



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@cabq.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: University of New Mexico Ph: (505) 277-7520 Email: cbhall4@unm.edu
2. Company Address: Scholes Hall 160, Bldg. 10 1800 Roma Ave NE City: Albuquerque State: NM Zip: 87131
3. Company Mailing Address (if different): MSC05 3350 1 University of New Mexico Albuquerque, NM Zip: 87131
4. Company Contact: Craig White Title: Senior Vice President for Finance and Administration Ph: (505) 277 - 7520 Email: cwhite@unm.edu
5. Facility Name: Mechanical Engineering Facility Hours: 12 : 00 am or pm TO 12 : 00 am or pm
6. Facility Address: 200 University Blvd. NE Blg # 122 City: Albuquerque State: NM Zip: 87131
7. Local Business Mailing Address (if different): MSC07 4100 1 University of New Mexico Albuquerque, NM 87131 Email: cbhall4@unm.edu
8. Facility Environmental Contact: Casey Hall Title: Environmental Health Manager Ph: () 277 - 0305 Fax: (505) 277 - 9006
9. Email: cbhall4@unm.edu 10. Type of Business: Colleges, Universities, and Professional Schools
11. Environmental Consultant Name and Email Address (if applicable): _____
12. North American Industry Classification System (NAICS): 611310 13. Standard Industrial Classification (SIC): 8221
14. UTM coordinates (required): 351766 east 3883372 north 15. Facility Ph: (505) 272 - 7213 Fax: (505) 277 - 9006
16. Billing Contact: Casey Hall Title: Environmental Health Manager Ph: (505) 277 - 0305 Fax: (505) 277 - 9006
17. Billing Address: MSC07 4100 1 University of New Mexico City: Albuquerque State: NM Zip: 87131
18. Is this an Initial Installation: OR Modification of an Existing Unit: ___ Initial Modification 19. Current or requested operating hrs/yr: 200
20. Is engine or genset installed: ___ Yes No If yes, date installed: ___ / ___ / ___ If no, anticipated installation date: 9 / 15 / 20 19

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	XYZI3247586	02/2008	N/A	N/A	280 kW
Engine	Cummins	4BTAA3.3-G7	TBD	TBD	N/A	99	N/A
Generator	Cummins	TBD	TBD	TBD	N/A	N/A	50

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	3,000 ft ³ /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
EXAMPLE 2008	CO	2.6	x	375 Hp	=	975	+	453.6	=	2.15	x	8,760	+	2,000	=	9.4
	NO _x	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 _x + NMHC	3.0	x		=	1,125	+		=	2.48	x	8,760	+	2,000	=	10.86
	**SO _x	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
2019	CO	0.8	x	99	=	79.2	+	453.6	=	0.17	x	8,760	+	2,000	=	0.76
	NO _x	3.7	x	99	=	366.3	+	453.6	=	0.81	x	8,760	+	2,000	=	3.54
	NMHC	0.6	x	99	=	59.4	+	453.6	=	0.13	x	8,760	+	2,000	=	0.57
	*NO _x + NMHC	3.2	x	99	=	316.8	+	453.6	=	0.70	x	8,760	+	2,000	=	3.06
	**SO _x	0.1	x	99	=	9.9	+	453.6	=	0.02	x	8,760	+	2,000	=	0.10
	***PM	0.29	x	99	=	28.71	+	453.6	=	0.06	x	8,760	+	2,000	=	0.28

* If the USEPA Emission Factor or manufacturer's data is given as combined NO_x + NMHC, also provide individual emission factors for NO_x and NMHC from the manufacturer or other approved methodology for estimating individual emission factors.

** Manufacturer's SO_x factor shall be used when larger than the USEPA Emission Factor.

*** Particulate Matter (PM) emissions are considered to be < 1 µm (micron). Therefore, PM emissions also reflect PM₁₀ & PM_{2.5}.

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 _x		x		=		+		=	
NMHC		x		=		+		=	
*NO _x + NMHC	2.48	x	200	=	496	+	2,000	=	0.25
**SO _x	0.77	x	200	=	154	+	2,000	=	0.08
***PM	0.12	x	200	=	24	+	2,000	=	0.012
CO	0.17	x	200	=	34.92	+	2,000	=	0.017
NO _x	0.81	x	200	=	161.51	+	2,000	=	0.081
NMHC	0.13	x	200	=	26.19	+	2,000	=	0.013
*NO _x + NMHC	0.70	x	200	=	139.68	+	2,000	=	0.070
**SO _x	0.02	x	200	=	4.37	+	2,000	=	0.002
***PM	0.06	x	200	=	12.66	+	2,000	=	0.006

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.

Cary White [Signature] Int. Sr. VP 6/18/2019
 Print Name Sign Name Title Date



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. Attach a copy to this application

2. Attend the pre-permit application meeting
 - a. Attach a copy of the completed *Pre-permit Application Meeting Checklist* to this application

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): Campus NA, District 6 Coalition of NA, District 7 NA, Silver Hill NA, Spruce Park NA, Sycamore NA
 - 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.



Pre-Permit Application Meeting Request Form

Air Quality Program- Environmental Health Department

Please complete appropriate boxes and email to aqd@cabq.gov or mail to:

Environmental Health Department
Air Quality Program
P.O. Box 1293
Room 3047
Albuquerque, NM 87103

Name:	Casey Hall
Company/Organization:	University of New Mexico, Safety and Risk Services
Point of Contact: (phone number and email): Preferred form of contact (circle one): Phone E-mail	Phone: 505-277-0305 Email: cbhall4@unm.edu
Preferred meeting date/times:	4/5 – 9:00 AM, 4/8 9:00 AM, 4/10 9:00 AM
Description of Project:	<p>UNM is currently in the planning stages of a project to replace or remove of several emergency generators around campus. The generators being replaced are as follows:</p> <ul style="list-style-type: none"> • REG# 1972: 12 KW diesel EG replaced with 25 KW diesel EG • ATC# 1971: 70 KW natural gas EG replaced with 50 KW diesel EG • REG# 1970: 55 KW diesel EG replaced with 50 KW diesel EG • REG# 1971: 90 KW diesel EG replaced with 60 KW diesel EG <p>The following generators UNM plans to remove without replacement:</p> <ul style="list-style-type: none"> • REG# 1973: 27 hp natural gas EG • REG# 1974: 27 hp natural gas EG

City of Albuquerque- Environmental Health Department
 Air Quality Program- Permitting Section
 Phone: (505) 768-1972 Email: aqd@cabq.gov



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Environmental Health Department
Air Quality Program



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For

EMERGENCY DIESEL ENGINES

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*Deemed Incomplete
6/5/19*

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Date Submitted: ___ / ___ / 20___

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14. UTM coordinates (required): 351766 east 3883372 north 15. Facility Ph: (505) 272 - 7213 Fax: (505) 277 - 9006
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18. Is this an Initial Installation: OR Modification of an Existing Unit: ___ Initial Modification 19. Current or requested operating hrs/yr: 200
20. Is engine or genset installed: ___ Yes No If yes, date installed: ___ / ___ / ___ If no, anticipated installation date: 9 / 15 / 20 19

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	XYZI3247586	02/2008	N/A	N/A	280 kW
Engine	Cummins	4BTAA3.3-G7	TBD	TBD	N/A	99	N/A
Generator	Cummins	TBD	TBD	TBD	N/A	N/A	50

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	3,000 ft ³ /min - Flow Rate Exit - upward

TBD	0.25 ft	831 F	454cfm-Flow Rate Exit-Up
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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 _x	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 _x + NMHC	3.0	x		=	1,125	+		=	2.48	x	8,760	+	2,000	=	10.86
	**SO _x	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
2019	CO	0.8	x	99	=	79.2	+	453.6	=	0.17	x	8,760	+	2,000	=	0.76
	NO _x	2.7	x	99	=	267.3	+	453.6	=	0.59	x	8,760	+	2,000	=	2.58
	NMHC	0.1	x	99	=	9.9	+	453.6	=	0.02	x	8,760	+	2,000	=	0.10
	*NO _x + NMHC	3.2	x	99	=	316.8	+	453.6	=	0.70	x	8,760	+	2,000	=	3.06
	**SO _x	0.1	x	99	=	9.9	+	453.6	=	0.02	x	8,760	+	2,000	=	0.10
	***PM	0.29	x	99	=	28.71	+	453.6	=	0.06	x	8,760	+	2,000	=	0.28

* If the USEPA Emission Factor or manufacturer's data is given as combined NO_x + NMHC, also provide individual emission factors for NO_x and NMHC from the manufacturer or other approved methodology for estimating individual emission factors.

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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
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NMHC	0.02	x	200	=	4.37	+	2,000	=	0.002
*NO _x + NMHC	0.70	x	200	=	139.68	+	2,000	=	0.070
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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.

Carly White Print Name [Signature] Sign Name Supervisor Title 4/18/2017 Date



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- 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
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- 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.
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- 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.



Pre-Permit Application Meeting Request Form

Air Quality Program- Environmental Health Department

Please complete appropriate boxes and email to aqd@cabq.gov or mail to:

Environmental Health Department
 Air Quality Program
 P.O. Box 1293
 Room 3047
 Albuquerque, NM 87103

Name:	Casey Hall
Company/Organization:	University of New Mexico, Safety and Risk Services
Point of Contact: (phone number and email): Preferred form of contact (circle one): Phone E-mail	Phone: 505-277-0305 Email: cbhall4@unm.edu
Preferred meeting date/times:	4/5 – 9:00 AM, 4/8 9:00 AM, 4/10 9:00 AM
Description of Project:	<p>UNM is currently in the planning stages of a project to replace or remove of several emergency generators around campus. The generators being replaced are as follows:</p> <ul style="list-style-type: none"> • REG# 1972: 12 KW diesel EG replaced with 25 KW diesel EG • <u>ATC# 1971: 70 KW natural gas EG replaced with 50 KW diesel EG</u> • REG# 1970: 55 KW diesel EG replaced with 50 KW diesel EG • REG# 1971: 90 KW diesel EG replaced with 60 KW diesel EG <p>The following generators UNM plans to remove without replacement:</p> <ul style="list-style-type: none"> • REG# 1973: 27 hp natural gas EG • REG# 1974: 27 hp natural gas EG

City of Albuquerque- Environmental Health Department
 Air Quality Program- Permitting Section
 Phone: (505) 768-1972 Email: aqd@cabq.gov



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: Cosy Hall
Contact: 505-277-03
Company/Business: UNM

Fill out and submit a Pre-Permit Application Meeting Request form
⇒ Available online at <http://www.cabq.gov/airquality>

Emission Factors and Control Efficiencies
Notes: From manufacturer's spec. sheet.

Air Dispersion modeling guidelines and protocol
Notes: N/A

Department Policies
Notes:

Air quality permit fees
Notes: 82292

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: sent Via Email
 - Coalition: _____
 - Notes: _____
 - Posting and maintaining a weather-proof sign
 - Notes: _____

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: _____

Permit Application Folder Form

Rev. 5/16/19

Date:	5/20/19	Due Date:	Dean complete by 6/15/19
From:	Carina	To:	ccclcl
ENVISION CONNECT			
Permit Number:	1970-m1	CDS Number:	611310
Permit Site Name:	UNM Mechanical Engr. EG.		
Permit Status:	Billing Status:	Assigned To:	
<input checked="" type="checkbox"/> Active <input type="checkbox"/> Closed <input type="checkbox"/> Denied <input type="checkbox"/> Pending <input type="checkbox"/> Reissued <input type="checkbox"/> Unknown <input type="checkbox"/> Unknown /Never opened <input type="checkbox"/> Withdrawn <input type="checkbox"/> No Permit	<input type="checkbox"/> None <input checked="" type="checkbox"/> 01 - Active, Billable <input type="checkbox"/> 02 - Inactive, Non-Billable <input type="checkbox"/> 03 - Temporarily Inactive, Non-Billable <input type="checkbox"/> 04 - Active, Exempt from Billing <input type="checkbox"/> 05 - Active, Exempt from Billing, Title V	<input type="checkbox"/> Israel Tavarez <input type="checkbox"/> Paul Puckett <input type="checkbox"/> Regan Eyerman <input type="checkbox"/> Elizabeth Yopez <input checked="" type="checkbox"/> Carina Munoz-Dyer <input type="checkbox"/> Vacant (Admin) <input type="checkbox"/> Vacant (Temp) <input type="checkbox"/> Vacant (Supervisor)	
		Application Status: <u>Received</u>	
Permit Type:			
<input type="checkbox"/> 05-Extension <input type="checkbox"/> 06- Emergency Permit <input type="checkbox"/> 07-Initial Permit <input checked="" type="checkbox"/> 08-Modification <input type="checkbox"/> 09-Admin Revision	<input type="checkbox"/> 10-Courtesy <input type="checkbox"/> 11-Renewal <input type="checkbox"/> 12-Significant Mod <input type="checkbox"/> 13-Minor Mod <input type="checkbox"/> 15-Technical Revision	<input type="checkbox"/> 20-Relocation <input type="checkbox"/> 30-Registration <input type="checkbox"/> 41-AQN Initial <input type="checkbox"/> 42-AQN Transf./Prev. Authorization <input type="checkbox"/> 43-AQN Admin. Amendment <input type="checkbox"/> 44-Admin. Revision	
Program/ Element:			
<input type="checkbox"/> 1001-Operating Permit <input type="checkbox"/> 1301-Minor NSR <input checked="" type="checkbox"/> 1302-Minor NSR EG	<input type="checkbox"/> 1303-Minor NSR Gas Station <input type="checkbox"/> 1401-Registration <input type="checkbox"/> 1501-Relocation	<input type="checkbox"/> 1601-Major NSR <input type="checkbox"/> 1701-Synthetic Minor <input type="checkbox"/> 6000-AQN EG <input type="checkbox"/> 6001-AQN GDF	
HARD COPY FILES			
Folder Color:			
<input type="checkbox"/> Blue (Source Registration) <input checked="" type="checkbox"/> Yellow (Minor NSR/SM-80)	<input type="checkbox"/> Green (GDF NSR/AQN) <input type="checkbox"/> Red (EG AQNs)	<input type="checkbox"/> Purple (Drycleaners) <input type="checkbox"/> Brown (Title V)	
File Folders:			
<input checked="" type="checkbox"/> Permitting <input type="checkbox"/> Compliance (C) <input type="checkbox"/> Combined, Compliance and Enforcement	<input type="checkbox"/> Enforcement (E)		
Notes:			
Return to Carina			



*Department of Safety & Risk Services
MSC07 4100, 1 University of New Mexico
Phone: 505-277-2753 Fax: 505-277-9006
Website: srsweb@unm.edu*

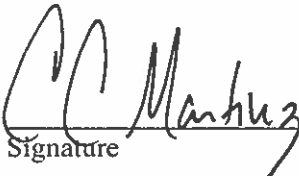
Date: 5/6/19

To: Angelique Maldonado, Environmental Health Supervisor, Environmental Health Dept. CABQ
Regan Eyerman, Environmental Health Scientist, Environmental Health Dept. CABQ

From: Casey Hall, Environmental Health Manager, Safety and Risk Services

Subject: Emergency Generator Air Quality Permit Applications

Attached are four air quality permit applications. Please sign below to acknowledge receipt.

 5/6/19
Signature Date


Printed Name

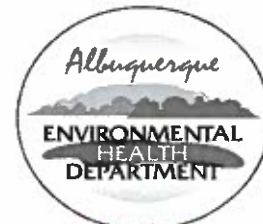
2nd submittal



City of Albuquerque

Environmental Health Department

Air Quality Program



6/19/19

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: Casey Hall
Contact: 277-0305
Company/Business: UNM

Fill out and submit a Pre-Permit Application Meeting Request form
⇒ Available online at <http://www.cabq.gov/airquality>

Emission Factors and Control Efficiencies
Notes:

Air Dispersion modeling guidelines and protocol
Notes:

NA

Department Policies
Notes:

90 days

Air quality permit fees
Notes:



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: University of New Mexico, 1 University of New Mexico 87131

Owner / Operator's Name and Address: Same as Above

Actual or Estimated Date the Application will be submitted to the Department: 4/30/2019

Exact Location of the Source or Proposed Source: Mechanical Engineering Building #122 200 University Blvd. NE ALBUQUERQUE, NM 87131

Description of the Source: 99HP Diesel Emergency Generator

Nature of the Business: University, Higher Education

Process or Change for which the permit is requested: Replacement of Emergency generator

Preliminary Estimate of the Maximum Quantities of each regulated air contaminant the source will emit:

Net Changes In Emissions

Initial Construction Permit

(Only for permit Modifications or Technical Revisions)

	Pounds Per Hour (lbs/hr)	Tons Per Year (tpy)		lbs/hr	tpy	Estimated Total TPY
CO	0.17	0.017	CO	-0.51	-0.051	
NOx	0.59	0.059	NOx	-2.57	-0.257	
NOx + NMHC	0.70	0.07	NOx + NMHC	-2.71	-0.271	
VOC	0.02	0.002	VOC	-0.23	-0.023	
SO ₂	0.02	0.002	SO ₂	-0.19	-0.019	
TSP	0.06	0.006	TSP	-0.16	-0.016	
PM10	0.06	0.006	PM10	-0.16	-0.016	
PM2.5	0.06	0.006	PM2.5	-0.16	-0.016	
VHAP			VHAP	+/-	+/-	

Maximum Operating Schedule: 200 hrs/yr

Normal Operating Schedule: 30 min/hr

Last Revised 10/25/2018

City of Albuquerque- Environmental Health Department
Air Quality Program- Permitting Division
Phone: (505) 768-1972 Email: aqd@cabq.gov

File Message Tell me what you want to do.

Mon 4/19/2019 12:46 PM

Casey Hall

Public Notice of Proposed Air Quality Construction Permit Application

From: "Casey Hall" <casey.hall@nmeq.org> Sent: Monday, April 15, 2019 12:46 PM To: "Mechanical KNW emergency@nmeq.org" <mechanicalknw@nmeq.org>



Dear Neighborhood Association Coalitions Representative(s),

If you did not receive this public notice, you are receiving this notice in accordance with New Mexico Administrative Code (NMAC) 20.11.41.12(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 requested permit or permit modification, or deny the requested permit or permit modification. The Program shall hold a Public Information Hearing pursuant to 20.11.41.12 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?

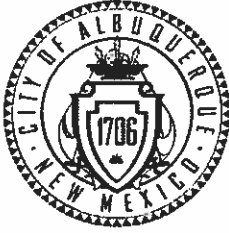
Applicant Name	University of New Mexico
Site or Facility Name	Mechanical Engineering
Site or Facility Address	200 University Blvd. NE Albuquerque, NM 87131
New or Existing Source	Existing
Anticipated Date of Application Submittal	4/30/2019
Summary of Proposed Source to Be Permitted	The application is to replace a 102 hp emergency generator manufactured in 1980 with a new 99 horsepower EPA Tier III emission, diesel fired internal combustion engine coupled to a 50KW generator. The application seeks to restrict the unit to 200 hours per year of operation. The purpose of the unit is to provide emergency backup electrical power in the case of the unavoidable loss of commercial power.

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:

- Casey Hall
 - Casey.Hall@nmeq.org
 - (505) 277-0305
- For inquiries regarding the air quality permitting process, contact:
- City of Albuquerque Environmental Health Department Air Quality Program
 - mechanicalknw@nmeq.org
 - (505) 768-1972

Casey B. Hall
Environmental Health Manager
Department of Safety & Risk Services



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: Corey Hall
 Contact: 505-277-0305
 Company/Business: JNM

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:

SHUTTLE STALKER
SHUTTLESTALKER.COM

BUILDING
PROTECTED
BY VIDEO
SURVEILLANCE



Northwest
University
Building 226
2000 University



CITY OF ALBUQUERQUE
 P.O. BOX 1293
 ALBUQUERQUE, NEW MEXICO 87103

RECEIPT

NO. 0946190

DATE 5/6/19

RECEIVED FROM UNM

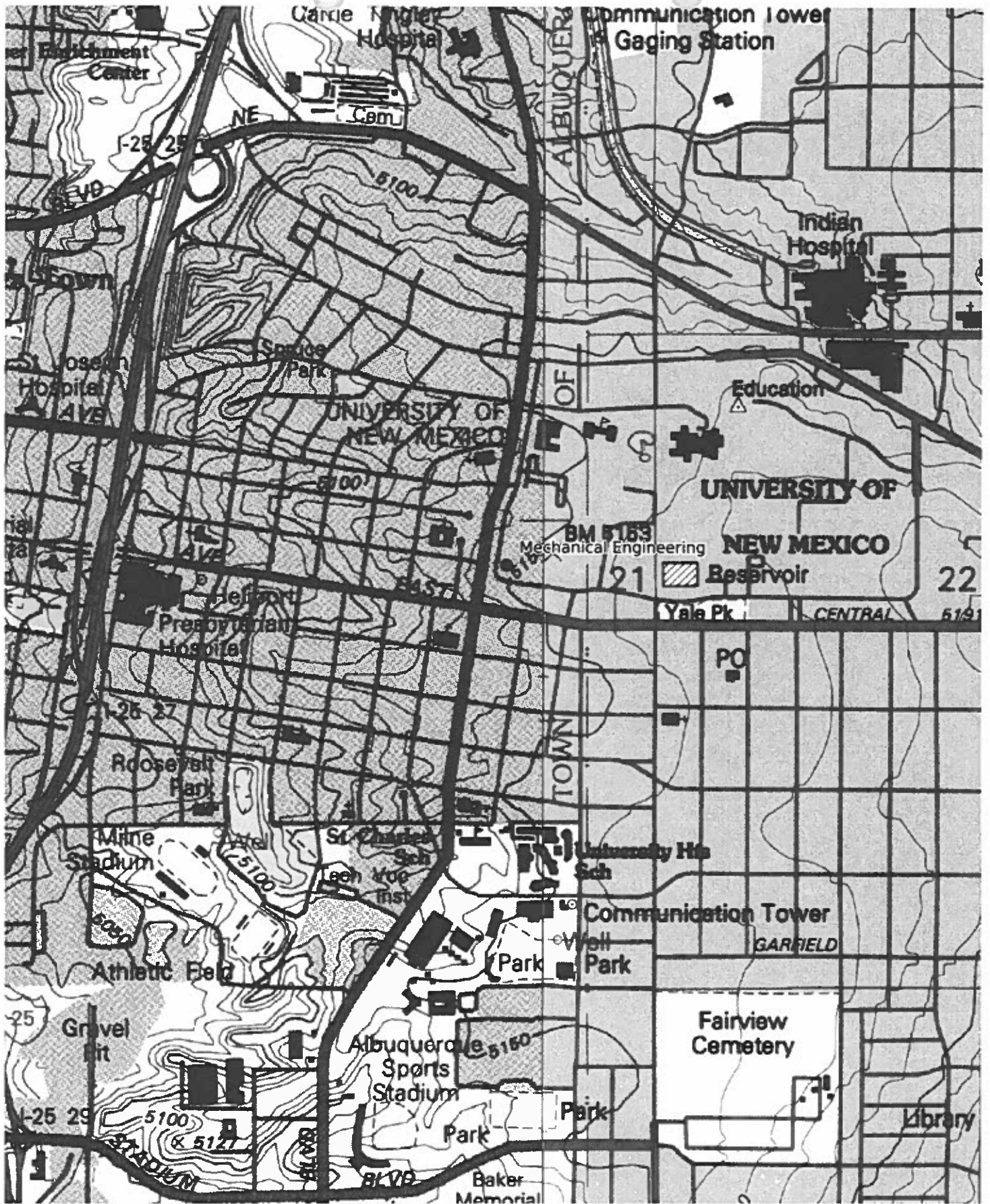
ADDRESS Two Thousand Two Hundred Ninety two⁰⁰/₁₀₀ DOLLARS \$ 2292⁰⁰

FOR Mechanical Engineering

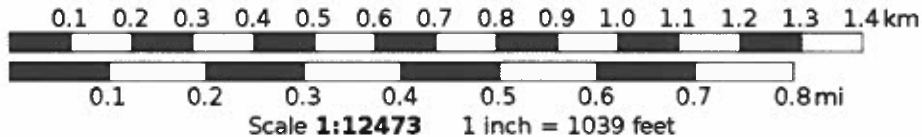
FUND _____ ACCT _____ DEPT. ID _____

ACCOUNT		CASH	CHECK
AMT. OF ACCOUNT			40182561
AMT. PAID			
BALANCE DUE			

BY CC



Mercator Projection
 WGS84
 USNG Zone 13SCU
 CalTopo



Google Maps UNM Mechanical Engineering Building



Specification sheet

50FW
- Mech Engng
- Logan

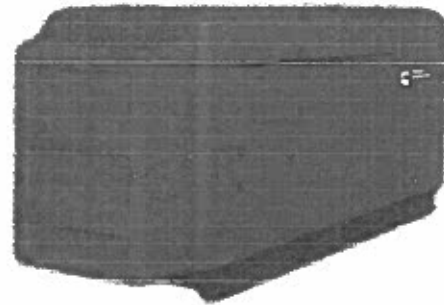


Diesel generator set

50 kW - 60 kW

EPA emissions

stationary Standby



Description

Cummins® generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary Standby applications.

Features

Cummins heavy-duty engine - Rugged 4-cycle, liquid-cooled, industrial diesel engine delivers reliable power, low emissions and fast response to load changes.

Alternator - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings, low waveform distortion with non-linear loads and fault clearing short-circuit capability.

Control system - The PowerCommand® 1.1 electronic control is standard equipment and provides total generator set system integration including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, output metering, auto-shutdown at fault detection and NFPA 110 Level 1 compliance.

Cooling system - Standard cooling package provides reliable running at up to 50 °C (122 °F) ambient temperature.

Enclosures - The aesthetically appealing enclosure incorporates special designs that deliver one of the quietest generators of its kind. Aluminum material plus durable powder coat paint provides the best anti-corrosion performance. The generator set enclosure has been evaluated to withstand 180 MPH wind loads in accordance with ASCE7-10. The intelligent design has removable panels and service doors to provide easy access for service and maintenance.

Fuel tanks - Two dual wall sub-base fuel tank series are offered as optional features, providing economical and flexible solutions to meet extensive code requirements on diesel fuel tanks.

NFPA - The generator set accepts full rated load in a single step in accordance with NFPA 110 for Level 1 systems.

Warranty and service - Backed by a comprehensive warranty and worldwide distributor network.

Model	Standby rating 60 Hz		Prime rating 60 Hz		Data sheets 60 Hz
	kW	kVA	kW	kVA	
C50 D6	50.0	62.5	45.0	56.25	NAD-5863
C60 D6	60.0	75.0	54.0	67.50	NAD-5864

Our energy working for you.™

©2017 Cummins Inc. | NAS-5873-EN (10/17)

power.cummins.com

Generator set data sheet



Model: C50 D6
Frequency: 60 Hz
Fuel type: Diesel
kW rating: 50 Standby
 45 Prime
Emissions level: EPA Emission Stationary Standby

Exhaust emission data sheet:	EDS-1186
Exhaust emission compliance sheet:	EPA-1255
Sound performance data sheet:	MSP-1184
Cooling performance data sheet:	MCP-266
Prototype test summary data sheet:	PTS-430

Fuel consumption	Standby				Prime			
	kW (kVA)				kW (kVA)			
Ratings	50 (62.5)				45 (56.25)			
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full
US gph	1.49	2.38	3.30	4.25	1.35	2.16	3.00	3.86
L/hr	5.64	9.01	12.49	16.09	5.11	8.18	11.36	14.61

Engine	Standby rating	Prime rating
Engine manufacturer	Cummins Inc.	
Engine model	4BTAA3.3-G7	
Configuration	Cast iron, in-line, 4 cylinder	
Aspiration	Turbocharged and charge air-cooled	
Gross engine power output, kWm (bhp)	73.8 (99)	67.1 (90)
BMEP at set rated load, kPa (psi)	1285.87 (186.5)	1167.9 (169.4)
Bore, mm (in.)	95 (3.74)	
Stroke, mm (in.)	115 (4.53)	
Rated speed, rpm	1800	
Piston speed, m/s (ft/min)	6.9 (1359)	
Compression ratio	17.3:1	
Lube oil capacity, L (qt)	7.9 (8.35)	
Overspeed limit, rpm	2250	

Fuel flow	
Maximum fuel flow, L/hr (US gph)	56.39 (14.9)
Maximum fuel inlet restriction with clean filter, mm Hg (in Hg)	58.42 (2.3)
Maximum return restriction, mm Hg (in Hg)	375.92 (14.8)

Alternator data

Standard alternators		Single phase table	Three phase table			
Maximum temperature rise above 40 °C ambient		120 °C	120 °C	120 °C	120 °C	120 °C
Feature code		B949-2	B946-2	B986-2	B943-2	B952-2
Alternator data sheet number		ADS-582	ADS-581	ADS-581	ADS-581	ADS-581
Voltage ranges		120/240	120/208	120/240	277/480	347/600
Voltage feature code		R104-2	R098-2	R106-2	R002-2	R114-2
Surge kW		57.54	58.33	58.33	58.33	58.33
Motor starting kVA (at 90% sustained voltage)	Shunt	95	119	119	119	119
	PMG	150	181	181	181	181
Full load current amps at Standby rating		208	173.68	150.5	75.26	60.2

Optional alternators for improved motor-starting capability		Single phase table	Three phase table			
Maximum temperature rise above 40 °C ambient		120 °C	120 °C	120 °C	120 °C	120 °C
Feature code		B961-2	B958-2	B987-2	B955-2	B964-2
Alternator data sheet number		ADS-583	ADS-582	ADS-582	ADS-582	ADS-582
Voltage ranges		120/240	120/208	120/240	277/480	347/600
Voltage feature code		R104-2	R098-2	R106-2	R002-2	R114-2
Surge kW		59.19	59.39	59.39	59.39	59.39
Motor starting kVA (at 90% sustained voltage)	Shunt	170	212	95	212	212
	PMG	180	225	150	225	225
Full load current amps at Standby rating		208	173.68	150.5	75.26	60.2

Notes:

- ¹ Single phase power can be taken from a three phase generator set at up to 2/3 set rated 3-phase kW at 1.0 power factor. Also see Note 3 below.
- ² The broad range alternators can supply single phase output up to 2/3 set rated 3-phase kW at 1.0 power factor.
- ³ The extended stack (full single phase output) and 4 lead alternators can supply single phase output up to full set rated 3-phase kW at 1.0 power factor.

Formulas for calculating full load currents:

Three phase output

$$\frac{\text{kW} \times 1000}{\text{Voltage} \times 1.73 \times 0.8}$$

Single phase output

$$\frac{\text{kW} \times \text{SinglePhaseFactor} \times 1000}{\text{Voltage}}$$

Warning: Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

For more information contact your local Cummins distributor or visit power.cummins.com



Our energy working for you.™



2019 EPA Tier 3 Exhaust Emission Compliance Statement C50 D6 Stationary Emergency 60 Hz Diesel Generator Set

Compliance Information:

The engine used in this generator set complies with Tier 3 emissions limit of U.S. EPA New Source Performance Standards for stationary emergency engines under the provisions of 40 CFR 60 Subpart III.

Engine Manufacturer:	Cummins Inc.
EPA Certificate Number:	KCEXL03.3CAA-048
Effective Date:	11/27/2018
Date Issued:	11/27/2018
EPA Engine Family (Cummins Emissions Family):	KCEXL03.3CAA

Engine Information:

Model:	4BTAA3 3-G7	Bore:	3.74 in. (95 mm)
Engine Nameplate HP:	99	Stroke:	4.53 in. (115 mm)
Type:	4 Cycle, In-line, 4 Cylinder Diesel	Displacement:	199 cu. in. (3.3 liters)
Aspiration:	Turbocharged & Charge Air Cooled	Compression ratio:	17.3:1
Emission Control Device:		Exhaust stack diameter:	3 in. (76 mm)

Diesel Fuel Emission Limits

D2 Cycle Exhaust Emissions

	Grams per BHP-hr			Grams per kWm-hr		
	NO _x + NMHC	CO	PM	NO _x + NMHC	CO	PM
Test Results	3.2	0.8	0.29	4.3	1.0	0.39
EPA Emissions Limit	3.5	3.7	0.30	4.7	5.0	0.40

Test methods: EPA nonroad emissions recorded per 40 CFR 89 (ref. ISO8178-1) and weighted at load points prescribed in Subpart E, Appendix A for constant speed engines (ref. ISO8178-4, D2)

Diesel fuel specifications: 40-48 Cetane number, Reference: ASTM D975 No. 2-D, 300-500 ppm Sulphur

Reference conditions: Air Inlet Temperature: 25 °C (77 °F), Fuel Inlet Temperature: 40 °C (104 °F). Barometric Pressure: 100 kPa (29.53 in Hg), Humidity: 10.7 g/kg (75 grains H₂O/lb) of dry air; required for NO_x correction. Restrictions: Intake Restriction set to a maximum allowable limit for clean filter; Exhaust Back Pressure set to a maximum allowable limit.

Tests conducted using alternate test methods, instrumentation, fuel or reference conditions can yield different results. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.



Department of Safety & Risk Services
 MSC07 4100, 1 University of New Mexico
 Phone: 505-277-2753 Fax: 505-277-9006
 Website: srsweb@unm.edu

Date: 6/13/19
 To: Carina Munoz-Dyer, Environmental Health Supervisor, Environmental Health Department, CABQ
 From: Casey Hall, Mgr. Env. Health, Safety and Risk Services, UNM
 Subject: Emissions Calculations for Mechanical Engineering Emergency Generator

The anticipated emissions from the emergency generator replacement located at Mechanical Engineering were calculated as follows. All emission values were derived from the manufacturer spec sheet, included with the application. The following values were obtained from the Diesel Fuel Emission Limits on page EPA-1255e, the EPA Tier 3 Exhaust Emission Compliance Statement:

	NO _x + NMHC (g/Hp-hr)	CO (g/Hp-hr)	PM (g/Hp-hr)
Test Results	3.2	0.8	0.29
EPA Emissions Limit	3.5	3.7	0.30

For emissions not specifically listed in the EPA Tier 3 Exhaust Emission Compliance Statement the values were derived from the Exhaust emission data sheet, page EDS – 1186. Please note total unburned hydrocarbons were used as a proxy for non-methane hydrocarbons (NMHC). The highest values listed for NO_x (3.7 g/ Hp-hr) and hydrocarbons (0.6 g/Hp –hr) on page EDS-1186 were used for the calculation of emissions.

The below equations are examples of how the emissions were calculated using NO_x.

Equation 1:

$$3.7 \frac{g \text{ NO}_x}{\text{Hp} \times \text{hr}} \times 99 \text{ Hp} = 366.3 \frac{g \text{ NO}_x}{\text{hr}}$$

Equation 2:

$$366.3 \frac{g \text{ NO}_x}{\text{hr}} \times \frac{1 \text{ lb}}{453.6 \text{ g}} = 0.81 \frac{\text{lb NO}_x}{\text{hr}}$$

Equation 3:

$$0.81 \frac{\text{lb NO}_x}{\text{hr}} \times 8760 \frac{\text{hr}}{\text{yr}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 3.54 \frac{\text{ton NO}_x}{\text{yr}}$$

Equation 4:

$$0.81 \frac{\text{lb NO}_x}{\text{hr}} \times 200 \frac{\text{hr}}{\text{yr}} = 161.51 \frac{\text{lb NO}_x}{\text{yr}}$$

Equation 5:

$$161.51 \frac{\text{lb NO}_x}{\text{yr}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 0.081 \frac{\text{ton NO}_x}{\text{yr}}$$



*Department of Safety & Risk Services
MSC07 4100, 1 University of New Mexico
Phone: 505-277-2753 Fax: 505-277-9006
Website: srsweb@unm.edu*

Date: 6/13/19
To: Carina Munoz-Dyer, Environmental Health Supervisor, Environmental Health Department, CABQ
From: Casey Hall, Mgr. Env. Health, Safety and Risk Services, UNM
Subject: Operations and Maintenance Plan for Mechanical Engineering Emergency Generator

The emergency generator replacement located at Mechanical Engineering will implement the following O&M strategy to mitigate emissions. Pursuant to 20.11.41.13.E.(5) NMAC UNM will:

- (a) In the case of a malfunction that causes excess emissions, Facilities Management reports the malfunction to Safety and Risk Services. The exceedance is then reported to the City of Albuquerque EHD in accordance with UNM's Title V permit 0536-RN1. A root cause of the exceedance will then be identified and repaired as quickly as practicable.
- (b) Emissions of particulate matter as seen through opacity are higher during startup and shutdown due to low engine temperature leading to incomplete combustion during the compression ignition cycle. This unit is not equipped with any control equipment.
- (c) The engine will be maintained in accordance with the manufacturer's requirements including monthly exercise and regular maintenance to reduce emissions during startup and shutdown.



1st subm.

deemcd incomplete 6/5/19

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: University of New Mexico, 1 University of New Mexico 87131

Owner / Operator's Name and Address: Same as Above

Actual or Estimated Date the Application will be submitted to the Department: 4/30/2019

Exact Location of the Source or Proposed Source: Mechanical Engineering Building #122 200 University Blvd. NE ALBUQUERQUE, NM 87131

Description of the Source: 99HP Diesel Emergency Generator

Nature of the Business: University, Higher Education

Process or Change for which the permit is requested: Replacement of Emergency generator

Preliminary Estimate of the Maximum Quantities of each regulated air contaminant the source will emit:

Net Changes In Emissions

Initial Construction Permit

(Only for permit Modifications or Technical Revisions)

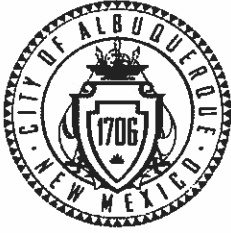
	Pounds Per Hour (lbs/hr)	Tons Per Year (tpy)		lbs/hr	tpy	Estimated Total TPY
CO	0.17	0.017	CO	-0.51	-0.051	
NOx	0.59	0.059	NOx	-2.57	-0.257	
NOx + NMHC	0.70	0.07	NOx + NMHC	-2.71	-0.271	
VOC	0.02	0.002	VOC	-0.23	-0.023	
SO ₂	0.02	0.002	SO ₂	-0.19	-0.019	
TSP	0.06	0.006	TSP	-0.16	-0.016	
PM10	0.06	0.006	PM10	-0.16	-0.016	
PM2.5	0.06	0.006	PM2.5	-0.16	-0.016	
VHAP			VHAP	+/-	+/-	

Maximum Operating Schedule: 200 hrs/yr

Normal Operating Schedule: 30 min/hr

Last Revised 10/25/2018

City of Albuquerque- Environmental Health Department
Air Quality Program- Permitting Division
Phone: (505) 768-1972 Email: aqd@cabq.gov



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: Casey Hall
Contact: 315-885-8683 / 505-277-0305 / cbhall4@unm.edu
Company/Business: University of New Mexico

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

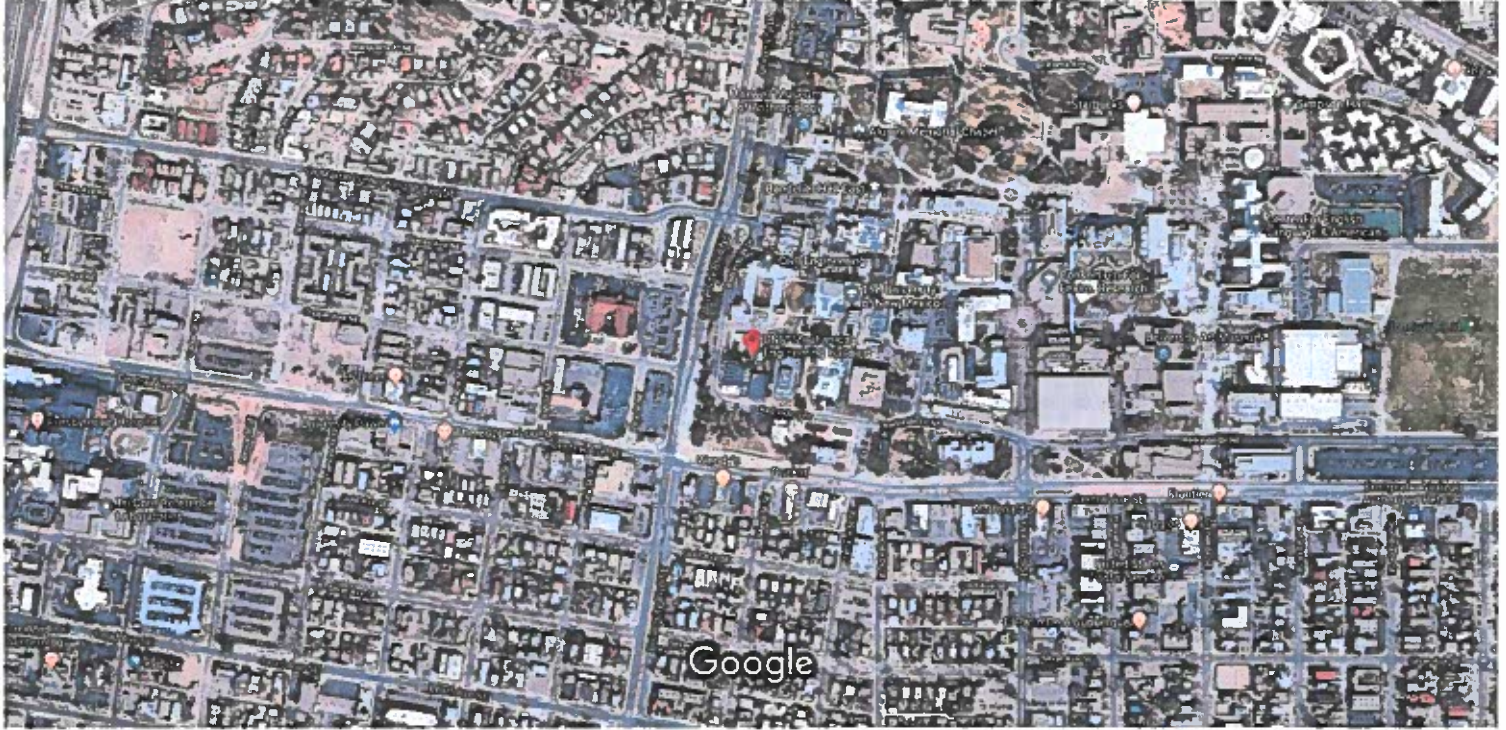
Attach a picture of the completed, properly posted sign to this document

Check here if the department has waived the sign posting requirement.

Alternative public notice details:



Google Maps UNM Mechanical Engineering Building



Imagery ©2019 Google, Map data ©2019 Google 200 ft



UNM Mechanical Engineering Building

School



Directions



Save



Nearby



Send to your phone

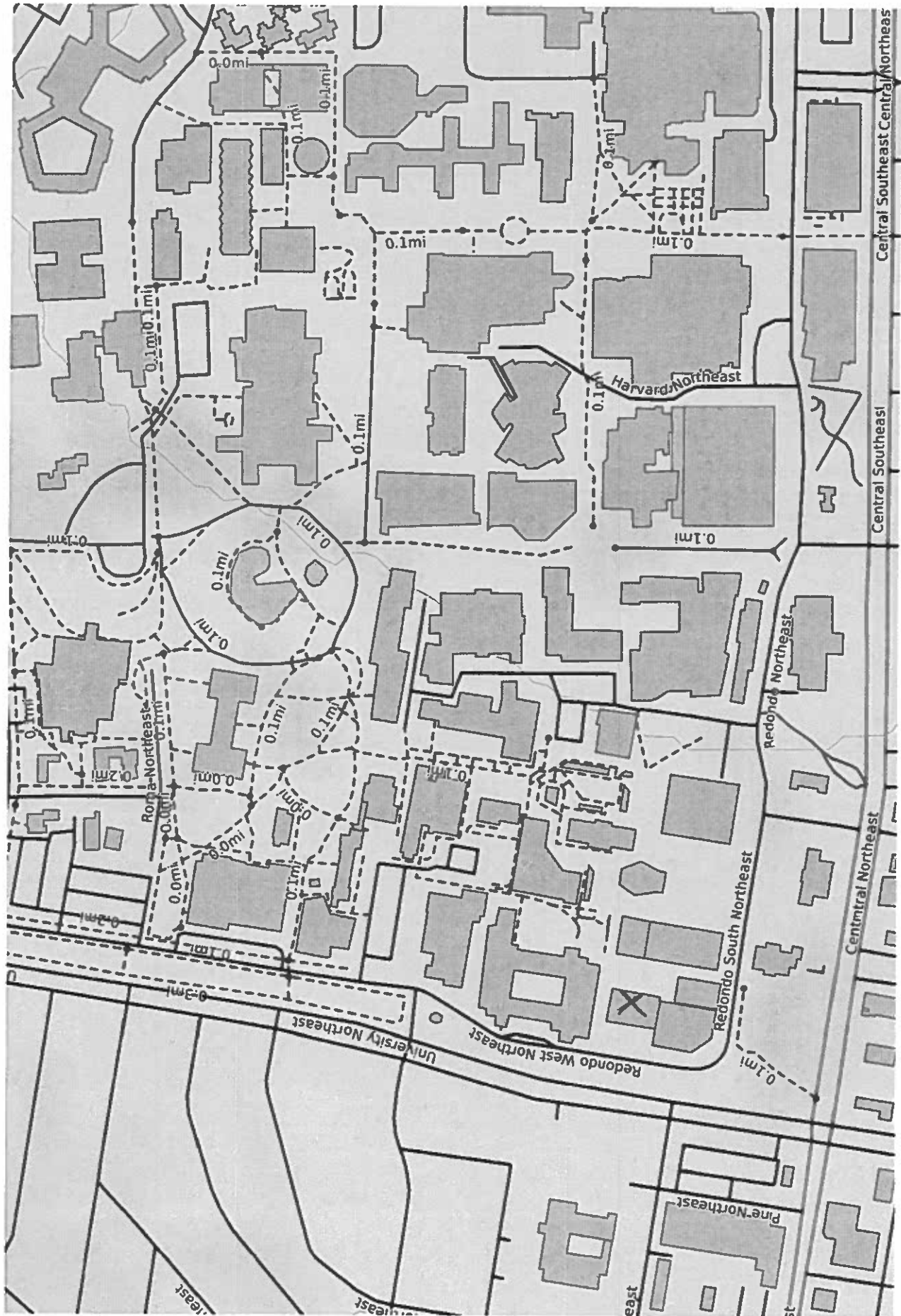


Share

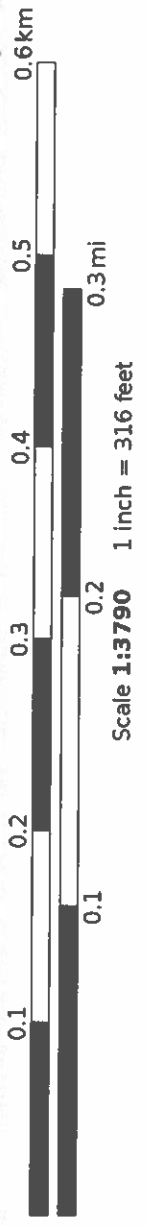


200-238 Redondo W Dr, Albuquerque, NM 87106

Mech. Engr. - 200 UNIVERSITY DR. N.E. DTI 21 Key # 1470



Mercator Projection
WG584
USNG Zone 13SCU
CalTopo



○ SHEET KEYNOTES

- 1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE (NEC) AND NATIONAL MECHANICAL CODE (NMC).
- 2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE (NEC) AND NATIONAL MECHANICAL CODE (NMC).
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- 10. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE (NEC) AND NATIONAL MECHANICAL CODE (NMC).




AC Enterprises, LLC
 2000 N. 1st St.
 Phoenix, AZ 85004-3100
 Phone: (602) 442-5777
 Fax: (602) 442-5777



**THE UNIVERSITY
 of
 NEW MEXICO**

UNM HSC NORTH CAMPUS
 AND UNM CENTRAL CAMPUS
 REPLACE STANDBY
 ENGINE GENERATORS

2021

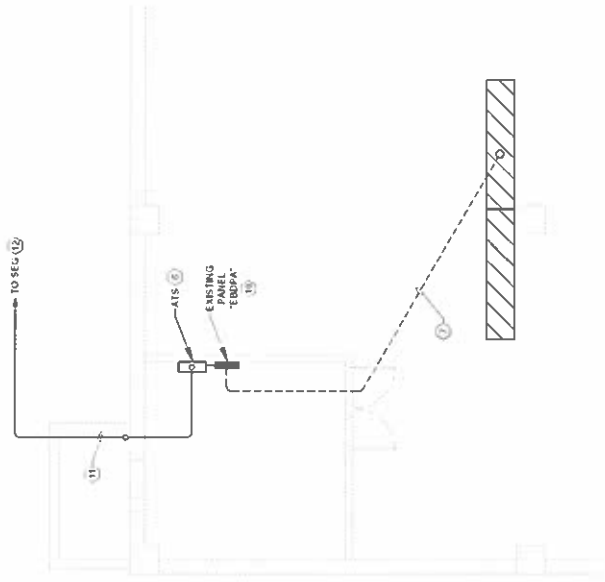


**PARTIAL
 ELECTRICAL
 SITE PLAN
 MECH ENGR**

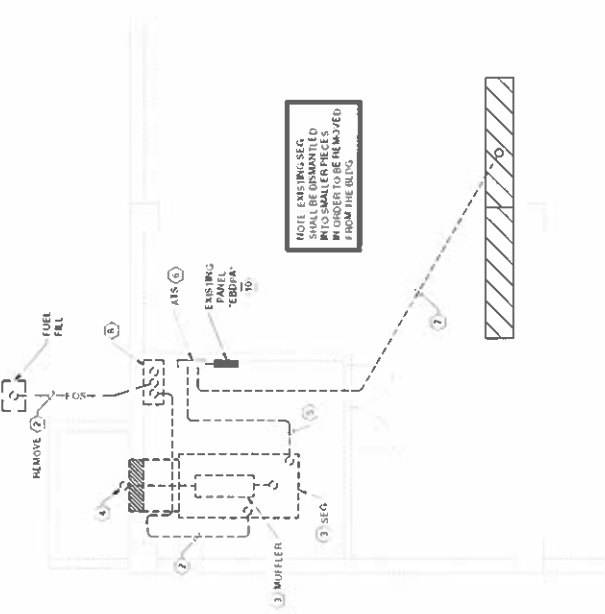
09/19/2020, 12:00 PM
 DESIGNED BY: J.E.H.
 CHECKED BY: J.E.H.
 SHEET:
E402

SHEET KEYNOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2018 INTERNATIONAL MECHANICAL AND ELECTRICAL CODE (IMC) AND THE 2018 NATIONAL ELECTRICAL CODE (NEC).
2. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2018 INTERNATIONAL MECHANICAL AND ELECTRICAL CODE (IMC) AND THE 2018 NATIONAL ELECTRICAL CODE (NEC).
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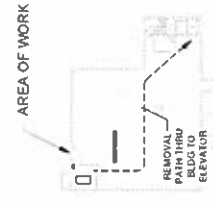
NEW WORK BASEMENT FLOOR PLAN
SCALE 1/8" = 1'-0"



DEMOLITION BASEMENT FLOOR PLAN
SCALE 1/8" = 1'-0"



DISMANTLE
SEC MOTOR
AND REMOVE
VIA FREIGHT
ELEVATOR



KEY PLAN

UNM HSC NORTH CAMPUS
AND UNM CENTRAL CAMPUS
REPLACE STANDBY
ENGINE GENERATORS



A C Engineering, LLC
1200 4th Ave SE
Albuquerque, NM 87102
Phone: 505.842.5182
Fax: 505.842.5172



UNM HSC NORTH CAMPUS
AND UNM CENTRAL CAMPUS
REPLACE STANDBY
ENGINE GENERATORS
PROJECT
DATE: 10/15/2018
DRAWN BY: [Signature]
CHECKED BY: [Signature]
PROJECT NO. E106

E106



**AIR QUALITY TRACKING # 1970
REGISTRATION CERTIFICATE # NM/001/00141**



Issued to: The University of New Mexico
Company Name

Certified Mail # 7007 1490 0003 5645 0410
Return Receipt Requested

Dept. SRS, MSC07 4100
Mailing Address

Albuquerque
City

NM
State

87131 - 0001
Zip

Responsible Official: Vernon Hershberger, Environmental Health Manager
Authorized Representative

Pursuant to the New Mexico Air Quality Control Act, Chapter 74, Article 2 New Mexico Statutes Annotated 1978 (as amended); the Joint Air Quality Control Board Ordinance, 9-5-1 to 9-5-99 ROA 1994; the Bernalillo County Joint Air Quality Control Board Ordinance, Bernalillo County Ordinance 94-5; the Albuquerque-Bernalillo County Air Quality Control Board (AQCB) regulation, Title 20, New Mexico Administrative Code (NMAC), (20.11.40 Source Registration),

The University of New Mexico (Company) is hereby issued this REGISTRATION CERTIFICATE

as an Existing Source and is authorized to operate the following type of processes at:

Facility Name & Address	UTM Coordinates	Process Description	SIC	NAICS
University of New Mexico Mechanical Engineering 200 University Blvd. Bldg. # 122 NE Albuquerque, NM 87131-0001	351766 Easting 3883372 Northing	1980 Isuzu 102 HP <u>Diesel Fired</u> Emergency Generator Engine Model Number: 55SX9E Serial Number: 501056 Annual Hours of Operation: 200	8221	611310

This REGISTRATION CERTIFICATE has been issued based on the review of the source registration application information received by the Albuquerque Environmental Health Department (Department), Air Quality Division (Division) on November 26, 2008 and on the National Ambient Air Quality Standards, New Mexico Ambient Air Quality Standards, and Air Quality Control Regulations for Albuquerque/Bernalillo County, as amended. As these standards and regulations are updated or amended, the applicable changes will be incorporated into this REGISTRATION CERTIFICATE and will apply to the facility.

Issued on the 18th day of June, 2009

Israel L. Tavares
Print Name

Isreal L. Tavares
Sign Name

Air Quality Protection Programs - Permitting Section
Air Quality Division
City of Albuquerque Environmental Health Department

1. **SOURCE REGISTRATION THRESHOLD (74-2-5.C.(5), (6) NMSA; 74-2-5.1.D, G NMSA ; 74-2-7.A.(1) NMSA).** Any commercial or industrial stationary source which emits more than two thousand pounds of any regulated air contaminant per year or any amount of a hazardous air pollutant.
 2. **CHANGES IN SOURCE OPERATIONS (20.11.40.13C NMAC).** Whenever a change occurs in the information submitted in an application received by the Department, the person owning or operating such source shall, within 15 days, notify the Department in writing of the details and date of such change. Such person may be subject to Parts 20.11.2 NMAC, Fees and 20.11.41 NMAC, Authority to Construct.
 3. **FEES (20.11.2.18A NMAC).** Every owner or operator of a source that is required to obtain a source registration shall pay an annual emissions fee pursuant to 20.11.2 NMAC.
- COMPLIANCE ASSURANCE**
- a) The issuance of a Registration Certificate does not relieve the Company from responsibility of complying with the provisions of the Air Quality Control Act, and the laws and regulations in force pursuant to the Act; and

Specification sheet

50 kW
- Mech Engng
- Logan

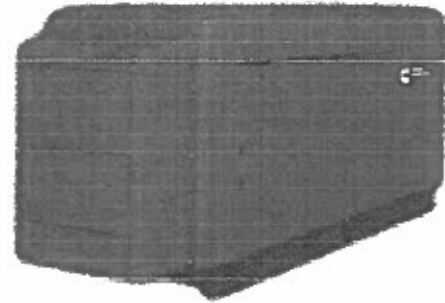


Diesel generator set

50 kW - 60 kW

EPA emissions

stationary Standby



Description

Cummins® generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary Standby applications.

Features

Cummins heavy-duty engine - Rugged 4-cycle, liquid-cooled, industrial diesel engine delivers reliable power, low emissions and fast response to load changes.

Alternator - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings, low waveform distortion with non-linear loads and fault clearing short-circuit capability.

Control system - The PowerCommand® 1.1 electronic control is standard equipment and provides total generator set system integration including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, output metering, auto-shutdown at fault detection and NFPA 110 Level 1 compliance.

Cooling system - Standard cooling package provides reliable running at up to 50 °C (122 °F) ambient temperature.

Enclosures - The aesthetically appealing enclosure incorporates special designs that deliver one of the quietest generators of its kind. Aluminum material plus durable powder coat paint provides the best anti-corrosion performance. The generator set enclosure has been evaluated to withstand 180 MPH wind loads in accordance with ASCE7-10. The intelligent design has removable panels and service doors to provide easy access for service and maintenance.

Fuel tanks - Two dual wall sub-base fuel tank series are offered as optional features, providing economical and flexible solutions to meet extensive code requirements on diesel fuel tanks.

NFPA - The generator set accepts full rated load in a single step in accordance with NFPA 110 for Level 1 systems.

Warranty and service - Backed by a comprehensive warranty and worldwide distributor network.

Model	Standby rating 60 Hz		Prime rating 60 Hz		Data sheets 60 Hz
	kW	kVA	kW	kVA	
C50 D6	50.0	62.5	45.0	56.25	NAD-5863
C60 D6	60.0	75.0	54.0	67.50	NAD-5864

Our energy working for you.™

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power.cummins.com

Generator set specifications

Governor regulation class	TBC
Voltage regulation, no load to full load	± 1.0%
Random voltage variation	± 1.0%
Frequency regulation	Isochronous
Random frequency variation	TBD
Radio frequency emissions compliance	FCC code Title 47 Part 15 Class B

Engine specifications

Design	Turbocharged and charge air-cooled
Bore	95.0 mm (3.74 in.)
Stroke	115.0 mm (4.53 in.)
Displacement	3.26 litres (199 in ³)
Cylinder block	Cast iron, in-line, 4 cylinder
Battery capacity	550 amps at ambient temperature of 0 °F to 32 °F (-18 °C to 0 °C)
Battery charging alternator	50 amps
Starting voltage	12 volt, negative ground
Fuel system	Direct injection, number 2 diesel fuel, fuel filter, electric fuel shut off
Fuel filter	Single element, 10 micron filtration, spin-on fuel filter with water separator
Air cleaner type	Dry replaceable element
Lube oil filter type(s)	Spin-on, full flow
Standard cooling system	50 °C (122 °F) ambient cooling system
Rated speed	1800 rpm

Alternator specifications

Design	Brushless, 4 pole, drip proof, revolving field
Stator	2/3 pitch
Rotor	Direct coupled, flexible disc
Insulation system	Class H per NEMA MG1-1.65
Standard temperature rise	120 °C (248 °F) Standby
Exciter type	Torque match (shunt) with PMG as option
Alternator cooling	Direct drive centrifugal blower
AC waveform Total Harmonic Distortion (THDV)	< 5% no load to full linear load, < 3% for any single harmonic
Telephone Influence Factor (TIF)	< 50 per NEMA MG1-22.43
Telephone Harmonic Factor (THF)	3%

Available voltages

Single phase	3 phase			
• 120/240	• 120/208	• 120/240 delta	• 277/480	• 347/600

Note: Consult factory for other voltages.

Generator set options

Fuel system

- Basic fuel tanks
- Regional fuel tanks

Engine

- Engine air cleaner – normal or heavy duty
- Shut down – low oil pressure
- Extension – oil drain
- 120 V 1000 W coolant heater

Alternator

- One size up alternator
- PMG
- Alternator heater, 120 V

Control

- AC output analog meters (bargraph)
- Stop switch – emergency
- Auxiliary output relays (2)
- Auxiliary configurable signal inputs (8) and relay outputs (8)

Electrical

- Single circuit breaker
- Dual circuit breakers

Enclosure

- Aluminum enclosure sound level 1 or level 2, with muffler installed, sandstone or green color
- Open set

Cooling system

- Shutdown – low coolant level
- Warning – low coolant level
- Extension – coolant drain
- Coolant heater – 120 V, 1 Ph

Exhaust system

- Exhaust connector - NPT

Generator set application

- Battery rack
- Battery rack, heavy duty

Our energy working for you.™

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power.cummins.com

Generator set data sheet



Model: C50 D6
Frequency: 60 Hz
Fuel type: Diesel
kW rating: 50 Standby
 45 Prime
Emissions level: EPA Emission Stationary Standby

Exhaust emission data sheet:	EDS-1186
Exhaust emission compliance sheet:	EPA-1255
Sound performance data sheet:	MSP-1184
Cooling performance data sheet:	MCP-266
Prototype test summary data sheet:	PTS-430

Fuel consumption	Standby				Prime			
	kW (kVA)				kW (kVA)			
Ratings	50 (62.5)				45 (56.25)			
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full
US gph	1.49	2.38	3.30	4.25	1.35	2.16	3.00	3.86
L/hr	5.64	9.01	12.49	16.09	5.11	8.18	11.36	14.61

Engine	Standby rating	Prime rating
Engine manufacturer	Cummins Inc.	
Engine model	4BTAA3.3-G7	
Configuration	Cast iron, in-line, 4 cylinder	
Aspiration	Turbocharged and charge air-cooled	
Gross engine power output, kWm (bhp)	73.8 (99)	67.1 (90)
BMEP at set rated load, kPa (psi)	1285.87 (186.5)	1167.9 (169.4)
Bore, mm (in.)	95 (3.74)	
Stroke, mm (in.)	115 (4.53)	
Rated speed, rpm	1800	
Piston speed, m/s (ft/min)	6.9 (1359)	
Compression ratio	17.3:1	
Lube oil capacity, L (qt)	7.9 (8.35)	
Overspeed limit, rpm	2250	

Fuel flow	
Maximum fuel flow, L/hr (US gph)	56.39 (14.9)
Maximum fuel inlet restriction with clean filter, mm Hg (in Hg)	58.42 (2.3)
Maximum return restriction, mm Hg (in Hg)	375.92 (14.8)

Air	Standby rating	Prime rating
Combustion air, m ³ /min (scfm)	5.26 (186)	5.09 (180)
Maximum air cleaner restriction with clean filter, kPa (in H ₂ O)	1.25 (5)	
Alternator cooling air, m ³ /min (cfm)	16.84 (595)	

Exhaust

Exhaust flow at set rated load, m ³ /min (cfm)	12.85 (454)	12 (424)
Exhaust temperature, °C (°F)	444 (831)	419.4 (787)
Maximum back pressure, kPa (in H ₂ O)	10 (40.2)	10 (40.2)
Actual exhaust back pressure with CPG fitted muffler, kPa (in H ₂ O)	7.8 (31.3)	7.23 (29)

Standard set-mounted radiator cooling¹

Ambient design, °C (°F)	50 (122)	
Fan load, kW _m (HP)	2.83 (3.8)	
Coolant capacity (with radiator), L (US gal)	14.76 (3.9)	
Cooling system air flow, m ³ /min (scfm)	93.16 (3290)	
Total heat rejection, MJ/min (Btu/min)	2.56 (2431.7)	2.347 (2225)
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.12 (0.5)	

Weights²

Unit dry weight kgs (lbs)	698 (1538)
Unit wet weight kgs (lbs)	719 (1584)

Notes:

¹ For non-standard remote installations contact your local Cummins representative.

² Weights represent a set with standard features. See outline drawing for weights of other configurations.

Derating factors

Standby	Engine power available up to 1600 m (5,112 ft) and ambient temperatures up to 50 °C (122 °F). Above these conditions, derate at 6% per 300 m (985 ft) and 10% per 10 °C (18 °F).
Prime	Engine power available up to 3050 m (10,000 ft) and ambient temperatures up to 40 °C (104 °F). Above these conditions, derate at 6% per 300 m (985 ft) and 11% per 10 °C (18 °F).

Ratings definitions

Emergency Standby Power (ESP):	Limited-Time Running Power (LTP):	Prime Power (PRP):	Base Load (Continuous) Power (COP):
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.	Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) is in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.

Alternator data

Standard alternators		Single phase table	Three phase table			
Maximum temperature rise above 40 °C ambient		120 °C	120 °C	120 °C	120 °C	120 °C
Feature code		B949-2	B946-2	B986-2	B943-2	B952-2
Alternator data sheet number		ADS-582	ADS-581	ADS-581	ADS-581	ADS-581
Voltage ranges		120/240	120/208	120/240	277/480	347/600
Voltage feature code		R104-2	R098-2	R106-2	R002-2	R114-2
Surge kW		57.54	58.33	58.33	58.33	58.33
Motor starting kVA (at 90% sustained voltage)	Shunt	95	119	119	119	119
	PMG	150	181	181	181	181
Full load current amps at Standby rating		208	173.68	150.5	75.26	60.2

Optional alternators for improved motor-starting capability		Single phase table	Three phase table			
Maximum temperature rise above 40 °C ambient		120 °C	120 °C	120 °C	120 °C	120 °C
Feature code		B961-2	B958-2	B987-2	B955-2	B964-2
Alternator data sheet number		ADS-583	ADS-582	ADS-582	ADS-582	ADS-582
Voltage ranges		120/240	120/208	120/240	277/480	347/600
Voltage feature code		R104-2	R098-2	R106-2	R002-2	R114-2
Surge kW		59.19	59.39	59.39	59.39	59.39
Motor starting kVA (at 90% sustained voltage)	Shunt	170	212	95	212	212
	PMG	180	225	150	225	225
Full load current amps at Standby rating		208	173.68	150.5	75.26	60.2

Notes:

- ¹ Single phase power can be taken from a three phase generator set at up to 2/3 set rated 3-phase kW at 1.0 power factor. Also see Note 3 below.
- ² The broad range alternators can supply single phase output up to 2/3 set rated 3-phase kW at 1.0 power factor.
- ³ The extended stack (full single phase output) and 4 lead alternators can supply single phase output up to full set rated 3-phase kW at 1.0 power factor.

Formulas for calculating full load currents:

Three phase output

$$\frac{\text{kW} \times 1000}{\text{Voltage} \times 1.73 \times 0.8}$$

Single phase output

$$\frac{\text{kW} \times \text{SinglePhaseFactor} \times 1000}{\text{Voltage}}$$

Warning: Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

For more information contact your local Cummins distributor or visit power.cummins.com

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Exhaust emission data sheet

C50 D6

60 Hz Diesel generator set

EPA emission

Engine information:

Model:	Cummins 4BTAA3 3-G7	Bore:	3.74 in. (95 mm)
Type:	4 cycle, in-line, 4 cylinder diesel	Stroke:	4.53 in. (115 mm)
Aspiration:	Turbocharged and charge air-cooled	Displacement:	199 cu. in. (3.3 liters)
Compression ratio:	17.3:1		
Emission control device:			

	<u>1/4</u>	<u>1/2</u>	<u>3/4</u>	<u>Full</u>
<u>Performance data</u>	<u>Standby</u>	<u>Standby</u>	<u>Standby</u>	<u>Standby</u>
BHP @ 1800 RPM (60 Hz)	20.6	41.3	61.9	82.5
Fuel consumption (gal/Hr)	1.9	2.8	3.8	4.3
Exhaust gas flow (CFM)	219.8	335.3	435.4	531.5
Exhaust gas temperature (°F)	734.3	827.3	864	913.7
<u>Exhaust emission data</u>				
HC (Total unburned hydrocarbons)	0.6	0.2	0.1	0.1
NOx (Oxides of nitrogen as NO2)	3.3	2.5	2.7	3.2
CO (Carbon monoxide)	2	1.2	0.7	0.3
PM (Particular Matter)	0.4	0.2	0.1	0.1
SO2 (Sulfur dioxide)	0.2	0.2	0.1	0.1
Smoke (Bosch)	0.7	0.6	0.5	0.5

All values are Grams per HP - Hour

Test conditions

Data is representative of steady-state engine speed (± 25 RPM) at designated genset loads. Pressures, temperatures, and emission rates were stabilized.

Fuel specification:	ASTM D975 No. 2-D diesel fuel with 0.03-0.05% sulfur content (by weight), and 40-48 cetane number.
Fuel temperature:	99 \pm 9 °F (at fuel pump inlet)
Intake air temperature:	77 \pm 9 °F
Barometric pressure:	29.6 \pm 1 in. Hg
Humidity:	NOx measurement corrected to 75 grains H2O/lb dry air
Reference standard:	ISO 8178

The NOx, HC, CO and PM emission data tabulated here are representative of test data taken from a single engine under the test conditions shown above. Data for the other components are estimated. These data are subjected to instrumentation and engine-to-engine variability. Field emission test data are not guaranteed to these levels. Actual field test results may vary due to test site conditions, installation, fuel specification, test procedures and instrumentation. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.



2019 EPA Tier 3 Exhaust Emission Compliance Statement C50 D6 Stationary Emergency 60 Hz Diesel Generator Set

Compliance Information:

The engine used in this generator set complies with Tier 3 emissions limit of U.S. EPA New Source Performance Standards for stationary emergency engines under the provisions of 40 CFR 60 Subpart IIII.

Engine Manufacturer: Cummins Inc
EPA Certificate Number: KCEXL03.3CAA-048
Effective Date: 11/27/2018
Date Issued: 11/27/2018
EPA Engine Family (Cummins Emissions Family): KCEXL03 3CAA

Engine Information:

Model: 4BTAA3 3-G7 Bore: 3.74 in. (95 mm)
Engine Nameplate HP: 99 Stroke: 4.53 in. (115 mm)
Type: 4 Cycle, In-line, 4 Cylinder Diesel Displacement: 199 cu. in. (3.3 liters)
Aspiration: Turbocharged & Charge Air Cooled Compression ratio: 17.3:1
Emission Control Device: Exhaust stack diameter: 3 in. (76 mm)

Diesel Fuel Emission Limits

D2 Cycle Exhaust Emissions

	Grams per BHP-hr			Grams per kWm-hr		
	<u>NOx + NMHC</u>	<u>CO</u>	<u>PM</u>	<u>NOx + NMHC</u>	<u>CO</u>	<u>PM</u>
Test Results	3.2	0.8	0.29	4.3	1.0	0.39
EPA Emissions Limit	3.5	3.7	0.30	4.7	5.0	0.40

Test methods: EPA nonroad emissions recorded per 40 CFR 89 (ref. ISO8178-1) and weighted at load points prescribed in Subpart E, Appendix A for constant speed engines (ref. ISO8178-4, D2)

Diesel fuel specifications: 40-48 Cetane number, Reference: ASTM D975 No. 2-D, 300-500 ppm Sulphur

Reference conditions: Air Inlet Temperature: 25 °C (77 °F), Fuel Inlet Temperature: 40 °C (104 °F), Barometric Pressure: 100 kPa (29.53 in Hg), Humidity: 10.7 g/kg (75 grains H₂O/lb) of dry air, required for NOx correction, Restrictions: Intake Restriction set to a maximum allowable limit for clean filter, Exhaust Back Pressure set to a maximum allowable limit.

Tests conducted using alternate test methods, instrumentation, fuel or reference conditions can yield different results. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.