.2	684.6
1,400.0	70	2,071	216	0.344	100.5	62.3	116.8	969.4	54.4	676.9
1,200.0	60	1,795	188	0.352	88.9	55.5	115.4	952.0	48.0	662.8
1,000.0	50	1,521	159	0.357	76.5	48.5	113.7	913.4	40.1	654.0
800.0	40	1,250	131	0.357	62.9	34.6	111.8	863.8	30.3	655.0
600.0	30	977	102	0.365	50.2	24.2	110.6	803.8	22.0	650.0
500.0	25	839	88	0.374	44.2	19.7	110.2	767.0	18.7	641.7
400.0	20	699	73	0.388	38.3	15.7	109.8	724.6	15.7	629.0
200.0	10	411	43	0.450	26.1	9.0	109.1	596.9	10.9	552.8

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	IN-HG	DEG F	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
2,000.0	100	2,937	83	454.3	6,548.9	15,292.8	28,512.8	29,478.4	8,205.0	5,738.7
1,800.0	90	2,641	77	428.8	6,318.7	14,243.0	27,390.5	28,284.7	5,956.5	5,533.7
1,600.0	80	2,353	72	404.5	6,073.3	13,331.0	26,220.6	27,012.9	5,885.0	5,301.8
1,500.0	75	2,212	69	392.7	5,932.2	12,897.9	25,568.0	26,319.7	5,542.0	5,178.6
1,400.0	70	2,071	66	380.9	5,777.2	12,448.0	24,862.1	25,573.8	5,384.8	5,037.5
1,200.0	60	1,795	59	353.8	5,397.2	11,422.5	23,141.0	23,771.1	5,003.4	4,694.0
1,000.0	50	1,521	50	318.8	4,857.3	10,138.7	20,731.5	21,274.5	4,478.2	4,208.4
800.0	40	1,250	38	271.1	4,090.0	8,488.8	17,357.1	17,803.6	3,744.5	3,524.2
600.0	30	977	27	225.0	3,394.1	6,969.6	14,328.5	14,684.4	3,097.0	2,920.6
500.0	25	839	22	204.1	3,103.5	6,328.1	13,075.2	13,388.4	2,825.1	2,668.8
400.0	20	699	18	184.1	2,840.4	5,896.0	11,947.2	12,218.4	2,572.5	2,435.7
200.0	10	411	11	148.5	2,409.4	4,478.2	10,105.7	10,290.7	2,174.8	2,078.8

## Heat Rejection Data

**PERFORMANCE DATA[EM1896]**

November 10, 2020

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
2,000.0	100	2,937	43,150	7,564	101,696	49,615	15,778	38,240	124,558	298,234	315,563
1,800.0	90	2,641	40,179	7,175	92,069	43,106	14,280	34,105	111,977	268,102	285,596
1,600.0	80	2,353	37,427	6,907	84,225	38,510	12,931	30,201	99,774	242,774	258,615
1,500.0	75	2,212	36,092	6,791	80,632	36,523	12,286	28,303	93,784	230,664	245,715
1,400.0	70	2,071	34,737	6,671	77,064	34,629	11,640	26,432	87,835	218,548	232,809
1,200.0	60	1,795	31,877	6,341	69,432	30,722	10,302	22,179	76,103	193,426	206,048
1,000.0	50	1,521	28,631	6,026	60,835	26,675	8,865	17,129	64,508	166,434	177,294
800.0	40	1,250	24,910	5,810	50,784	22,387	7,288	11,280	53,005	136,837	145,766
600.0	30	977	21,252	5,496	41,420	18,139	5,820	6,677	41,431	109,268	116,397
500.0	25	839	19,405	5,303	37,082	16,055	5,124	4,986	35,574	96,210	102,488
400.0	20	699	17,492	5,068	32,738	13,986	4,431	3,593	29,634	83,193	88,622
200.0	10	411	13,286	4,670	23,481	8,473	3,022	1,516	17,448	56,745	60,447

**Sound Data**

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

**Emissions Data**

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN	EKW	2,000.0	1,600.0	1,000.0	500.0	200.0
PERCENT LOAD	%	100	75	50	25	10
ENGINE POWER	BHP	2,937	2,212	1,621	839	411
TOTAL NOX (AS NO2)	G/HR	19,256	10,318	5,811	4,222	2,933
TOTAL CO	G/HR	1,581	854	894	1,773	1,794
TOTAL HC	G/HR	422	514	512	410	442
PART MATTER	G/HR	105.4	99.5	122.5	256.7	203.2
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	3,305.2	2,333.8	1,849.4	2,378.8	2,855.1
TOTAL CO	(CORR 5% O2) MG/NM3	258.0	181.8	272.6	895.6	1,714.4
TOTAL HC	(CORR 5% O2) MG/NM3	59.5	93.5	131.7	194.1	379.0
PART MATTER	(CORR 5% O2) MG/NM3	14.6	18.4	34.4	119.9	161.2
TOTAL NOX (AS NO2)	(CORR 5% O2) PPM	1,810	1,137	901	1,159	1,391
TOTAL CO	(CORR 5% O2) PPM	208	145	218	716	1,371
TOTAL HC	(CORR 5% O2) PPM	111	175	246	362	708
TOTAL NOX (AS NO2)	G/HP-HR	6.56	4.67	3.82	5.03	7.13
TOTAL CO	G/HP-HR	0.54	0.39	0.59	2.11	4.36
TOTAL HC	G/HP-HR	0.14	0.23	0.34	0.49	1.08
PART MATTER	G/HP-HR	0.04	0.04	0.08	0.31	0.49
TOTAL NOX (AS NO2)	LB/HR	42.45	22.75	12.81	9.31	6.47
TOTAL CO	LB/HR	3.48	1.88	1.97	3.91	3.95
TOTAL HC	LB/HR	0.93	1.13	1.13	0.90	0.98
PART MATTER	LB/HR	0.23	0.22	0.27	0.57	0.45

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN	EKW	2,000.0	1,600.0	1,000.0	500.0	200.0
PERCENT LOAD	%	100	75	50	25	10
ENGINE POWER	BHP	2,937	2,212	1,621	839	411
TOTAL NOX (AS NO2)	G/HR	16,047	8,598	4,842	3,518	2,444
TOTAL CO	G/HR	878	474	497	985	996
TOTAL HC	G/HR	317	386	385	308	333
TOTAL CO2	KG/HR	1,393	1,073	765	430	250
PART MATTER	G/HR	75.3	71.0	87.5	183.4	145.2
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	2,754.3	1,944.8	1,541.2	1,982.3	2,379.2
TOTAL CO	(CORR 5% O2) MG/NM3	143.3	101.0	151.4	497.5	952.4
TOTAL HC	(CORR 5% O2) MG/NM3	44.7	70.3	99.0	145.9	285.0
PART MATTER	(CORR 5% O2) MG/NM3	10.4	13.1	24.8	65.8	115.2
TOTAL NOX (AS NO2)	(CORR 5% O2) PPM	1,342	947	751	966	1,159
TOTAL CO	(CORR 5% O2) PPM	115	81	121	398	762

**PERFORMANCE DATA[EM1896]**

November 10, 2020

TOTAL HC	(CORR 5% O2)	PPM	83	131	185	272	532
TOTAL NOX (AS NO2)		G/HP-HR	5.46	3.89	3.18	4.19	5.94
TOTAL CO		G/HP-HR	0.30	0.21	0.33	1.17	2.42
TOTAL HC		G/HP-HR	0.11	0.17	0.25	0.37	0.81
PART MATTER		G/HP-HR	0.03	0.03	0.06	0.22	0.35
TOTAL NOX (AS NO2)		LB/HR	35.38	18.96	10.68	7.78	5.39
TOTAL CO		LB/HR	1.84	1.05	1.09	2.17	2.20
TOTAL HC		LB/HR	0.70	0.85	0.85	0.68	0.73
TOTAL CO2		LB/HR	3,070	2,365	1,687	949	552
PART MATTER		LB/HR	0.17	0.16	0.19	0.40	0.32
OXYGEN IN EXH		%	10.8	12.3	13.3	14.2	15.8
DRY SMOKE OPACITY		%	0.0	0.0	1.0	3.9	3.2
BOSCH SMOKE NUMBER			0.15	0.21	0.42	1.25	1.12

**Regulatory Information**

<b>EPA EMERGENCY STATIONARY</b>		<b>2011 - - -</b>		
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**

**ALTITUDE CORRECTED POWER CAPABILITY (BHP)**

AMBIENT OPERATING TEMP (F)	30	40	50	60	70	80	90	100	110	120	130	140	NORMAL
0	2,937	2,937	2,937	2,937	2,937	2,937	2,937	2,937	2,937	2,937	2,849	2,731	2,937
1,000	2,937	2,937	2,937	2,937	2,937	2,937	2,937	2,937	2,937	2,931	2,820	2,702	2,937
2,000	2,937	2,937	2,937	2,937	2,937	2,937	2,937	2,927	2,876	2,826	2,761	2,614	2,937
3,000	2,937	2,937	2,937	2,937	2,937	2,926	2,873	2,822	2,772	2,724	2,673	2,528	2,937
4,000	2,849	2,849	2,849	2,849	2,849	2,820	2,768	2,718	2,671	2,625	2,581	2,438	2,849
5,000	2,752	2,752	2,752	2,752	2,752	2,716	2,667	2,619	2,573	2,529	2,486	2,350	2,752
6,000	2,659	2,659	2,659	2,659	2,659	2,616	2,569	2,523	2,478	2,436	2,379	2,261	2,659
7,000	2,570	2,570	2,570	2,570	2,567	2,519	2,473	2,429	2,386	2,345	2,261	2,144	2,570
8,000	2,484	2,484	2,484	2,484	2,471	2,425	2,381	2,338	2,297	2,257	2,144	2,027	2,484
9,000	2,401	2,401	2,401	2,401	2,377	2,333	2,291	2,250	2,211	2,144	2,027	1,909	2,401
10,000	2,321	2,321	2,321	2,321	2,287	2,245	2,204	2,165	2,127	2,027	1,909	1,792	2,321
11,000	2,244	2,244	2,244	2,242	2,200	2,159	2,120	2,082	2,027	1,909	1,792	1,703	2,244
12,000	2,171	2,171	2,171	2,156	2,115	2,076	2,038	1,997	1,880	1,792	1,674	1,586	2,171
13,000	2,100	2,100	2,100	2,072	2,033	1,995	1,959	1,850	1,762	1,674	1,586	1,498	2,100
14,000	2,027	2,027	2,027	1,991	1,954	1,917	1,821	1,733	1,645	1,557	1,439	1,351	2,027
15,000	1,938	1,938	1,938	1,913	1,877	1,792	1,703	1,615	1,498	1,410	1,292	1,204	1,938

**Cross Reference**

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
4577177	LL1859	5084279	GS334	-	SBJ02000	
4581557	LL6752	5157719	PG237	-	LY500001	

**Supplementary Data**

Type	Classification	Performance Number
SOUND	SOUND PRESSURE	DM8779

## Performance Parameter Reference

Parameters Reference:DM9600-12  
PERFORMANCE DEFINITIONS

## PERFORMANCE DEFINITIONS DM9600

## APPLICATION:

Engine performance tolerance values below are representative of a typical production engine tested in a calibrated dynamometer test cell at SAE J1995 standard reference conditions. Caterpillar maintains ISO9001 2000 certified quality management systems for engine test Facilities to assure accurate calibration of test equipment. Engine test data is corrected in accordance with SAE J1995. Additional reference material SAE J1228, J1349, ISO 8665, 3046-1:2002E, 3046-3:1988, 1585, 2534, 2288, and 9249 may apply in part or are similar to SAE J1995. Special engine rating request (SERR) test data shall be noted.

## PERFORMANCE PARAMETER TOLERANCE FACTORS:

Power +/- 3%

Torque +/- 3%

Exhaust stack temperature +/- 8%

Inlet airflow +/- 5%

Intake manifold pressure-gage +/- 10%

Exhaust flow +/- 6%

Specific fuel consumption +/- 3%

Fuel rate +/- 5%

Specific DEF consumption +/- 3%

DEF rate +/- 5%

Heat rejection +/- 5%

Heat rejection exhaust only +/- 10%

Heat rejection CEM only +/- 10%

Heat Rejection values based on using treated water.

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

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

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

## C280/3600 HEAT REJECTION TOLERANCE FACTORS:

Heat rejection +/- 10%

Heat rejection to Atmosphere +/- 50%

Heat rejection to Lube Oil +/- 20%

Heat rejection to Aftercooler +/- 5%

## TEST CELL TRANSDUCER TOLERANCE FACTORS:

Torque +/- 0.5%

Speed +/- 0.2%

Fuel flow +/- 1.0%

Temperature +/- 2.0 C degrees

Intake manifold pressure +/- 0.1 kPa

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

## REFERENCE ATMOSPHERIC INLET AIR

FOR 3500 ENGINES AND SMALLER

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

## FOR 3600 ENGINES

Engine rating obtained and presented in accordance with ISO 3046/1 and SAE J1995 JAN2014 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

**PERFORMANCE DATA[EM1896]**

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 output power. Typical auxiliary loads are radiator cooling fans, hydraulic pumps, air compressors and battery charging alternators. For Tier 4 ratings additional Parasitic losses would also include Intake, and Exhaust Restrictions.

**ALTITUDE CAPABILITY**

Altitude capability is the maximum altitude above sea level at standard temperature and standard pressure at which the engine could develop full rated output power on the current performance data set.

Standard temperature values versus altitude could be seen on TM2001.

When viewing the altitude capability chart the ambient temperature is the inlet air temp at the compressor inlet.

Engines with ADEM MEUI and HEUI fuel systems operating at conditions above the defined altitude capability derate for atmospheric pressure and temperature conditions outside the values defined, see TM2001.

Mechanical governor controlled unit injector engines require a setting change for operation at conditions above the altitude defined on the engine performance sheet. See your Caterpillar technical representative for non standard ratings.

**REGULATIONS AND PRODUCT COMPLIANCE**

TMI Emissions information is presented at 'nominal' and 'Potential Site Variation' values for standard ratings. No tolerances are applied to the emissions data. These values are subject to change at any time. The controlling federal and local emission requirements need to be verified by your Caterpillar technical representative.

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

**EMISSION CYCLE LIMITS:**

Cycle emissions Max Limits apply to cycle-weighted averages only. Emissions at individual load points may exceed the cycle-weighted limit.

**EMISSIONS DEFINITIONS:**

Emissions : DM1176

**EMISSION CYCLE DEFINITIONS**

1. For constant-speed marine engines for ship main propulsion, including diesel-electric drive, test cycle E2 shall be applied, for controllable-pitch propeller sets test cycle E2 shall be applied.
2. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied.
3. For constant-speed auxiliary engines test cycle D2 shall be applied.
4. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied.

**HEAT REJECTION DEFINITIONS:**

Diesel Circuit Type and HHV Balance : DM9500

**HIGH DISPLACEMENT (HD) DEFINITIONS:**

3500: EM1500

**RATING DEFINITIONS:**

Agriculture : TM6008

Fire Pump : TM6009

Generator Set : TM6035

Generator (Gas) : TM6041

Industrial Diesel : TM6010

Industrial (Gas) : TM6040

Irrigation : TM5749

Locomotive : TM6037

Marine Auxiliary : TM6036

Marine Prop (Except 3600) : TM5747

Marine Prop (3600 only) : TM5748

MSHA : TM6042

Oil Field (Petroleum) : TM6011

Off-Highway Truck : TM6039

On-Highway Truck : TM6038

**SOUND DEFINITIONS:**

Sound Power : DM8702

Sound Pressure : TM7080

Date Released : 07/10/19

<b>AIR INTAKE SYSTEM</b>		
<i>THE INSTALLED SYSTEM MUST COMPLY WITH THE SYSTEM LIMITS BELOW FOR ALL EMISSIONS CERTIFIED ENGINES TO ASSURE REGULATORY COMPLIANCE</i>		
MAXIMUM ALLOWABLE INTAKE RESTRICTION WITH CLEAN ELEMENT	15	IN-H2O
MAXIMUM ALLOWABLE INTAKE RESTRICTION WITH DIRTY ELEMENT	25	IN-H2O
MAXIMUM PRESSURE DROP FROM COMPRESSOR OUTLET TO MANIFOLD INLET (OR MIXER INLET FOR EGR)	5.9	IN-HG
CHARGE AIR FLOW AT RATED SPEED	467.2	LB/MIN
TURBO COMPRESSOR OUTLET PRESSURE AT RATED SPEED (ABSOLUTE)	112.2	IN-HG
TURBO COMPRESSOR OUTLET TEMPERATURE AT RATED SPEED	462	DEG F
MAXIMUM ALLOWABLE STATIC WEIGHT ON AIR INLET	101.4	LB
MAXIMUM ALLOWABLE STATIC WEIGHT ON AIR INLET (AIR SHUT OFF INCLUDED)	19.8	LB
MAXIMUM ALLOWABLE STATIC BENDING MOMENT ON AIR INLET	11.8	LB-FT
MAXIMUM ALLOWABLE STATIC WEIGHT ON TURBO OUTLET CONNECTION	0	LB
MAXIMUM ALLOWABLE STATIC BENDING MOMENT ON TURBO OUTLET CONNECTION	0	LB-FT
<b>COOLING SYSTEM</b>		
ENGINE ONLY COOLANT CAPACITY	61.6	GAL
MAXIMUM ALLOWABLE JACKET WATER OUTLET TEMPERATURE	219	DEG F
REGULATOR LOCATION FOR JW (HT) CIRCUIT	OUTLET	
MAXIMUM UNINTERRUPTED FILL RATE	5.0	G/MIN
<b>ENGINE SPEC SYSTEM</b>		
CYLINDER ARRANGEMENT	VEE	
NUMBER OF CYLINDERS	16	
CYLINDER BORE DIAMETER	6.7	IN
PISTON STROKE	7.5	IN
TOTAL CYLINDER DISPLACEMENT	4211	CU IN
STANDARD CRANKSHAFT ROTATION FROM FLYWHEEL END	CCW	
STANDARD CYLINDER FIRING ORDER	1-2-5-6-3-4-9-10-15-16-11-12-13-14-7-8	
NUMBER 1 CYLINDER LOCATION	RIGHT FRONT	
STROKES/COMBUSTION CYCLE	4	
<b>EXHAUST SYSTEM</b>		
<i>THE INSTALLED SYSTEM MUST COMPLY WITH THE SYSTEM LIMITS BELOW FOR ALL EMISSIONS CERTIFIED ENGINES TO ASSURE REGULATORY COMPLIANCE</i>		
MAXIMUM ALLOWABLE SYSTEM BACK PRESSURE	27	IN-H2O
MANIFOLD TYPE	DRY	
MAXIMUM ALLOWABLE STATIC WEIGHT ON EXHAUST CONNECTION	61.7	LB
MAXIMUM ALLOWABLE STATIC BENDING MOMENT ON EXHAUST CONNECTION	31.0	LB-FT
<b>FUEL SYSTEM</b>		
MAXIMUM FUEL FLOW FROM TRANSFER PUMP TO ENGINE	332.9	G/HR
MAXIMUM ALLOWABLE FUEL SUPPLY LINE RESTRICTION	8.9	IN-HG
MAXIMUM ALLOWABLE FUEL TEMPERATURE AT TRANSFER PUMP INLET	151	DEG F
MAXIMUM FUEL FLOW TO RETURN LINE FROM ENGINE	322.3	G/HR
MAXIMUM ALLOWABLE FUEL RETURN LINE RESTRICTION	8.0	IN-HG
NORMAL FUEL PRESSURE IN A CLEAN SYSTEM	60.2	PSI
FUEL SYSTEM TYPE	EUI	
MAXIMUM TRANSFER PUMP PRIMING LIFT WITHOUT PRIMING PUMP	12.1	FT
MAXIMUM HEAT REJECTION TO FUEL	722	BTU/MIN
<b>LUBE SYSTEM</b>		
CRANKCASE VENTILATION TYPE	TO ATM	
<b>MOUNTING SYSTEM</b>		
CENTER OF GRAVITY LOCATION - X DIMENSION - FROM REAR FACE OF BLOCK - (REFERENCE TM7077)	47.2	IN
CENTER OF GRAVITY LOCATION - Y DIMENSION - FROM CENTERLINE OF CRANKSHAFT - (REFERENCE TM7077)	8.0	IN
CENTER OF GRAVITY LOCATION - Z DIMENSION - FROM CENTERLINE OF CRANKSHAFT - (REFERENCE TM7077)	0.0	IN
<b>STARTING SYSTEM</b>		
MINIMUM CRANKING SPEED REQUIRED FOR START	120	RPM





**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
2020 MODEL YEAR  
CERTIFICATE OF CONFORMITY  
WITH THE CLEAN AIR ACT**

**OFFICE OF TRANSPORTATION  
AND AIR QUALITY  
ANN ARBOR, MICHIGAN 48105**

**Certificate Issued To:** Caterpillar Inc.  
(U.S. Manufacturer or Importer)

**Certificate Number:** LCPXL78.1NZS-022

**Effective Date:**  
07/25/2019

**Expiration Date:**  
12/31/2020

  
Byron J. Bunker, Division Director  
Compliance Division

**Issue Date:**  
07/25/2019

**Revision Date:**  
N/A

**Model Year:** 2020

**Manufacturer Type:** Original Engine Manufacturer

**Engine Family:** LCPXL78.1NZS

**Mobile/Stationary Indicator:** Stationary

**Emissions Power Category:** kW>560

**Fuel Type:** Diesel

**After Treatment Devices:** No After Treatment Devices Installed

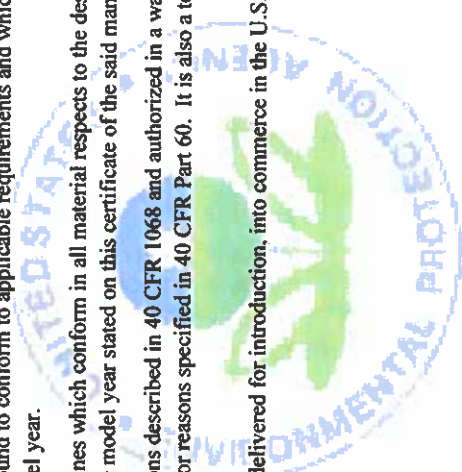
**Non-after Treatment Devices:** Electronic Control, Engine Design Modification

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Part 60, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

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



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## 3.e. Regulatory Requirements

The emergency diesel generator that will be installed had not been ordered at the time of this application submittal. The unit will be a new purchase and meet the requirements of 40 CFR 63 Subpart ZZZZ (MACT ZZZZ) and 40 CFR 60 Subpart IIII (NSPS IIII) specified here.

### **40 CFR 63 Subpart ZZZZ (MACT ZZZZ)**

Per 63.6590(C)(1), the unit is a new stationary RICE located at an area source and meets the requirements of MACT ZZZZ by meeting the requirements of NSPS IIII. No further requirements apply for the unit under MACT ZZZZ.

### **40 CFR 60 Subpart IIII (NSPS IIII)**

The new emergency generator has a displacement of 4.3 liters per cylinder, a maximum horsepower of 2,937, and is a Tier 2 certified engine. The unit meets the definition of emergency stationary ICE under §60.4211(f).

Per §60.4202 (a)(2), engines with a maximum engine power greater than or equal to 37 KW (50 HP), the certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants beginning in model year 2007. The engine has been certified to 40 CFR §89.112 and 40 CFR §89.113 as the engine is a Tier 2 certified engine.

The owner or operator is not required to submit an initial notification but since the engine does not meet the standards applicable to non-emergency engines, the owner and operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time (60.4214(b)).

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## 3.f. Operational and Maintenance Strategy

The generator will be maintained and operated in accordance with manufacturer's specifications and the facility's standard operating procedures. The new standby generator will have the capability to detect faulty operations that would result in higher than normal emissions and alert the operator at the control panel, who would simply shut the unit down and service it.

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## 3.g. Air Dispersion Modeling Ambient Impact Analysis

**Note:** Per the Air Quality Program's Internal Combustion Engine Permitting Policy and the Air Dispersion Modeling Guidelines for Air Quality Permitting, "internal combustion engines permitted for emergency use do not require an air dispersion modeling analysis." Therefore, no modeling analysis is provided.