



Kirtland Air Force Base

20.11.41 NMAC Construction Permit Application
Emergency Generator
898th Munitions Squadron
Bldg 27497
(Unit ID 19186)

377 MSG/CE Environmental
Kirtland AFB, New Mexico

JUN 30 '22 AM 11:25

KIRTLAND AIR FORCE BASE

Construction Permit Application for Emission Sources at the 898th Munitions Squadron Building 27497 (Unit ID 19186)

FACT SHEET

Introduction

Attached is a Construction Permit Application for a proposed emission source located at the 898th Munitions Squadron Building 27497 at Kirtland Air Force Base (Kirtland AFB). The proposed source is a new emergency genset (unit #19186) consisting of a 755-horsepower emergency combustion diesel engine and a 500-kilowatt generator. The applicable requirements of the *New Mexico Administrative Code* (NMAC) Title 20, Chapter 11, Part 41 (20.11.41 NMAC) are addressed in this application.

Certification by the applicant's official representative that the information in this application is accurate (as required by 20.11.41.13E.(13) NMAC) is included with the Albuquerque Environmental Health Department (AEHD) permit application forms in Attachment A. Attachment B contains the complete AEHD permit application checklist and permit application review fee checklist to ensure that the required elements have been included in this application. Detailed emission estimation methodologies, a summary of calculated emissions, and relevant data from the emergency engine manufacturer are included in Attachment C. Attachment D contains the site location and project vicinity for the proposed genset unit. A process flow diagram for the proposed genset unit can be found in Attachment E.

Project Description

The proposed Cummins diesel engine, to be located at Kirtland AFB Building 27497, would be used to provide emergency power to the building in the event that normal electrical service is disrupted. It has a maximum power rating of 755-horsepower (hp) and is equipped with a 150-gallon day tank to be installed at grade adjacent to the proposed unit. The day tank will be supplied from an existing underground 10,000-gallon tank located east of the building.

As shown in the process flow diagram in Attachment E, the engine exhaust is routed through a muffler prior to being emitted into a semi-enclosed exhaust area which allows for slow dispersal to the atmosphere. Mechanical energy is created when air and fuel are combusted in the internal combustion engine of the proposed genset unit. Exhaust from the combustion of air and fuel flows through a 5-inch exhaust header to a reducer flange, through a muffler and ultimately directed through a 12-inch exhaust pipe in the adjacent room. As shown in the process flow diagram, the 12-inch exhaust pipe is oriented vertically, and the exhaust reaches the atmosphere through the room's open-air vents.

Startup and shutdown emissions from the proposed genset are expected to be different from those during normal operations. The total startup, shutdown, and runtime of the proposed unit is 200 hours per year. The proposed genset's operational maintenance strategy includes routine preventative maintenance being conducted on the engine to ensure proper operations. The operators will be responsible for shutting down the generator and engine if there is a

malfunction, such as a vacuum loss, low oil pressure, overheating, or overly high revolutions per minute.

Regulatory Applicability

As of February 2022, all new air quality permits and permit modifications under 20.11.41 NMAC are required to provide documented proof that the proposed property use of the facility is allowed by the City of Albuquerque and Bernalillo County zoning designations and laws. Documentation includes zoning certification forms from the City and County Planning Departments. The appropriate Bernalillo County Request for Statement of Zonal Certification/Verification form and the City of Albuquerque Zoning Verification Request form are provided in this application for review in Attachment A.

Emissions Estimates

Emissions of regulated air pollutants from the proposed engine include carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (PM) less than or equal to 10 micrometers (PM₁₀), particulate matter less than or equal to 2.5 micrometers (PM_{2.5}), sulfur oxides (SO_x), non-methane hydrocarbons (NMHC), and hazardous air pollutants (HAPs).

Emissions were calculated using EPA Tier 2 engine emissions standards for CO and NO_x+NMHC (40 CFR §89.112). Emissions were calculated using manufacturer's emissions data for PM. The PM emissions factor was used for both PM₁₀ and PM_{2.5}. To provide an emissions standard for NO_x and NMHC separately, NMHC was considered to be 5% of NO_x. SO_x and HAPs emissions were calculated based on U.S. EPA's *Compilation of Air Pollutant Emissions Factors* (AP-42) Section 3.4 (10/96). The basis for the engine's controlled emissions is established at 200 hours per year, even though it may run, in emergency situations, more than 200 hours per year. For more details on the proposed unit's emissions, please see Attachment C.

Reporting and Recordkeeping

Kirtland AFB will perform the following reporting, recordkeeping, and compliance activities:

- Kirtland AFB will maintain monthly organization-required maintenance logs to keep track of engine operating hours and to show that the emergency engine is in good working condition;
- Kirtland AFB will estimate and report annual emissions from the engine using appropriate emission factors and actual operating data;
- Kirtland AFB will report any change in ownership, any equipment substitution and any excess emission events; and
- Kirtland AFB will notify AEHD of any compliance tests conducted on the unit, provide a written test protocol for their approval and submit test results.

Since the engine was manufactured after 2005, it is subject to the New Source Performance Standards (NSPS), 40 Code of Federal Regulations Part 60 Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*.

Air Quality Impact Analysis

Kirtland AFB is required to demonstrate compliance with the National Ambient Air Quality Standards for the pollutants emitted by emission sources that exceed the emission thresholds. As stated in the AEHD Air Dispersion Modeling Guidelines, effective October 2019, internal combustion engines permitted for emergency use do not require an air dispersion modeling analysis. The engine in this application is being permitted for emergency use only; therefore, no modeling was performed.



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 agd@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: 06 / 28 / 20 22

1. Company Name: U.S. Air Force - Kirtland Air Force Base Ph: (505) 846-8546 Email: isreal.tavarez@us.af.mil
2. Company Address: 377 MSG/CEIE Environmental, 2050 Wyoming Blvd SE Suite A-116B City: Kirtland AFB State: NM Zip: 87117 - 5270
3. Company Mailing Address (if different): N/A Zip: _____
4. Company Contact: Isreal Tavarez Title: Chief, Environmental Manager Ph: (505) 846-8546 Email: isreal.tavarez@us.af.mil
5. Facility Name: 898th Munitions Squadron Bldg 27497 Facility Hours: 12 : 00 (am) or pm TO 11 : 59 am or (pm)
6. Facility Address: 7500 Prairie Road City: Kirtland AFB State: NM Zip: 87117
7. Local Business Mailing Address (if different): 377 MSG/CEIE Environmental, 2050 Wyoming Blvd SE Suite A-116B Email: N/A
8. Facility Environmental Contact: Isreal Tavarez Title: Chief, Environmental Manager Ph: (505) 846 - 8546 Fax: N/A
9. Email: isreal.tavarez@us.af.mil 10. Type of Business: National Security
11. Environmental Consultant Name and Email Address (if applicable): Heidi Rous - heidi.rous@kimley-horn.com
12. North American Industry Classification System (NAICS): 928110 13. Standard Industrial Classification (SIC): 9711
14. UTM coordinates (required): 358898 east 3875302 north 15. Facility Ph: () - Fax: () -
16. Billing Contact: Andria Cuevas Title: Air Quality Program Manager Ph: (505) 846 - 2522 Fax: () -
17. Billing Address: 377 MSG/CEIE Environmental, 2050 Wyoming Blvd SE Suite A-116B City: Kirtland AFB State: NM Zip: 87117
18. Is this an Initial Installation: OR Modification of an Existing Unit: Initial Modification 19. Current or requested operating hrs/yr: 200 hrs/yr
20. Is engine or genset installed: Yes No If yes, date installed: ___ / ___ / ___ If no, anticipated installation date: 09 / 28 / 2022

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	Cummins	QSX-G9	TBD	TBD	N/A	755 Hp	N/A
Generator	Cummins	500DFEK	TBD	TBD	N/A	N/A	500 kW

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
TBD	CO	2.6	x	755 hp	=	1963	+	453.6	=	4.33	x	8,760	+	2,000	=	18.96
	NO _x	4.56	x		=	3443	+		=	7.59	x	8,760	+	2,000	=	33.24
	NMHC	0.24	x		=	181.2	+		=	0.40	x	8,760	+	2,000	=	1.75
	*NO _x + NMHC	4.8	x		=	3624	+		=	7.99	x	8,760	+	2,000	=	35.00
	**SO _x	3.67	x		=	2771	+		=	6.11	x	8,760	+	2,000	=	26.76
	***PM	0.10	x		=	75.5	+		=	0.17	x	8,760	+	2,000	=	0.73

* 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 < 1µm (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. Pounds 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
CO	4.33	x	200	=	866	+	2,000	=	0.43
NO _x	7.59	x		=	1518	+	2,000	=	0.76
NMHC	0.40	x		=	80	+	2,000	=	0.04
*NO _x + NMHC	7.99	x		=	1598	+	2,000	=	0.80
**SO _x	6.11	x		=	1222	+	2,000	=	0.61
***PM	0.17	x		=	34	+	2,000	=	0.02

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.

Jason F. Vattioni, Colonel, USAF
Print Name

VATTIONI.JASON.F.11 Digitally signed by
70028640 VATTIONI.JASON.F.1170028640
Date: 2022.06.13 21:10:01 -06'00'
Sign Name

Commander, 377th Air Base Wing
Title

06/13/22
Date

USEPA Emission Standards for Tier 1 - 3 engines

Engine Power (hp)	Model Years	Regulation	Emission Standards (g/hp-hr)						Year the Std Takes Effect
			HC ^{a, d}	VHC ^b	NO _x ^{a, d}	NMHC+NO _x ^a	CO ^c	PM ^c	
50 to <75	1998-2003	Tier 1			6.90				1998
	2004-2007	Tier 2	0.40	0.3996	5.20	5.60	3.70	0.30	2004
	2008-2012	Tier 3	0.20	0.1998	3.3	3.50	3.70	^c	2008
>75 to <100	1998-2003	Tier 1			6.90				1997
	2004-2007	Tier 2	0.40	0.3996	5.20	5.60	3.70	0.30	2004
	2008-2011	Tier 3	0.20	0.1998	3.3	3.50	3.70	^c	2007
>100 to <175	1997-2002	Tier 1			6.90				1997
	2003-2006	Tier 2	0.40	0.3996	4.5	4.90	3.70	0.22	2003
	2007-2011	Tier 3	0.20	0.1998	2.8	3.00	3.70	^c	2007
>175 to <300	1996-2002	Tier 1	1.00	0.9990	6.90		8.50	0.40	1996
	2003-2005	Tier 2	0.40	0.3996	4.5	4.90	2.60	0.15	2003
	2006-2010	Tier 3	0.20	0.1998	2.8	3.00	2.60	^c	2006
>300 to <600	1996-2000	Tier 1	1.00	0.9990	6.90		8.50	0.40	1996
	2001-2005	Tier 2	0.30	0.2997	4.5	4.80	2.60	0.15	2001
	2006-2010	Tier 3	0.20	0.1998	2.8	3.00	2.60	^c	2006
>600 to 750	1996-2001	Tier 1	1.00	0.9990	6.90		8.50	0.40	1996
	2002-2005	Tier 2	0.30	0.2997	4.5	4.80	2.60	0.15	2002
	2006-2010	Tier 3	0.20	0.1998	2.8	3.00	2.60	^c	2006
>750 except generator sets	2000-2005	Tier 1	1.00	0.9990	6.90		8.50	0.40	2000
	2006-2010	Tier 2	0.30	0.2997	4.5	4.80	2.60	0.15	2006
Generator sets >750 to 1200	2000-2005	Tier 1	1.00	0.9990	6.90		8.50	0.40	2000
	2006-2010	Tier 2	0.30	0.2997	4.5	4.80	2.60	0.15	2006
Generator sets >1200	2000-2005	Tier 1	1.00	0.9990	6.90		8.50	0.40	2000
	2006-2010	Tier 2	0.30	0.2997	4.5	4.80	2.60	0.15	2006

Notes:

- ^a Nonroad CI Engine Emission Standards from Title 13, California Code of Regulations, Section 2423 (ARB Executive Order "Std").
- ^b VHC = Total Hydrocarbons (THC) minus methane and ethane fractions. Equivalent APCD standard. () See Conversion Factors to Hydrocarbon Emission Components, Report No. NR-002a, US EPA, 5/2003. (VHC = ROC)
- ^c Tier 3 PM standards have not yet been adopted. Tier 3 engines must meet the Tier 2 PM standard until the Tier 3 PM standard has been adopted.
- ^d Tier 2 and Tier 3 HC and NO_x equivalent standards used to determine the NMHC + NO_x standard. ()

**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 ¹ (g/hp-hr)	NMHC ¹ (g/hp-hr)	NOx + NMHC ¹ (g/hp-hr)	SOx ² (g/hp-hr)	Particulate Matter (PM) (g/hp-hr)	Notes
< 11 Hp < 8 kW	1 (60.4205)	Pre 2007 ³	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.
	2 (60.4202) - (89.112)	2007	6.0			5.6	0.93*	0.6	
	4 (60.4202)	2008 +	6.0			5.6	0.93*	0.3	
≥ 11 Hp < 25 Hp ≥ 8 kW < 19 kW	1 (60.4205)	Pre 2007 ³	4.9			7.1	0.93*	0.6	
	2 (60.4202) - (89.112)	2007	4.9			5.6	0.93*	0.6	
	4 (60.4202)	2008 +	4.9			5.6	0.93*	0.3	
≥ 25 Hp < 50 Hp ≥ 19 kW < 37 kW	1 (60.4205)	Pre 2007 ³	4.1			7.1	0.93*	0.6	
	2 (60.4202) - (89.112)	2007	4.1			5.6	0.93*	0.45	
	4 (60.4202)	2008 +	4.1			5.6	0.93*	0.22	
≥ 50 Hp < 100 Hp ≥ 37 kW < 75 kW	1 (60.4205)	Pre 2007 ³	3.03**	6.9	1.12**		0.93*	1.0**	** Use AP-42 Section 3.3 factors for CO, NMHC, and PM as shown on this table, or manufacturer's factors. Manufacturer's factors shall be used when larger than AP-42 factors.
	2 (60.4202) - (89.112)	2007	3.7			5.6	0.93*	0.3	
	3 (60.4202) - (89.112)	2008 +	3.7			3.5	0.93*	0.3	
≥ 100 Hp < 175 Hp ≥ 75 kW < 130 kW	1 (60.4205)	Pre 2007 ³	3.03**	6.9	1.12**		0.93*	1.0**	
	3 (60.4202) - (89.112)	2007 +	3.7			3.0	0.93*	0.22	
≥ 175 Hp ≤ 750 Hp	1 (60.4205)	Pre 2007 ³	8.5	6.9	1.0		0.93* for < 600Hp or 3.67* for > 600Hp	0.4	
≥ 130 kW ≤ 560 kW	3 (60.4202) - (89.112)	2007 +	2.6			3.0		0.15	
> 750 Hp > 560 kW	1 (60.4205)	Pre 2007 ³	8.5	6.9	1.0			0.4	
	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									

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

² 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.

³ 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).



**City of Albuquerque
Environmental Health Department
Air Quality Program**



**Construction Permit (20.11.41 NMAC)
Zoning Requirement Cover Letter**

This Cover Letter Must Be Returned With The Application Along With All Required Attachments

The Albuquerque-Bernalillo County Joint Air Quality Program, which administers and enforces local air quality laws for the City of Albuquerque ("City") and Bernalillo County ("County"), on behalf of the City Environmental Health Department ("Department").

Any person seeking a new air quality permit or a permit modification under 20.11.41 NMAC (Construction Permits) shall provide documentary proof that the proposed air quality permitted use of the facility's subject property is allowed by the zoning designation of the City or County zoning laws, as applicable. Sufficient documentation may include (i) a zoning certification from the City Planning Department or County Department of Planning and Development Services, as applicable, if the applicant is subject to City or County zoning jurisdiction; or (ii) a zoning verification from both planning departments if the applicant is not subject to City or County zoning jurisdiction. A zone atlas map shall not be sufficient. At this time, applicants are not required to submit documentation for the subject property's zoning designation when applying for an emergency permit, a new portable stationary source, a relocation of a portable stationary source, or a technical or administrative revision to an existing permit.

The Department will rule an application administratively incomplete if it is missing or has incorrect information. If the Department has ruled an application administratively incomplete three (3) times, the Department will deny the permit application. Any fees submitted for processing an application that has been denied will not be refunded. If the Department denies an application, a person may submit a new application and the fee required for a new application. The applicant has the burden of demonstrating that a permit should be issued.

The Department may require additional information that is necessary to make a thorough review of an application. At all times before the Department has made a final decision regarding the application, an applicant has a duty to promptly supplement and correct information the applicant has submitted in an application to the Department. The applicant's duty to supplement and correct the application includes, but is not limited to, relevant information acquired after the applicant has submitted the application and additional information the applicant otherwise determines is relevant to the application and the Department's review and decision. While the Department is processing an application, regardless of whether the Department has determined the application is administratively complete, if the Department determines that additional information is necessary to evaluate or make a final decision regarding the application, the Department may request additional information and the applicant shall provide the requested additional information.

NOTICE REGARDING SCOPE OF A PERMIT: The Department's issuance of an air quality permit only authorizes the use of the specified equipment pursuant to the air quality control laws, regulations and conditions. Permits relate to air quality control only and are issued for the sole purpose of regulating the emission of air contaminants from said equipment. Air quality permits are not a general authorization for the location, construction and/or operation of a facility, nor does a permit authorize any particular land use or other form of land entitlement. It is the applicant's/permittee's responsibility to obtain all other necessary permits from the appropriate agencies, such as the City Planning Department or County Department of Planning and Development Services, including but not limited to site plan approvals, building permits, fire department approvals and the like, as may be required by law for the location, construction and/or operation of a facility. For more information, please visit the City Planning Department website at <https://www.cabq.gov/planning> and the County Department of Planning and Development Services website at <https://www.bernco.gov/planning>.

Corporate and Facility Information: This information shall match the information in the permit application.

Air Quality Permit Applicant Company Name: United States Air Force, Kirtland Air Force Base			
Facility Name: Kirtland Air Force Base			
Facility Physical Address: 898th Munitions Squadron Building 27497, 7500 Prairie Road SE	City: Kirtland	State: NM	Zip: 87117-5270
Facility Legal Description: T9N R4E SEC 17			

General Operation Information: This information shall match the information in the permit application.

Permitting action being requested (please refer to the definitions in 20.11.41 NMAC):

- New Permit Permit Modification, Current Permit #:

Attachment Information: The location information provided to the City Planning Department or County Department of Planning and Development Services, as applicable, and reflected in the zoning certification or verifications, as applicable, shall be the same as the Facility location information provided to the Department in the air quality construction permit application.

<input checked="" type="checkbox"/> Zoning Certification Provided by: County Planning <i>This is a use-specific certification.</i> City Planning Form: https://www.cabq.gov/planning/code-enforcement-zoning County Planning Form: https://www.bernco.gov/planning/planning-and-land-use/applications-forms/	<input checked="" type="checkbox"/> City Zoning Verification <input checked="" type="checkbox"/> County Zoning Verification City Planning Form: https://www.cabq.gov/planning/code-enforcement-zoning County Planning Form: https://www.bernco.gov/planning/planning-and-land-use/applications-forms/
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BERNALILLO COUNTY

Planning & Development Services
111 Union Square SE, Suite 100
Albuquerque, NM 87102
(505) 314-0350 Fax: (505) 314-0480
www.bernco.gov



ZONING SECTION

REQUEST FOR STATEMENT OF ZONAL CERTIFICATION/ VERIFICATION (ZNP)

PROPERTY OWNER'S NAME	U.S. Air Force - Kirtland Air Force Base			PHONE	505-846-8546
OWNER'S ADDRESS	2050 Wyoming Blvd SE	CITY	Kirtland AFB	STATE NM	ZIP 87117-5663

APPLICANT'S NAME	Kirtland Air Force Base			PHONE	505-846-8546
APPLICANT'S ADDRESS	377 MSG/CEIE, 2050 Wyoming Blvd. SE Suite A-116B	CITY	Kirtland AFB	STATE NM	ZIP 87117 - 5270

SITE ADDRESS	898th Munitions Squadron Bldg 27497, 7500 Prairie Road, Kirtland Air Force Base, New Mexico, 87117				
DIRECTIONS	1 mile south east of SE Wyoming Boulevard to Pennsylvania Street SE for 2 miles, turn on access road continue south 1 mile, 0.75 miles west on access road to Building 27497				
LEGAL DESCRIPTION	T9N R4E SEC 17				
ZONE MAP	Q20	CURRENT ZONE(S)	Q20	PROPERTY SIZE IN ACREAGE	Building 27497 - appx 4700 square feet
UPC #	1-020-052				
EXISTING BUILDING & USE	Unplatted / Kirtland AFB - See Attachment for detailed view of site/zoning information				

STATEMENT INFORMATION:
(check one)

GENERAL VERIFICATION
No charge

USE-SPECIFIC CERTIFICATION
(please explain) \$45.00

STATEMENT SHOULD BE ADDRESSED TO:

NAME	Isreal Tavarez				
MAILING ADDRESS	377 MSG/CE Environmental, 2050 Wyoming Blvd. SE Suite A-116B	CITY	Kirtland AFB	STATE NM	ZIP 87117 - 5270

ALL CERTIFICATION/ VERIFICATION STATEMENTS WILL BE SENT BY MAIL UNLESS OTHERWISE NOTED:

___ Fax a copy to _____

___ Contact when completed; applicant will pick up certification statement

X E-Mail to Heidi.Rous@kimley-horn.com

Applicant's signature

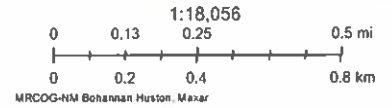
Date

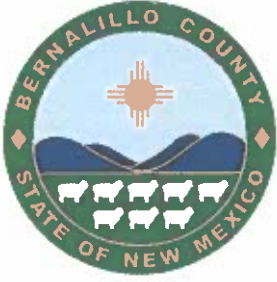
Bernalillo County Atlas - Address, History, Zone



3/10/2022, 10:43:14 AM

- Road Inventory Labels Abq Platted Parcels BC Boundary
- Abq Platted Easements BC Platted Parcels
- BC Platted Easements Zone Atlas Index





County of Bernalillo
State of New Mexico
Planning & Development Services Department
415 Silver Ave. SW, 2nd Floor
Albuquerque, New Mexico 87102
Office: (505) 314-0350 Fax: (505) 314-0480
www.bernco.gov

June 14, 2022

U.S. Dept. of Energy and U.S. Dept. of Defense, KAFB
PO Box 5800, MS 0730
Albuquerque, NM 87123

Re: Bernalillo County zoning regulations and federally owned parcels

To Whom It May Concern:

This letter shall certify that Bernalillo County zoning regulations are not applicable to U.S. Federal Government nor U.S. Federal Government entity owned properties. This includes properties located within the boundary of Kirtland Air Force Base. Bernalillo County is willing to assist federal entities with necessary permits, building permits for example, if approached by a federal entity.

This certification statement only references the applicability of the Zoning Ordinance as it applies to the aforementioned properties.

Do not hesitate to contact me if you have questions concerning this matter at 314-0388 or at nhamm@bernco.gov.

Sincerely,

Nicholas Hamm
Zoning Administrator

Cc: Paula Schuh; pschuh@sandia.gov

COMMISSIONERS

Adriann Barboa, Chair, District 3 *Walt Benson, Vice-Chair, District 4*
Debbie O'Malley, District 1 *Steven Michael Quezada, District 2* *Charlene E. Pyskopy, District 5*

ELECTED OFFICIALS

Tanya R. Giddings, Assessor *Linda Stover, Clerk* *Cristy J. Carbón-Gaul, Probate Judge* *Manuel Gonzales III, Sheriff* *Nancy M. Bearce, Treasurer*

COUNTY MANAGER

Julie Morgas Baca

From: [Delgado, Geraldine C.](#)
To: israel.tavarez@us.af.mil; [CUEVAS, ANDRIA R CIV USAF AFGSC 377 MSG/CFTEC](#)
Subject: [Non-DoD Source] 7500 Prairie Rd. Zone Certification
Date: Friday, June 17, 2022 1:23:17 PM
Attachments: [7500 Prairie Rd. - Zone Verification.pdf](#)

Hello,

The Zone Verification request was received in our office for 7500 Prairie on Kirkland Air Force Base. The City of ABQ does not have jurisdiction over Kirkland Air Force Base.

Thank you,



HOUSING CODE ENFORCEMENT
codeenforcement@cabq.gov

ZONING VERIFICATION REQUEST

OVERVIEW

HELPFUL HINTS

- Make sure the property is located within the Albuquerque city limits prior to requesting a verification statement.
- Provide the legal description of the property and/or the Uniform Property Code (UPC) number. This information helps staff to identify the property and expedite your request.
- Verification statements are processed in the order that they are received. Depending upon division workload and service demands, verification statements may take up to seven (7) days to complete.

For more information, contact:

City of Albuquerque
Planning Department

Phone: (505) 924-3450
(505) 924-3860

www.cabq.gov/planning



Code Compliance Manager:
Andrew Garcia

What is a zoning verification statement?

A zoning verification statement is written confirmation provided by the city to confirm the current zoning designation of a particular piece of property.

What type of information is provided in a zoning verification statement?

Verification statements contain the following information:

- The assigned address of the subject site
- The legal description of the property
- The zoning designation of the property
- The overlay district or sector plan affecting the property, if applicable

Zoning verification statements **DO NOT** include the following:

- Confirmation of the existing development's compliance with current zoning code requirements*, conformance/non-conformance of existing uses or structures, or reference to building or fire codes
- Copies of site plans, special exceptions, certificates or other approvals
- The zoning designations of abutting or nearby properties
- Reference to existing zoning code violations

*Written confirmation of a property's compliance with current zoning standards, reference to nonconformance/rebuild allowances, and/or types of permitted development on a property are provided through our ZONAL CERTIFICATION process.

How do I obtain a zoning verification statement?

Complete the form on the reverse side of this brochure and return it to:
City of Albuquerque - Code Enforcement Division
600 2nd St. NW, Suite 500
Albuquerque, New Mexico 87102
(505) 924-3847

THERE IS NO FEE FOR A ZONING VERIFICATION STATEMENT

SELF-HELP RESOURCES

- **Zoning Code.** If you would like to view and/or obtain copies of the Comprehensive City Zoning Code, please visit the following website:
 - o http://www.amlegal.com/albuquerque_nm/
- **Recorded Documents.** If you would like copies of official recorded documents such as site plans, special exceptions or certificates of occupancy, please make a Freedom of Information Act (FOIA) request to:
 - o cityclerk@cabq.gov
- **GIS Data.** If you would like mapping or geographic information, please visit the following website:
 - o www.cabq.gov/gis/advanced-map-viewer
- **Related City Agencies.** If you would like information on City of Albuquerque building codes, fire codes or other development standards, please visit the following website:
 - o www.cabq.gov

CITY OF ALBUQUERQUE - PLANNING DEPARTMENT
CODE ENFORCEMENT DIVISION

ZONING VERIFICATION REQUEST

DID YOU REMEMBER TO...

- Verify that the property is located within the city limits?
- Provide the legal description of the property and/or the Uniform Property Code (UPC) number?
- Submit your request at least seven (7) days before the verification statement is needed?



City of Albuquerque
PO Box 1293
Albuquerque, New Mexico 87103
www.cabq.gov

SUBJECT PROPERTY

7500 Prairie Road, Kirtland Air Force Base, New Mexico, 87117
ADDRESS

LOT BLOCK SUBDIVISION

1-020-052

UPC #

U.S. Air Force - Kirtland Air Force Base

OWNER OF RECORD

APPLICANT INFORMATION

Isreal Tavaréz

NAME

U.S. Air Force - Kirtland Air Force Base

COMPANY / ORGANIZATION

377 MSG/CE Environmental, 2050 Wyoming Blvd. SE Suite A-116B
ADDRESS

(505)-846-8546

PHONE

israel.tavaréz@us.af.mil

EMAIL

STATEMENT DETAILS

ADDRESS THE STATEMENT TO:

SAME AS APPLICANT

Andria Cuevas

NAME

U.S. Air Force - Kirtland Air Force Base

COMPANY / ORGANIZATION

377 MSG/CE Environmental, 2050 Wyoming Blvd. SE Suite A-116B
ADDRESS

(505)-846-8546

PHONE

FAX

andria.cuevas.1@us.af.mil

EMAIL

FOR STAFF USE ONLY

DATE RECEIVED: 6-17-22

RECEIVED BY: G Delgado

ZAP:

ZONE:



City of Albuquerque Environmental Health Department Air Quality Program



Construction Permit (20.11.41 NMAC) Application Checklist

This checklist must be returned with the application

Any person seeking a new air quality permit, a permit modification, or an emergency permit under 20.11.41 NMAC (Construction Permits) shall do so by filing a written application with the Albuquerque-Bernalillo County Joint Air Quality Program, which administers and enforces local air quality laws for the City of Albuquerque ("City") and Bernalillo County ("County"), on behalf of the City Environmental Health Department ("Department").

The Department will rule an application administratively incomplete if it is missing or has incorrect information. The Department may require additional information that is necessary to make a thorough review of an application, including but not limited to technical clarifications, emission calculations, emission factor usage, additional application review fees if any are required by 20.11.2 NMAC, and new or additional air dispersion modeling.

If the Department has ruled an application administratively incomplete three (3) times, the Department will deny the permit application. Any fees submitted for processing an application that has been denied will not be refunded. If the Department denies an application, a person may submit a new application and the fee required for a new application. The applicant has the burden of demonstrating that a permit should be issued.

The following are the minimum elements that shall be included in the permit application before the Department can determine whether an application is administratively complete and ready for technical review. It is not necessary to include an element if the Department has issued a written waiver regarding the element and the waiver accompanies the application. However, the Department shall not waive any federal requirements.

At all times before the Department has made a final decision regarding the application, an applicant has a duty to promptly supplement and correct information the applicant has submitted in an application to the Department. The applicant's duty to supplement and correct the application includes but is not limited to relevant information acquired after the applicant has submitted the application and additional information the applicant otherwise determines is relevant to the application and the Department's review and decision. While the Department is processing an application, regardless of whether the Department has determined the application is administratively complete, if the Department determines that additional information is necessary to evaluate or make a final decision regarding the application, the Department may request additional information and the applicant shall provide the requested additional information.

NOTICE REGARDING PERMIT APPEALS: A person who has applied for or has been issued an air quality permit by the Department shall be an obligatory party to a permit appeal filed pursuant to 20.11.81 NMAC.

NOTICE REGARDING SCOPE OF A PERMIT: The Department's issuance of an air quality permit only authorizes the use of the specified equipment pursuant to the air quality control laws, regulations and conditions. Permits relate to air quality control only and are issued for the sole purpose of regulating the emission of air contaminants from said equipment. Air quality permits are not a general authorization for the location, construction and/or operation of a facility, nor does a permit authorize any particular land use or other form of land entitlement. It is the applicant's/permittee's responsibility to obtain all other necessary permits from the appropriate agencies, such as the City Planning Department or County Department of Planning and Development Services, including but not limited to site plan approvals, building permits, fire department approvals and the like, as may be required by law for the location, construction and/or operation of a facility. For more information, please visit the City Planning Department website at <https://www.cabq.gov/planning> and the County Department of Planning and Development Services website at <https://www.bernco.gov/planning>.

The Applicant shall:

20.11.41.13(A) NMAC – Pre-Application Requirements:

Item	Completed	NA ¹	Waived ²
(1) Request a pre-application meeting with the Department using the pre-application meeting request form.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(2) Attend the pre-application meeting. Date of Pre-application meeting:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

1. *Not Applicable*

2. *It is not necessary to include an element if the Department has issued a written waiver regarding the element and the waiver accompanies the application. However, the Department shall not waive any federal requirements.*

20.11.41.13(B) NMAC – Applicant’s Public Notice Requirements:

Item	Included in Application	NA ¹	Waived ²
(1) Provide public notice in accordance with the regulation, including by certified mail or electronic copy 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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Contact list of representative(s) of neighborhood associations and recognized coalitions cannot be more than three months old from the application submittal date.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Provide notice using the Notice of Intent to Construct form.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) In accordance with the regulation, post and maintain in a visible location a weather proof sign provided by the Department.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. *Not Applicable; For emergency permits, the public notice requirements in 20.11.41.24 NMAC shall apply instead.*

2. *It is not necessary to include an element if the Department has issued a written waiver regarding the element and the waiver accompanies the application. However, the Department shall not waive any federal requirements.*

The Permit Application shall include:

20.11.41.13(E) NMAC – Application Contents

Item	Included In Application	NA ¹	Waived ²
(1) A complete permit application on the most recent form provided by the Department.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) The application form includes:			
a. The owner’s name, street and post office address, and contact information;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. The facility/ operator’s name, street address and mailing address, if different from the owner;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. The consultant’s name, and contact information, if applicable;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. All information requested on the application form is included (<i>i.e.</i> , the form is complete).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(3) Date application is submitted.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(4) Sufficient attachments for the following:			
a. Ambient impact analysis using an atmospheric dispersion model approved by the U.S. Environmental Protection Agency, and the Department to demonstrate compliance with the applicable ambient air quality standards. See 20.11.01 NMAC. If you are modifying an existing source, the modeling must include the	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Item	Included In Application	NA ¹	Waived ²
emissions of the entire source to demonstrate the impact the new or modified source(s) will have on existing plant emissions.			
b. The air dispersion model has been executed pursuant to a protocol that was approved in advance by the Department.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Air dispersion modeling approved protocol date:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Basis or source for each emission rate (including manufacturer's specification sheet, AP-42 section sheets, test data, or corresponding supporting documentation for any other source used).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. All calculations used to estimate potential emission rates and controlled/proposed emissions.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Basis for the estimated control efficiencies and sufficient engineering data for verification of the control equipment operation, including if necessary, design, drawing, test report and factors which affect the normal operation.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Fuel data for each existing and/or proposed piece of fuel burning equipment.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. Anticipated maximum production capacity of the entire facility and the requested production capacity after construction and/or modification.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i. Stack and exhaust gas parameters for all existing and proposed emission stacks.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(5) An operational and maintenance strategy detailing:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
a. steps the applicant will take if a malfunction occurs that may cause emission of a regulated air contaminant to exceed a limit that is included in the permit;	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. the nature of emission during routine startup or shutdown of the source and the source's air pollution control equipment; and	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. the steps the application will take to minimize emissions during routine startup or shutdown.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(6) A map, such as a 7.5'-topographic quadrangle map published by the U.S. Geological Survey or a map of equivalent or greater scale, detail, and precision, including a City or County zone atlas map that shows the proposed location of each process equipment unit involved in the proposed construction, modification, or operation of the source, as applicable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(7) 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 by the Department in writing.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(8) A complete description of all sources of regulated air contaminants and a process flow diagram depicting the process equipment unit or units at the facility, both existing and proposed, that are proposed to be involved in routine operations and from which regulated air contaminant emissions are expected to be emitted.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(9) A full description of air pollution control equipment, including all calculations and the basis for all control efficiencies presented, manufacturer's specifications sheets, and site layout and assembly drawings; UTM (universal transverse mercator) coordinates shall be used to identify the location of each emission unit.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(10) A description of the equipment or methods proposed by the applicant to be used for emission measurement.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(11) The maximum and normal operating time schedules of the source after completion of construction or modification, as applicable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(12) Any other relevant information as the Department may reasonably require, including without limitation:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. Applicants shall provide documentary proof that the proposed air quality permitted use of the facility's subject property is allowed by the zoning designation of the City or County zoning laws, as applicable. Sufficient documentation includes: (i) a zoning certification from the City Planning Department or County Department of Planning and Development Services, as applicable, if the property is subject to City or County zoning jurisdiction; or (ii) a zoning verification from both planning	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Item	Included In Application	NA ¹	Waived ²
departments if the property is not subject to City or County zoning jurisdiction. ³ A zone atlas map shall not be sufficient.			
(13) The signature of the applicant, operator, owner or an authorized representative, certifying to the accuracy of all information as represented in the application and attachments, if any.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(14) A check or money order for the appropriate application fee or fees required by 20.11.2 NMAC (Fees).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. *Not Applicable*
2. *It is not necessary to include an element if the Department has issued a written waiver regarding the element and the waiver accompanies the application. However, the Department shall not waive any federal requirements.*
3. *For emergency permit applications, applicants are not required to submit documentation for the subject property's zoning designation.*



City of Albuquerque

Environmental Health Department

Air Quality Program



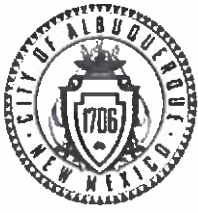
Permit Application Review Fee Instructions

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, 3rd 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, 2022 – December 31, 2022

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	U.S. Air Force - Kirtland Air Force Base		
Company Address	2050 Wyoming Blvd. SE Suite A-116B		
Facility Name	898th Munitions Squadron Bldg 27497		
Facility Address	7500 Prairie Road SE, Kirtland AFB, NM 87117		
Contact Person	Isreal Tavarez		
Contact Person Phone Number	505-846-8546		
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
Air Quality Notifications			
	AQN New Application	\$599.00	2801
	AQN Technical Amendment	\$327.00	2802
	AQN Transfer of a Prior Authorization	\$327.00	2803
X	<i>Not Applicable</i>	<i>See Sections Below</i>	
Stationary Source Review Fees (Not Based on Proposed Allowable Emission Rate)			
	Source Registration required by 20.11.40 NMAC	\$ 610.00	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	\$ 1,220.00	2301
X	<i>Not Applicable</i>	<i>See Sections Below</i>	
Stationary Source Review Fees (Based on the Proposed Allowable Emission Rate for the single highest fee pollutant)			
X	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	\$915	2302
	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	\$1,830	2303
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	\$3,661	2304
	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	\$5,491	2305
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	\$7,321	2306
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	\$9,152	2307
	<i>Not Applicable</i>	<i>See Section Above</i>	

Federal Program Review Fees (In addition to the Stationary Source Application Review Fees above)			
X	40 CFR 60 - "New Source Performance Standards" (NSPS)	\$1,220	2308
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	\$1,220	2309
	40 CFR 63 - (NESHAPs) Promulgated Standards	\$1,220	2310
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	\$12,202	2311
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	\$6,101	2312
	20.11.60 NMAC, Non-Attainment Area Permit	\$6,101	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
Modification Application Review Fees (Not Based on Proposed Allowable Emission Rate)			
	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	\$ 1,220	2321
X	<i>Not Applicable</i>	<i>See Sections Below</i>	
Modification Application Review Fees (Based on the Proposed Allowable Emission Rate for the single highest fee pollutant)			
	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	\$915	2322
	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	\$1,830	2323
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	\$3,661	2324
	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	\$5,491	2325
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	\$7,321	2326
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	\$9,152	2327
X	<i>Not Applicable</i>	<i>See Section Above</i>	
Major Modifications Review Fees (In addition to the Modification Application Review Fees above)			
	20.11.60 NMAC, Permitting in Non-Attainment Areas	\$6,101	2333
	20.11.61 NMAC, Prevention of Significant Deterioration	\$6,101	2334
X	<i>Not Applicable</i>	<i>Not Applicable</i>	
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)			
	40 CFR 60 - "New Source Performance Standards" (NSPS)	\$1,220	2328
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	\$1,220	2329
	40 CFR 63 - (NESHAPs) Promulgated Standards	\$1,220	2330
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	\$12,202	2331
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	\$6,101	2332
	20.11.60 NMAC, Non-Attainment Area Permit	\$6,101	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.

Section Totals	Review Fee Amount
Section II Total	\$ 2135
Section III Total	\$
Section IV Total	\$
Section V Total	\$
Total Application Review Fee	\$ 2135

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 13th day of June 2022

Jason F. Vattioni, Colonel, USAF

Commander, 377th Air Base Wing

Print Name

Print Title

VATTIONI.JASON.F.11
70028640

Digitally signed by
VATTIONI.JASON.F.1170028640
Date: 2022.06.13 21:13:49 -0600

Signature

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.



Timothy M. Keller,
Mayor

Public Participation

List of Neighborhood Associations and Neighborhood Coalitions MEMORANDUM

To: Andria Cuevas, Program Manager
From: Elizabeth Pomo, Senior Environmental Health Scientist
Subject: Determination of Neighborhood Associations and Coalitions
within 0.5 mile of Kirtland Air Force Base in Bernalillo County, NM
Date: June 21, 2022

DETERMINATION:

On June 21, 2022 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 mile of Kirtland Air Force Base in Bernalillo County, NM.

I then used the City of Albuquerque Office (COA) of Neighborhood Coordination's Monthly Master NA List dated June 2022 and the Bernalillo County (BC) Monthly Neighborhood Association June 2022 Excel file to determine the contact information for each NA and NC located within 0.5 mile of Kirtland Air Force Base in Bernalillo County, NM.

The table below contains the contact information, which will be used in the City of Albuquerque Environmental Health Department's public notice. Duplicates have been deleted.

COA/BC Association or Coalition	Name	Email or Mailing Address*
District 6 Coalition of Neighborhood Associations	Patricia Willson Mandy Warr	info@willsonstudio.com ; mandy@theremedypass.com ;
East Gateway Coalition	Michael Brasher Julie Dreike Association Email	brasher@aps.edu ; eastgatewaycoalition@gmail.com ; dreikeja@comcast.net ; eastgatewaycoalition@gmail.com ;
East Mountain District 5 Coalition	Lisa Davis Darci Roark Diane Donaghy Coalition Email	ldavis@eastmountaincoalition.org ; b.lisa.davis@gmail.com info@eastmountaincoalition.org ; darciroark@gmail.com jemcsa@nmia.com admin@eastmountaincoalition.org admin@eastmountaincoalition.org ;
Elder Homestead Neighborhood Association	M. Ryan Kious Sandra Perea Association Email	mrkious@aol.com ; sp-wonderwoman@comcast.net ; elderhomesteadna@gmail.com ;
Four Hills Village Association	Steve Brugge	sbrugge@gmail.com ;



Timothy M. Keller,
Mayor

Public Participation

List of Neighborhood Associations and Neighborhood Coalitions

MEMORANDUM

	Ellen Lipman Linda Martinez Andrew Lipman	elkaleyah@aol.com ; lam0426@msn.com ; fhvapres@gmail.com ;
Juan Tabo Hills Neighborhood Association	Ryan Giar Richard Lujan	ryangiar@gmail.com ; richtriple777@msn.com ;
La Mesa Community Improvement Association	Dayna Mares Idalia Lechuga-Tena Association Email	dayna.mares76@gmail.com ; idalialt@gmail.com ; lamesainternationaldistrict@gmail.com ;
Parkland Hills Neighborhood Association	Mary Darling Janet Simon Association Email	mldarling56@yahoo.com ; phnacommunications@gmail.com ; phnapresident@gmail.com ;
Siesta Hills Neighborhood Association	Rachel Baca Kathy Pierson	siesta2napres@gmail.com ; kp-shna@centurylink.net ;
South Los Altos Neighborhood Association	Jim Ahrend Stephen Martos-Ortiz Association Email	jimarend@gmail.com ; sdmartos91@gmail.com ; contact@slanm.org ;
South San Pedro Neighborhood Association	Khadijah Bottom Zabdiel Aldaz	khadijahasili@vizionz.org ; zabdiel505@gmail.com ;
Southeast Heights Neighborhood Association	Pete Belletto John Pate	pmbdoc@yahoo.com ; jpate@molzencorbin.com ;
Trumbull Village Association	Alyce Ice Joanne Landry	alyceice@gmail.com ; landry54@msn.com ;
Victory Hills Neighborhood Association	Melissa Williams Patricia Willson	mawsdf@comcast.net ; info@willsonstudio.com ;
Willow Wood Neighborhood Association	Pamela Meyer Samantha Martinez	pmeyer@sentrymgt.com ; samijoster@gmail.com ;
Yale Village Neighborhood Association	Donald Love Kim Love Association Email	donaldlove08@comcast.net ; klove726@gmail.com ; yalevillage@comcast.net ;

From: [CUEVAS, ANDRIA R CIV USAF AFGSC 377 MSG/CFTEC](#)
To: [377 MSG/CE Environmental Air Quality; info@willsonstudio.com; mandy@theremedaydayspa.com; brasher@aps.edu; eastgatewaycoalition@gmail.com; dreikeja@comcast.net; eastgatewaycoalition@gmail.com; ldavis@eastmountaincoalition.org; b.lisa.davis@gmail.com; info@eastmountaincoalition.org; darcroark@gmail.com; jemcsa@nmia.com; admin@eastmountaincoalition.org; admin@eastmountaincoalition.org; mrkious@aol.com; sp-wonderwoman@comcast.net; elderhomesteadna@gmail.com; sobruqqe@gmail.com; elkalevah@aol.com; lam0426@msn.com; fhvapres@gmail.com; ryanqjar@gmail.com; richtriple777@msn.com; dayna.mares76@gmail.com; idallait@gmail.com; jamesainternationaldistrict@gmail.com; mldarino56@yahoo.com; phnacommunications@gmail.com; phnapresident@gmail.com; siesta2napres@gmail.com; kp-shna@centurylink.net; jimahrend@gmail.com; sdmartos91@gmail.com; contact@slananm.org; khadijahasli@vizionz.org; zabdjel505@gmail.com; pmbdoc@yahoo.com; jpate@molzencorbin.com; alvceice@gmail.com; landry54@msn.com; mawsdf@comcast.net; info@willsonstudio.com; pmeyer@sentrymgt.com; samjoster@gmail.com; donaldlove98@comcast.net; klove726@gmail.com; yalevillage@comcast.net](#)
Cc: [377 ABW/PA Administrative Mailbox](#)
Subject: Public Notice of Proposed Air Quality Construction Permit Application-898 MUNS Emergency Generator
Date: Wednesday, June 22, 2022 7:30:00 AM
Attachments: [NOI-898 MUNS.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	Kirtland Air Force Base
Site or Facility Name	898 Munitions Squadron, Bldg 27497
Site or Facility Address	7500 Prairie Road, KAFB, NM 87117
New or Existing Source	New Emergency Back-up Generator
Anticipated Date of Application Submittal	30 June 2022
Summary of Proposed Source to Be Permitted	Kirtland AFB is submitting an application for a new 755 horsepower generator. The unit is only operating and available for operations when prime power to the building is down. Maintenance of the engine is conducted on a regular basis to ensure that it is operational in the event of a power outage during testing.

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:

- Kirtland Air Force Base Public Affairs Office
- 377ABW.PA@us.af.mil
- (505) 846-5991

For inquiries regarding the air quality permitting process, contact:

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

NOTICE FROM THE APPLICANT

Notice of Intent to Apply for Air Quality Construction Permit

You are receiving this notice because the New Mexico Air Quality Control Act (20.11.41.13B NMAC) requires any owner/operator proposing to construct or modify a facility subject to air quality regulations to provide public notice by certified mail or electronic mail to designated representatives of recognized neighborhood associations and coalitions within 0.5-mile of the property on which the source is or is proposed to be located.

This notice indicates that the owner/operator intends to apply for an Air Quality Construction Permit from the Albuquerque – Bernalillo County Joint Air Quality Program. Currently, no application for this proposed project has been submitted to the Air Quality Program. Applicants are required to include a copy of this form and documentation of mailed notices with their Air Quality Construction Permit Application.

Proposed Project Information

Applicant's name
and address:

*Nombre y domicilio del
solicitante:*

U.S. Air Force - Kirtland Air Force Base 2050 Wyoming Blvd. SE. Suite 116 Albuquerque, NM

Owner / operator's
name and address:

*Nombre y domicilio del
propietario u operador:*

Same as above

Contact for comments and inquires:

Datos actuales para comentarios y preguntas:

Name (*Nombre*): Isreal Tavarez

Address (*Domicilio*): 377 MSG/CE Environmental, 2050 Wyoming Blvd. SE Suite A-116B

Phone Number (*Número Telefónico*): (505) 846-8546

E-mail Address (*Correo Electrónico*): isreal.tavarez@us.af.mil

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

Fecha actual o estimada en que se entregará la solicitud al departamento: 6 June 2022

Description of the source:

Descripción de la fuente: A new genset including an emergency diesel engine and generator.

Exact location of the source
or proposed source:

*Ubicación exacta de la fuente o
fuente propuesta:*

898th Munitions Squadron Bldg 27497, 7500 Prairie Road, Kirtland Air Force Base, New Mexico, 87117

Nature of business:

Tipo de negocio: National Security

Process or change for which the
permit is requested:

*Proceso o cambio para el cuál de solicita el
permiso:*

Install a new 755 horsepower diesel engine/500 kW generator to provide emergency power.

Maximum operating schedule:

Horario máximo de operaciones: 24 hrs/day, 7 days/wk, 4 wks/mo, 12 mo/yr up to 200 hr/yr

Normal operating schedule:

Horario normal de operaciones: Intermittent

Notice of Intent to Apply for Air Quality Construction Permit
Updated February 2021

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</i> (para modificación de permiso o revisión técnica)	
	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	4.33	0.43		
NOx	7.59	0.76		
VOC	0.40	0.04		
SO2	6.11	0.61		
PM10	0.17	0.02		
PM2.5	0.17	0.02		
HAP	0.0021	0.00021		

Questions or comments regarding this Notice of Intent should be directed to the Applicant. Contact information is provided with the Proposed Project Information on the first page of this notice. To check the status of an Air Quality Construction Permit application, call 311 and provide the Applicant's information, or visit www.cabq.gov/airquality/air-quality-permits.

The Air Quality Program will issue a Public Notice announcing a 30-day public comment period on the permit application for the proposed project when the application is deemed complete. The Air Quality Program does not process or issue notices on applications that are deemed incomplete. More information about the air quality permitting process is attached to this notice.

Air Quality Construction Permitting Overview

This is the typical process to obtain an Air Quality Construction Permit for Synthetic Minor and Minor sources of air pollution from the Albuquerque – Bernalillo County Joint Air Quality Program.

Step 1: Pre-application Meeting: The Applicant and their consultant must request a meeting with the Air Quality Program to discuss the proposed action. If air dispersion modeling is required, Air Quality Program staff discuss the modeling protocol with the Applicant to ensure that all proposed emissions are considered.

Notice of Intent from the Applicant: Before submitting their application, the Applicant is required to notify all nearby neighborhood associations and interested parties that they intend to apply for an air quality permit or modify an existing permit. The Applicant is also required to post a notice sign at the facility location.

Step 2: Administrative Completeness Review and Preliminary Technical Review: The Air Quality Program has 30 days from the day the permit is received to review the permit application to be sure that it is administratively complete. This means that all application forms must be signed and filled out properly, and that all relevant technical information needed to evaluate any proposed impacts is included. If the application is not complete, the permit reviewer will return the application and request more information from the Applicant. Applicants have three opportunities to submit an administratively complete application with all relevant technical information.

Public Notice from the Department: When the application is deemed complete, the Department will issue a Public Notice announcing a 30-day public comment period on the permit application. This notice is distributed to the same nearby neighborhood associations and interested parties that the Applicant sent notices to, and published on the Air Quality Program's website.

During this 30-day comment period, individuals have the opportunity to submit written comments expressing their concerns or support for the proposed project, and/or to request a Public Information Hearing. If approved by the Environmental Health Department Director, Public Information Hearings are held after the technical analysis is complete and the permit has been drafted.

Step 3: Technical Analysis and Draft Permit: Air Quality Program staff review all elements of the proposed operation related to air quality, and review outputs from advanced air dispersion modeling software that considers existing emission levels in the area surrounding the proposed project, emission levels from the proposed project, and meteorological data. The total calculated level of emissions is compared to state and federal air quality standards and informs the decision on whether to approve or deny the Applicant's permit.

Draft Permit: The permit will establish emission limits, standards, monitoring, recordkeeping, and reporting requirements. The draft permit undergoes an internal peer review process to determine if the emissions were properly evaluated, permit limits are appropriate and enforceable, and the permit is clear, concise, and consistent.

Public Notice from the Department: When the technical analysis is complete and the permit has been drafted, the Department will issue a second Public Notice announcing a 30-day public comment period on the technical analysis and draft permit. This second Public Notice, along with the technical analysis documentation and draft permit, will be published on the Air Quality Program's website, and the public notice for availability of the technical analysis and draft permit will only be directly sent to those who requested further information during the first comment period.

Air Quality Construction Permitting Overview

During this second 30-day comment period, residents have another opportunity to submit written comments expressing their concerns or support for the proposed project, and/or to request a Public Information Hearing.

Possible Public Information Hearing: The Environmental Health Department Director may decide to hold a Public Information Hearing for a permit application if there is significant public interest and a significant air quality issue. If a Public Information Hearing is held, it will occur after the technical analysis is complete and the permit has been drafted.

Step 4: Public Comment Evaluation and Response: The Air Quality Program evaluates all public comments received during the two 30-day public comment periods and Public Information Hearing, if held, and updates the technical analysis and draft permit as appropriate. The Air Quality Program prepares a response document to address the public comments received, and when a final decision is made on the permit application, the comment response document is published on the Air Quality Program's website and distributed to the individuals who participated in the permit process. If no comments are received, a response document is not prepared.

Step 5: Final Decision on the Application: After public comments are addressed and the final technical review is completed, the Environmental Health Department makes a final decision on the application. If the permit application meets all applicable requirements set forth by the New Mexico Air Quality Control Act and the federal Clean Air Act, the permit is approved. If the permit application does not meet all applicable requirements, it is denied.

Notifications of the final decision on the permit application and the availability of the comment response document is published on the Air Quality Program's website and distributed to the individuals who participated in the permit process.

The Department must approve a permit application if the proposed action will meet all applicable requirements and if it demonstrates that it will not result in an exceedance of ambient air quality standards. Permit writers are very careful to ensure that estimated emissions have been appropriately identified or quantified and that the emission data used are acceptable.

The Department must deny a permit application if it is deemed incomplete three times, if the proposed action will not meet applicable requirements, if estimated emissions have not been appropriately identified or quantified, or if the emission data are not acceptable for technical reasons.

For more information about air quality permitting, visit www.cabq.gov/airquality/air-quality-permits



Proposed Air Quality Construction Permit

Permiso de Construcción de Calidad del Aire Propuesto



- Applicant's Name: U.S. AIR FORCE - KIRTLAND AIR FORCE BASE
Nombre del solicitante: U.S. AIR FORCE - KIRTLAND AIR FORCE BASE
- Owner or Operator's Name: SAME AS ABOVE
Nombre del Proprietario o Operador: SAME AS ABOVE
- Actual or Estimated Date the Application will be Submitted to the Department: 20 JULY 2022
Fecha Actual o Estimada en que se Entregará la Solicitud al Departamento: 20 JULY 2022
- Exact Location of the Source or Proposed Source: 800th MUNITIONS SQUARE BLDG 2747
Ubicación Exacta de la Fuente o Fuente Propuesta: 800th MUNITIONS SQUARE BLDG 2747
500 TORRE ROAD, KABA, NM 87117
- Description of the Source: NEW EMERGENCY BACK-UP GENERATOR
Descripción del Fuente: NEW EMERGENCY BACK-UP GENERATOR
- Nature of Business: NATIONAL SECURITY
Tipo de Negocio: NATIONAL SECURITY
- Process or change for which a permit is requested: INSTALL NEW 750KW / 500KW GENERATOR TO PROVIDE EMERGENCY BACKUP POWER
Proceso o cambio para el cual se solicita el permiso: INSTALL NEW 750KW / 500KW GENERATOR TO PROVIDE EMERGENCY BACKUP POWER

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	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	4.33	0.43	---	---
NOX	7.59	0.76	---	---
SO2	6.11	0.61	---	---
PM10	0.17	0.02	---	---
PM2.5	0.17	0.02	---	---
HAP	0.0021	0.0021	---	---

- Maximum Operating Schedule: NWS/DA9 7DMS/WK, 4 hrs/mo, 12 hrs/yr, up to 200hrs/yr
Horario Máximo de Operaciones: NWS/DA9 7DMS/WK, 4 hrs/mo, 12 hrs/yr, up to 200hrs/yr
- Normal Operation Schedule: INTERMITTENT
Horario Normal de Operaciones: INTERMITTENT

Current Contact Information for Comments and Inquiries
Datos actuales para Comentarios e Inquiries

Name (Name): KIRTLAND AIR FORCE BASE PUBLIC AFFAIRS OFFICE
Address (Direccion): 2000 WYOMING AVE SE, KABA, NM 87117
Phone Number (Número de Teléfono): (505) 844-5991
Email Address (Correo Electrónico): 317A@us.af.mil

Call 911 for additional information concerning this project, the Air Quality Program, or to file a complaint.
Llama al 911 para obtener información adicional sobre este proyecto, del Programa de Calidad del Aire, o para presentar una queja.
Chi 911 để biết thêm thông tin hoặc để báo cáo vi phạm môi trường.

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 fijas
(505) 768-1972, aq@ciab.gov

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

Permit
Permiso

FORCE BASE

MBER 2021

WASHINGTON RD, BLDG 600

STARFIRE OPTICAL

ALUMINUMIAL STACK TEST

ET APARTES TO FORMER

At the source emit

Net Change Emissions
Cambio Neto de Emisiones

Pounds per hour libras por hora	Tons per year toneladas por año
0	0
2.7	2.7
0.94	-0.94
0	0
0	0
2.21	2.21

R.M.O/W, up to 200 hr/yr

OFFICE

AF.MIL

Quality Program, or to file a complaint.
Programa de Calidad del Aire, o para presentar una queja.
Chi 911 để biết thêm thông tin hoặc để báo cáo vi phạm môi trường.

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 fijas
(505) 768-1972, aq@ciab.gov

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ESTE AVISO DEBERÁ DE MANTENERSE PUESTO HASTA QUE EL DEPARTAMENTO TOMA UNA DECISIÓN SOBRE LA SOLICITUD DE PERMISO

PTE Calculations for 20.11.41 NMAC Air Quality Permit Application For Emergency Diesel Engines - Building 27497 Kirtland Airforce Base Unit #19186

Section 4. Potential Emission Rate (Uncontrolled Emissions)								
Pollutant	*Emission Factors (g/Hp-hr)	Actual Engine HP	Emissions (g/hr)	g/lb	Emissions (lbs/hr)	Operating Hours/Year	Pounds Per Ton	Emissions (tons/year)
**CO	7.6	755	1963	453.56	4.33	8760	2000	18.96
**NOx	4.56	755	3443	453.56	7.59	8760	2000	33.24
**NMHC	0.24	755	181.2	453.56	0.40	8760	2000	1.75
**NOx + NMHC	4.8	755	3624	453.56	7.99	8760	2000	35.00
***SOx	1.47	755	2771	453.56	6.11	8760	2000	26.76
*PM	0.1	755	75.5	453.56	0.17	8760	2000	0.73

Section 5. Potential to Emit (Requested Allowable Rate) (Controlled Emissions)								
Pollutant	*Emission Factors (g/Hp-hr)	Actual Engine HP	Emissions (g/hr)	g/lb	Emissions (lbs/hr)	Operating Hours/Year	Pounds Per Ton	Emissions (tons/year)
**CO	7.6	755	1963	453.56	4.33	200	2000	0.43
**NOx	4.56	755	3443	453.56	7.59	200	2000	0.76
**NMHC	0.24	755	181.2	453.56	0.40	200	2000	0.04
**NOx + NMHC	4.8	755	3624	453.56	7.99	200	2000	0.80
***SOx	1.47	755	2771	453.56	6.11	200	2000	0.61
*PM	0.1	755	75.5	453.56	0.17	200	2000	0.02

Notes:
 * Emission Factor from Manufacturers Specification Sheet
 ** Emission Factor from U.S. EPA's Tier 2 HC and NOx equivalent standards for diesel generators with ≥ 750 horsepower
 *** Emission Factor from U.S. EPA's Compilation of Air Pollutant Emissions Factors (AP-42) Section 3.4

U.S. EPA's AP-42 Hazardous Air Pollutants (HAP's)***	Emission Factors (lb/MMBtu)	Total HAPs (lb/hr)	Total HAPs (ton/yr)
Benzene	7.76E-04	3.93E-04	3.93E-05
Toluene	2.81E-04	1.42E-04	1.42E-05
Xylenes	1.93E-04	9.77E-05	9.77E-06
Propylene	2.79E-03	1.41E-03	1.41E-04
Formaldehyde	7.89E-05	3.99E-05	3.99E-06
Acetaldehyde	2.52E-05	1.28E-05	1.28E-06
Acrolein	7.88E-06	3.99E-06	3.99E-07
Total HAP's		2.10188E-03	2.10188E-04

Manufacturer Genset Specs	
Power Rating (kW)	500
Hp	755
BHP	755
MMBtu/hr	0.506
Estimated Run Time (hrs)	200



Kirtland AFB Bldg 27497

Cummins DFEK 500kW Generator

1. Bill of Material
2. Generator Set Information
3. Generator Warranty
4. Generator Outline & Foundation Drawings

Cummins Project Contact:

Cory Van Britson - Project Manager

2247 Cassens Drive
Fenton, MO 63026

314-281-6717 cell
636-660-7714 office

cory.van.britson@cummins.com

October 15, 2021

Bill of Material

Feature Code	Description	Qty
A034E948	Vibration Isolator, Seismic-2000lbs, 1.11" Deflection, 1802lbs/in Spring Rate	6
DFEK Install-US-Stat 500DFEK A331-2 L170-2 0220 C127-2 H679-2 H703-2 H678-2 K631-2 KU32-2 H536-2 KU94-2 3250 KC62-2 L228-2 3251 KB70-2 0170 A298-2 D041-2 E082-2 H389-2 H556-2 R002-2 L026-2 L028-2 B258-2 L050-2 A358-2 0380 0400	DFEK Commercial Diesel Generator Set, 500kW Standby 60Hz U.S. EPA, Stationary Emergency Application 500DFEK, Diesel Genset, 60Hz, 500kW-Standby Rating Duty Rating-Standby Power (ESP) Emission Certification, EPA, Tier 2, NSPS CI Stationary Emergency None Standards & Compliance Fuel Water Separator Control Mounting-Front Facing PowerCommand 2.3 Controller LCD Control Display Relays-Genset Status, User Configured Relay-Alarm Shutdown Control Display Language-English Circuit Breaker or Entrance Box or Terminal Box-Right Only Circuit Breaker or Terminal Box, Left-None Circuit Breaker-800A, Right Circuit Breaker on Right side, 3-Pole, UL 600, IEC 690 100% Cert-Seismic, IBC2000, IBC2003, IBC2006, IBC2009, IBC2011 CB or EB or TB-None Top Entry, Right None-Vibration Isolators-Normal Duty Exhaust Connector-Slip On Engine Air Cleaner-Normal Duty Engine Cooling-Radiator, 40C Ambient Shutdown-Low Coolant Level Coolant Heater-208/240/480 Volts AC, 40F Minimum Ambient Temperature Voltage-277/480, 3 Phase, Wye, 4 Wire Cummins Certified Test Record Genset Warranty-2 Years Base Alternator-60Hz, 12 Lead, Extended Range, 125/105C Literature-English Packing-None Housing-None Enclosure Paint-None	1
NSBOP34	E & CA - 150 gallon day tank with pumps & controls	1
NSBOP17	(2) 8D Battery	1
NSBOP26	Freight to jobsite; Offloading by others	1
NSBOP22	Service - Startup & 4 hour load bank testing	1

NOTES:

Proposal is for equipment only, offloading, rigging, and installation by others.
 Fuel and permits, unless listed above, is not included.
 Cummins Standard Start-up and testing is included. Additional tests, such as NETA testing, if required, is by others
 Coordination Study not provided.



Diesel generator set QSX15 series engine

450 kW – 500 kW Standby



Description

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

Features

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

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

Permanent Magnet Generator (PMG) - Offers enhanced motor starting and fault clearing short-circuit capability.

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

Cooling system - Standard integral set-mounted radiator system, designed and tested for rated ambient temperatures, simplifies facility design requirements for rejected heat.

Enclosures - Optional weather protective and sound attenuated enclosures are available.

Fuel tanks - Dual wall sub-base fuel tanks are also available.

NFPA - The genset 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.

	Standby rating	Prime rating	Continuous rating	Data sheets
Model	60 Hz kW (kVA)	60 Hz kW (kVA)	60 Hz kW (kVA)	60 Hz
DFEJ	450 (563)	410 (513)		D-3400
DFEK	500 (625)	455 (569)		D-3401

Generator set specifications

Governor regulation class	ISO 8528 part 1 Class G3
Voltage regulation, no load to full load	± 0.5%
Random voltage variation	± 0.5%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
EMS compatibility	IEC 61000-4-2: Level 4 Electrostatic discharge IEC 61000-4-3: Level 3 Radiated susceptibility

Engine specifications

Design	Turbocharged with air-to-air charge air-cooling
Bore	136.9 mm (5.39 in.)
Stroke	168.9 mm (6.65 in.)
Displacement	14.9 L (912.0 in ³)
Cylinder block	Cast iron with replaceable wet liners, in-line 6 cylinder
Battery capacity	1400 Amps minimum at ambient temperature 0 °C (32 °F)
Battery charging alternator	35 Amps
Starting voltage	24 volt, negative ground
Fuel system	Full authority electronic (FAE) Cummins HPI-TP
Fuel filter	
Air cleaner type	
Lube oil filter type(s)	Single spin-on combination full flow and bypass filters
Standard cooling system	40 °C (104 °F) ambient radiator

Alternator specifications

Design	Brushless, 4 pole, drip-proof revolving field
Stator	2/3 pitch
Rotor	Single bearing, flexible discs
Insulation system	Class H
Standard temperature rise	125 °C standby at 40 °C ambient
Exciter type	PMG (Permanent Magnet Generator)
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan
AC waveform total harmonic distortion (THDV)	< 5% no load to full linear load, < 3% for any single harmonic
Telephone influence factor (TIF)	< 50% per NEMA MG1-22.43
Telephone harmonic factor (THF)	< 3%

Available voltages

60 Hz Line – Neutral/Line - Line

• 110/190	• 110/220	• 115/200	• 115/230
• 120/208	• 127/220	• 139/240	• 220/380
• 230/400	• 240/416	• 255/440	• 277/480
• 347/600			

Note: Consult factory for other voltages.

Generator set options

Engine

- 208/240/480 V thermostatically controlled coolant heater for ambient above 4.5 °C (40°F)
- 208/240/480 V thermostatically controlled coolant heater for ambient below 4.5 °C (40°F)
- 120 V 300 W lube oil heater
- Heavy duty air cleaner with safety element

Alternator

- 80 °C rise
- 105 °C rise
- 150 °C rise
- 120/240 V 200 W anti-condensation heater

Exhaust system

- Critical grade exhaust silencer
- Exhaust packages
- Industrial grade exhaust silencer
- Residential grade exhaust silencer

Fuel system

- 1022 L (270 gal) sub-base tank
- 1136 L (300 gal) sub-base tank
- 1514 L (400 gal) sub-base tank
- 1893 L (500 gal) sub-base tank
- 2271 L (600 gal) sub-base tank
- 2498 L (660 gal) sub-base tank
- 3218 L (850 gal) sub-base tank
- 6435 L (1700 gal) sub-base tank
- 9558 L (2525 gal) sub-base tank

Cooling system

- High ambient 50 °C radiator

Control panel

- PC 3.3
- PC 3.3 with MLD
- 120/240 V 100 W control anti-condensation heater
- Ground fault indication
- Remote fault signal package
- Run relay package

Generator set

- AC entrance box
- Battery
- Battery charger
- Export box packaging
- UL 2200 Listed
- Main line circuit breaker
- Paralleling accessories
- Remote annunciator panel
- Spring isolators
- Enclosure: aluminium, steel, weather protective or sound attenuated
- 2 year standby power warranty
- 2 year prime power warranty
- 5 year basic power warranty
- 10 year major components warranty

*Note: Some options may not be available on all models - consult factory for availability.

Control system 2.3

The PowerCommand 2.3 control system - An integrated generator set control system providing voltage regulation, engine protection, generator protection, operator interface and isochronous governing (optional).

Control - Provides battery monitoring and testing features and smart-starting control system.

InPower™ - PC-based service tool available for detailed diagnostics.

PCCNet RS485 - Network interface (standard) to devices such as remote annunciator for NFPA 110 applications.

Control boards - Potted for environmental protection.

Ambient operation - Suitable for operation in ambient temperatures from -40 °C to +70 °C and altitudes to 13,000 feet (5000 meters). Prototype tested - UL, CSA and CE compliant.

AC protection

- AmpSentry protective relay
- Over current warning and shutdown
- Over and under voltage shutdown
- Over and under frequency shutdown
- Over excitation (loss of sensing) fault
- Field overload
- Overload warning
- Reverse kW shutdown
- Reverse Var shutdown
- Short circuit protection

Engine protection

- Overspeed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown
- Low coolant temperature warning

- High, low and weak battery voltage warning
- Fail to start (overcrank) shutdown
- Fail to crank shutdown
- Redundant start disconnect
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown
- Fuel-in-rupture-basin warning or shutdown

Operator/display panel

- Manual off switch
- 128 x 128 Alpha-numeric display with push button access for viewing engine and alternator data and providing setup, controls and adjustments (English or international symbols)
- LED lamps indicating genset running, not in auto, common warning, common shutdown, manual run mode and remote start
- Suitable for operation in ambient temperatures from -20 °C to +70 °C

Alternator data

- Line-to-Neutral AC volts
- Line-to-Line AC volts
- 3-phase AC current
- Frequency
- kVA, kW, power factor

Engine data

- DC voltage
- Lube oil pressure
- Coolant temperature

Control functions

- Time delay start and cool down
- Glow plug control (some models)
- Cycle cranking
- PCCNet interface
- (4) Configurable inputs
- (4) Configurable outputs
- Remote emergency stop
- Battle short mode
- Load shed
- Real time clock with exerciser
- Derate

Digital governing (optional)

- Integrated digital electronic isochronous governor
- Temperature dynamic governing

Digital voltage regulation

- Integrated digital electronic voltage regulator
- 3-phase Line-to-Line sensing
- Configurable torque matching
- Fault current regulation under single or three phase fault conditions

Other data

- Genset model data
- Start attempts, starts, running hours
- Fault history
- RS485 Modbus® interface
- Data logging and fault simulation (requires InPower service tool)
- Total kilowatt hours
- Load profile

Options

- Auxiliary output relays (2)
- 120/240 V, 100 W anti-condensation heater
- Remote annunciator with (3) configurable inputs and (4) configurable outputs
- PMG alternator excitation
- PowerCommand for Windows® remote monitoring software (direct connect)
- AC output analogue meters
- PowerCommand 2.3 and 3.3 control with AmpSentry protection

For further detail on PC 2.3 see document S-1569.

For further detail on PC 3.3 see document S-1570.

Emergency Standby Power (ESP):

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.

Limited-Time running Power (LTP):

Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

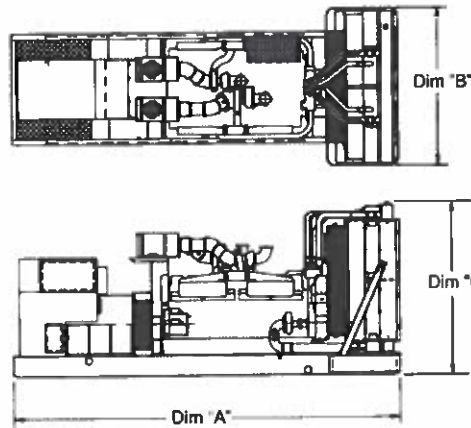
Prime Power (PRP):

Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Base Load (Continuous) Power (COP):

Applicable for supplying power continuously to a constant electrical load for unlimited hours.

Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.



This outline drawing is for reference only. See respective model data sheet for specific model outline drawing number.





Do not use for installation design

Model	Dim 'A' mm (in.)	Dim 'B' mm (in.)	Dim 'C' mm (in.)	Set weight dry* kg (lbs)	Set weight wet* kg (lbs)
DFEJ	3864 (152.1)	1524 (60.0)	1812 (71.3)	4098 (9035)	4234 (9335)
DFEK	3864 (152.1)	1524 (60.0)	1812 (71.3)	4325 (9535)	4461 (9835)

*Weights represent a set with standard features. See outline drawings for weights of other configurations.

Codes and standards

Codes or standards compliance may not be available with all model configurations – consult factory for availability.

	<p>This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.</p>		<p>The generator set is available listed to UL 2200, Stationary Engine Generator Assemblies for all 60 Hz low voltage models. The PowerCommand control is Listed to UL 508 - Category NITW7 for U.S. and Canadian usage. Circuit breaker assemblies are UL 489 Listed for 100% continuous operation and also UL 869A Listed Service Equipment.</p>
	<p>The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Cummins products bearing the PTS symbol meet the prototype test requirements of NFPA 110 for Level 1 systems.</p>	<p>U.S EPA</p>	<p>Engine certified to Stationary Emergency U.S. EPA New Source Performance Standards, 40 CFR 60 subpart IIII Tier 2 exhaust emission levels. U.S. applications must be applied per this EPA regulation.</p>
	<p>All low voltage models are CSA certified to product class 4215-01.</p>	<p>International Building Code</p>	<p>The generator set package is available certified for seismic application in accordance with the following International Building Code: IBC2000, IBC2003, IBC2006, IBC2009 and IBC2012.</p>

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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Generator set data sheet



Model: DFEK
Frequency: 60 Hz
Fuel type: Diesel
kW rating: 500 Standby
 455 Prime
Emissions level: EPA NSPS Stationary Emergency Tier 2

Exhaust emission data sheet:	EDS-173
Exhaust emission compliance sheet:	EPA-1005
Sound performance data sheet:	MSP-177
Cooling performance data sheet:	MCP-105
Prototype test summary data sheet:	PTS-145
Standard set-mounted radiator cooling outline:	0500-3326
Optional set-mounted radiator cooling outline:	
Optional heat exchanger cooling outline:	
Optional remote radiator cooling outline:	

Fuel consumption	Standby				Prime				Continuous
	kW (kVA)				kW (kVA)				kW (kVA)
Ratings	500 (625)				455 (569)				
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full	Full
US gph	11.6	18.8	25.7	34.4	10.9	17.6	23.7	30.4	
L/hr	44	71	97	130	41	67	90	115	

Engine	Standby rating	Prime rating	Continuous rating
Engine manufacturer	Cummins Inc.		
Engine model	QSX15-G9		
Configuration	Cast iron with replaceable wet cylinder liners, in-line 6 cylinder		
Aspiration	Turbocharged with air-to-air charge air-cooling		
Gross engine power output, kWm (bhp)	563.0 (755.0)	507.3 (680.0)	
BMEP at set rated load, kPa (psi)	2433.9 (353.0)	2213.2 (321.0)	
Bore, mm (in.)	136.9 (5.39)		
Stroke, mm (in.)	168.9 (6.65)		
Rated speed, rpm	1800		
Piston speed, m/s (ft/min)	10.1 (1995.0)		
Compression ratio	17.0:1		
Lube oil capacity, L (qt)	83.3 (88.0)		
Overspeed limit, rpm	2150 ± 50		
Regenerative power, kW	52.00		

Fuel flow

	Standby rating	Prime rating	Continuous rating
Maximum fuel flow, L/hr (US gph)	423.9 (112.0)		
Maximum inlet restriction, mm Hg (in Hg)	127.0 (5.0)		
Maximum return restriction, mm Hg (in Hg)	165.1 (6.5)		

Air

Combustion air, m ³ /min (scfm)	41.6 (1470.0)	38.8 (1370.0)	
Maximum air cleaner restriction, kPa (in H ₂ O)	6.2 (25.0)		
Alternator cooling air, m ³ /min (scfm)	62.0 (1290.0)		

Exhaust

Exhaust flow at set rated load, m ³ /min (cfm)	102.6 (3625.0)	88.7 (3135.0)	
Exhaust temperature, °C (°F)	482.8 (901.0)	466.7 (872.0)	
Maximum back pressure, kPa (in H ₂ O)	10.2 (41.0)		

Standard set-mounted radiator cooling

Ambient design, °C (°F)	40 (104)		
Fan load, kW _m (HP)	19 (25.5)		
Coolant capacity (with radiator), L (US gal)	57.9 (15.3)		
Cooling system air flow, m ³ /min (scfm)	707.5 (25000.0)		
Total heat rejection, MJ/min (Btu/min)	19.6 (18485.0)	17.7 (16680.0)	
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.12 (0.5)		

Optional set-mounted radiator cooling

Ambient design, °C (°F)	50 (122)		
Fan load, kW _m (HP)	19 (25.5)		
Coolant capacity (with radiator), L (US gal)	57.9 (15.3)		
Cooling system air flow, m ³ /min (scfm)	707.5 (25000.0)		
Total heat rejection, MJ/min (Btu/min)	19.6 (18485.0)	17.7 (16680.0)	
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.12 (0.5)		

Optional heat exchanger cooling

Set coolant capacity, L (US Gal.)			
Heat rejected, jacket water circuit, MJ/min (Btu/min)			
Heat rejected, after-cooler circuit, MJ/min (Btu/min)			
Heat rejected, fuel circuit, MJ/min (Btu/min)			
Total heat radiated room, MJ/min (Btu/min)			
Maximum raw water pressure, jacket water circuit, kPa (psi)			
Maximum raw water pressure, after-cooler circuit, kPa (psi)			
Maximum raw water pressure, fuel circuit, kPa (psi)			
Maximum raw water flow, jacket water circuit, L/min (US gal/min)			
Maximum raw water flow, after-cooler circuit, L/min (US gal/min)			
Maximum raw water flow, fuel circuit, L/min (US gal/min)			
Minimum raw water flow at 27 °C (80 °F) inlet temp, jacket water circuit, L/min (US gal/min)			
Minimum raw water flow at 27 °C (80 °F) inlet temp, after-cooler circuit, L/min (US gal/min)			
Minimum raw water flow at 27 °C (80 °F) inlet temp, fuel circuit, L/min (US gal/min)			

Optional heat exchanger cooling (continued)

Raw water delta P at min flow, jacket water circuit, kPa (psi)			
Raw water delta P at min flow, after-cooler circuit, kPa (psi)			
Raw water delta P at min flow, fuel circuit, kPa (psi)			
Maximum jacket water outlet temp, °C (°F)			
Maximum after-cooler inlet temp, °C (°F)			
Maximum after-cooler inlet temp at 25 °C (77 °F) ambient, °C (°F)			

Optional remote radiator cooling¹

Set coolant capacity, L (US gal)	
Max flow rate at max friction head, jacket water circuit, L/min (US gal/min)	
Max flow rate at max friction head, after-cooler circuit, L/min (US gal/min)	
Heat rejected, jacket water circuit, MJ/min (Btu/min)	
Heat rejected, after-cooler circuit, MJ/min (Btu/min)	
Heat rejected, fuel circuit, MJ/min	
Total heat radiated to room, MJ/min (Btu/min)	
Maximum friction head, jacket water circuit, kPa (psi)	
Maximum friction head, after-cooler circuit, kPa (psi)	
Maximum static head, jacket water circuit, m (ft)	
Maximum static head, after-cooler circuit, m (ft)	
Maximum jacket water outlet temp, °C (°F)	
Maximum after-cooler inlet temp at 25 °C (77 °F) ambient, °C (°F)	
Maximum after-cooler inlet temp, °C (°F)	
Maximum fuel flow, L/hr (US gph)	
Maximum fuel return line restriction, kPa (in Hg)	

Weights²

Unit dry weight kgs (lbs)	4325 (9535)
Unit wet weight kgs (lbs)	4461 (9835)

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	<p>Genset may be operated at up to 1400 m (4593 ft) and 40°C (104°F) without power deration. For sustained operation above these conditions, derate by 3.1% per 305 m (1000 ft), and 9% per 10°C (9% per 18°F).</p> <p>Genset may be operated at up to 500 m (1640 ft) and 50°C (122°F) without power deration. For sustained operation above these conditions, derate by 3% per 305 m (1000 ft), and 9.5% per 10°C (9% per 18°F).</p>
Prime	<p>Genset may be operated at up to 2250 m (7382 ft) and 40°C (104°F) without power deration. For sustained operation above these conditions, derate by 3.2% per 305 m (1000 ft), and 16.6% per 10°C (16.6% per 18°F).</p> <p>Genset may be operated at up to 1600 m (5249 ft) and 50°C (122°F) without power deration. For sustained operation above these conditions, derate by 3.2% per 305 m (1000 ft), and 16.6% per 10°C (16.6% per 18°F).</p>
Continuous	

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

Three phase table ¹	105 °C	105 °C	105 °C	125 °C	125 °C	125 °C	125 °C	125 °C	150 °C	150 °C	150 °C	150 °C
Feature code	B262	B301	B252	B258	B252	B414	B246	B300	B426	B413	B424	B419
Alternator data sheet number	308	307	307	308	307	308	306	306	307	307	305	306
Voltage ranges	110/190 thru 139/240 220/380 thru 277/480	347/600	120/208 thru 139/240 240/416 thru 277/480	110/190 thru 139/240 220/380 thru 277/480	120/208 thru 139/240 240/416 thru 277/480	120/208 thru 139/240 240/416 thru 277/480	277/480	347/600	110/190 thru 139/240 220/380 thru 277/480	120/208 thru 139/240 240/416 thru 277/480	277/480	347/600
Surge kW	514	517	514	514	514	516	515	515	512	514	512	515
Motor starting kVA (at 90% sustained voltage)	Shunt											
	PMG	2429	2208	2208	2429	2208	2429	1896	1896	2208	2208	1749
Full load current - amps at Standby rating	<u>110/190</u> 1901	<u>120/208</u> 1737	<u>110/220</u> 1642	<u>115/230</u> 1571	<u>139/240</u> 1505	<u>220/380</u> 951	<u>230/400</u> 903	<u>240/416</u> 868	<u>255/440</u> 821	<u>277/480</u> 753	<u>347/600</u> 602	

Note:

¹ Single phase power can be taken from a three phase generator set at up to 40% of the generator set nameplate kW rating at unity power factor.

Formulas for calculating full load currents:

Three phase output

Single phase output

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

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

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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PowerCommand® 2.3 Control System



Control System Description

The PowerCommand control system is a microprocessor-based generator set monitoring, metering and control system designed to meet the demands of today's engine driven generator sets. The integration of all control functions into a single control system provides enhanced reliability and performance, compared to conventional generator set control systems. These control systems have been designed and tested to meet the harsh environment in which gensets are typically applied.

Features

- 320 x 240 pixels graphic LED backlight LCD.
- Multiple language support.
- AmpSentry™ protective relay - true alternator overcurrent protection.
- Real time clock for fault and event time stamping.
- Exerciser clock and time of day start/stop.
- Digital voltage regulation. Three phase full wave FET type regulator compatible with either shunt or PMG systems.
- Generator set monitoring and protection.
- 12 and 24 VDC battery operation.
- Modbus® interface for interconnecting to customer equipment.
- Warranty and service. Backed by a comprehensive warranty and worldwide distributor service network.
- Certifications - suitable for use on generator sets that are designed, manufactured, tested and certified to relevant UL, NFPA, ISO, IEC, Mil Std., CE and CSA standards.

PowerCommand Digital Genset Control PCC 2300



Description

The PowerCommand generator set control is suitable for use on a wide range of generator sets in non-parallel applications. The PowerCommand control is compatible with shunt or PMG excitation style. It is suitable for use with reconnectable or non-reconnectable generators, and it can be configured for any frequency, voltage and power connection from 120-600 VAC Line-to-Line.

Power for this control system is derived from the generator set starting batteries. The control functions over a voltage range from 8 VDC to 30 VDC.

Features

- 12 and 24 VDC battery operation.
- Digital voltage regulation - Three phase full wave FET type regulator compatible with either shunt or PMG systems. Sensing is three phase.
- Full authority engine communications (where applicable) - Provides communication and control with the Engine
- due to thermal Control Module (ECM).
- AmpSentry™ protection provides industry-leading alternator overcurrent protection:
 - Time-based generator protection applicable to both line-to-line and line-to-neutral, that can detect an unbalanced fault condition and swiftly react appropriately. Balanced faults can also be detected by AmpSentry and appropriate acted upon.
- Reduces the risk of Arc Flash overload or electrical faults by inverse time protection
- Common harnessing - with higher feature Cummins controls. Allows for easy field upgrades.
- Generator set monitoring - Monitors status of all critical engine and alternator functions.
- Digital genset metering (AC and DC).
- Genset battery monitoring system to sense and warn against a weak battery condition.
- Configurable for single or three phase AC metering.
- Engine starting - Includes relay drivers for starter, Fuel Shut Off (FSO), glow plug/spark ignition power and switch B+ applications.
- Generator set protection – Protects engine and alternator.
- Real time clock for fault and event time stamping.
- Exerciser clock and time of day start/stop.
- Advanced serviceability - using InPower™, a PC-based software service tool.

- Environmental protection - The control system is designed for reliable operation in harsh environments. The main control board is a fully encapsulated module that is protected from the elements.
- Modbus interface for interconnecting to customer equipment.
- Configurable inputs and outputs - Four discrete inputs and four dry contact relay outputs.
- Warranty and service - Backed by a comprehensive warranty and worldwide distributor service network.
- Certifications - Suitable for use on generator sets that are designed, manufactured, tested and certified to relevant UL, NFPA, ISO, IEC, Mil Std., CE and CSA standards.

Base Control Functions

HMI Capability

Operator adjustments - The HMI includes provisions for many set up and adjustment functions.

Generator set hardware data - Access to the control and software part number, generator set rating in kVA and generator set model number is provided from the HMI or InPower.

Data logs - Includes engine run time, controller on time, number of start attempts, total kWh, and load profile (control logs data indicating the operating hours at percent of rated kW load, in 5% increments. The data is presented on the operation panel based on total operating hours on the generator.)

Fault history - Provides a record of the most recent fault conditions with control date and time stamp. Up to 32 events are stored in the control non-volatile memory.

Alternator data

- Voltage (single or three phase Line-to-Line and Line-to-Neutral)
- Current (single or three phase)
- kW, kVar, power factor, kVA (three phase and total)
- Frequency

AmpSentry: 3x current regulation for downstream tripping/motor inrush management. Thermal damage curve (3-phase short) or fixed timer (2 sec for 1- Phase Short or 5 sec for 2-Phase short).

Engine data

- Starting battery voltage
- Engine speed
- Engine temperature
- Engine oil pressure
- Engine oil temperature
- Intake manifold temperature
- Comprehensive Full Authority Engine (FAE) data (where applicable)

Service adjustments - The HMI includes provisions for adjustment and calibration of generator set control functions. Adjustments are protected by a password. Functions include:

Service adjustments (continued)

- Engine speed governor adjustments
- Voltage regulation adjustments
- Cycle cranking
- Configurable fault set up
- Configurable output set up
- Meter calibration
- Display language and units of measurement

Engine Control

SAE-J1939 CAN interface to full authority ECMs (where applicable). Provides data swapping between genset and engine controller for control, metering and diagnostics.

12 VDC/24 VDC battery operations - PowerCommand will operate either on 12 VDC or 24 VDC batteries.

Temperature dependent governing dynamics (with electronic governing) - modifies the engine governing control parameters as a function of engine temperature. This allows the engine to be more responsive when warm and more stable when operating at lower temperature levels.

Isochronous governing - (where applicable) Capable of controlling engine speed within +/-0.25% for any steady state load from no load to full load. Frequency drift will not exceed +/-0.5% for a 33 °C (60 °F) change in ambient temperature over an 8 hour period.

Droop electronic speed governing - Control can be adjusted to droop from 0 to 10% from no load to full load.

Remote start mode - It accepts a ground signal from remote devices to automatically start the generator set and immediately accelerate to rated speed and voltage. The remote start signal will also wake up the control from sleep mode. The control can incorporate a time delay start and stop.

Remote and local emergency stop - The control accepts a ground signal from a local (genset mounted) or remote (facility mounted) emergency stop switch to cause the generator set to immediately shut down. The generator set is prevented from running or cranking with the switch engaged. If in sleep mode, activation of either emergency stop switch will wake up the control.

Sleep mode - The control includes a configurable low current draw state to minimize starting battery current draw when the genset is not operating. The control can also be configured to go into a low current state while in auto for prime applications or applications without a battery charger.

Engine starting - The control system supports automatic engine starting. Primary and backup start disconnects are achieved by one of two methods: magnetic pickup or main alternator output frequency. The control also supports configurable glow plug control when applicable.

Cycle cranking - Is configurable for the number of starting cycles (1 to 7) and duration of crank and rest periods. Control includes starter protection algorithms to prevent the operator from specifying a starting sequence that might be damaging.

Time delay start and stop (cooldown) - Configurable for time delay of 0-300 seconds prior to starting after receiving a remote start signal and for time delay of 0-600 seconds prior to shut down after signal to stop in normal operation modes. Default for both time delay periods is 0 seconds.

Alternator Control

The control includes an integrated three phase Line-to-Line sensing voltage regulation system that is compatible with shunt or PMG excitation systems. The voltage regulation system is a three phase full wave rectified and has an FET output for good motor starting capability.

Major system features include:

Digital output voltage regulation - Capable of regulating output voltage to within +/-1.0% for any loads between no load and full load. Voltage drift will not exceed +/- 1.5% for a 40 °C (104 °F) change in temperature in an eight hour period. On engine starting or sudden load acceptance, voltage is controlled to a maximum of 5% overshoot over nominal level. The automatic voltage regulator feature can be disabled to allow the use of an external voltage regulator.

Droop voltage regulation - Control can be adjusted to droop from 0-10% from no load to full load.

Torque-matched V/Hz overload control - The voltage roll-off set point and rate of decay (i.e. the slope of the V/Hz curve) is adjustable in the control.

Fault current regulation - PowerCommand will regulate the output current on any phase to a maximum of three times rated current under fault conditions for both single phase and three phase faults. In conjunction with a permanent magnet generator, it will provide three times rated current on all phases for motor starting and short circuit coordination purpose.

Protective Functions

On operation of a protective function the control will indicate a fault by illuminating the appropriate status LED on the HMI, as well as display the fault code and fault description on the LCD. The nature of the fault and time of occurrence are logged in the control. The service manual and InPower service tool provide service keys and procedures based on the service codes provided.

Protective functions include:

Battle Short Mode

When enabled and the *battle short* switch is active, the control will allow some shutdown faults to be bypassed. If a bypassed shutdown fault occurs, the fault code and description will still be annunciated, but the genset will not shutdown. This will be followed by a *fail to shutdown* fault. Emergency stop shutdowns and others that are critical for proper operation are not bypassed. Please refer to the control application guide or manual for list of these faults.

Derate

The derate function reduces output power of the genset in response to a fault condition. If a derate command occurs while operating on an isolated bus, the control will issue commands to reduce the load on the genset via contact closures or modbus.

Configurable Alarm and Status Inputs

The control accepts up to four alarm or status inputs (configurable contact closed to ground or open) to indicate a configurable (customer-specified) condition. The control is programmable for warning, shutdown or status indication and for labeling the input.

Emergency Stop

Annunciated whenever either emergency stop signal is received from external switch.

Full Authority Electronic Engine Protection

Engine fault detection is handled inside the engine ECM. Fault information is communicated via the SAE-J1939 data link for annunciation in the HMI.

General Engine Protection

Low and high battery voltage warning - Indicates status of battery charging system (failure) by continuously monitoring battery voltage.

Weak battery warning - The control system will test the battery each time the generator set is signaled to start and indicate a warning if the battery indicates impending failure.

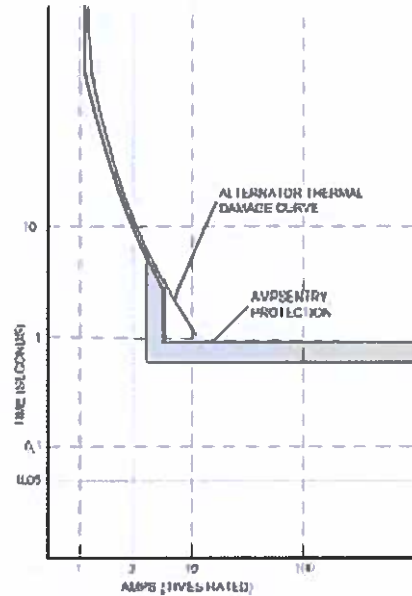
Fail to start (overcrank) shutdown - The control system will indicate a fault if the generator set fails to start by the completion of the engine crank sequence.

Fail to crank shutdown - Control has signaled starter to crank engine but engine does not rotate.

Cranking lockout - The control will not allow the starter to attempt to engage or to crank the engine when the engine is rotating.

Alternator Protection

AmpSentry protective relay - A comprehensive monitoring and control system integral to the PowerCommand Control System that guards the electrical integrity of the alternator and power system by providing protection against a wide array of fault conditions in the generator set or in the load. It also provides single and three phase fault current regulation so that downstream protective devices have the maximum current available to quickly clear fault conditions without subjecting the alternator to potentially catastrophic failure conditions. Thermal damage curve (3-Phase short) or fixed timer (2 sec for 1-Phase short, 5 sec for 2-Phase short). See document R1053 for a full-size time over current curve.



AmpSentry Maintenance Mode (AMM) - Instantaneous tripping, if AmpSentry Maintenance mode is active (50mS response to turn off AVR excitation/shutdown genset) for arc flash reduction when personnel are near genset.

High AC voltage shutdown (59) - Output voltage on any phase exceeds preset values. Time to trip is inversely proportional to amount above threshold. Values adjustable from 105-125% of nominal voltage, with time delay adjustable from 0.1-10 seconds. Default value is 110% for 10 seconds.

Low AC voltage shutdown (27) - Voltage on any phase has dropped below a preset value. Adjustable over a range of 50-95% of reference voltage, time delay 2-20 seconds. Default value is 85% for 10 seconds. Function tracks reference voltage. Control does not nuisance trip when voltage varies due to the control directing voltage to drop, such as during a V/Hz roll-off during synchronizing.

Under frequency shutdown (81 u) - Generator set output frequency cannot be maintained. Settings are adjustable from 2-10 Hz below reference governor set point, for a 5- 20 second time delay. Default: 6 Hz, 10 seconds.

Under frequency protection is disabled when excitation is switched off, such as when engine is operating in idle speed mode.

Over frequency shutdown/warning (81 o) - Generator set is operating at a potentially damaging frequency level. Settings are adjustable from 2-10 Hz above nominal governor set point for a 1-20 second time delay. Default: 6 Hz, 20 seconds, disabled.

Overcurrent warning/shutdown - Thresholds and time delays are configurable. Implementation of the thermal damage curve with instantaneous trip level calculated based on current transformer ratio and application power rating.

Loss of sensing voltage shutdown - Shutdown of generator set will occur on loss of voltage sensing inputs to the control.

Field overload shutdown - Monitors field voltage to shutdown generator set when a field overload condition occurs.

Over load (kW) warning - Provides a warning indication when engine is operating at a load level over a set point.

Adjustment range: 80-140% of application rated kW, 0-120 second delay. Defaults: 105%, 60 seconds.

Reverse power shutdown (32) - Adjustment range: 5-20% of standby kW rating, delay 1-15 seconds. Default: 10%, 3 seconds.

Reverse Var shutdown - Shutdown level is adjustable: 15-50% of rated Var output, delay 10-60 seconds. Default: 20%, 10 seconds.

Short circuit protection - Output current on any phase is more than 175% of rating and approaching the thermal damage point of the alternator. Control includes algorithms to protect alternator from repeated over current conditions over a short period of time.

Field Control Interface

Input signals to the PowerCommand control include:

- Coolant level (where applicable)
- Fuel level (where applicable)
- Remote emergency stop
- Remote fault reset
- Remote start
- Battleshort
- Rupture basin
- Start type signal
- Configurable inputs - Control includes (4) input signals from customer discrete devices that are configurable for warning, shutdown or status indication, as well as message displayed

Output signals from the PowerCommand control include:

- Load dump signal: Operates when the generator set is in an overload condition.
- Delayed off signal: Time delay based output which will continue to remain active after the control has removed the run command. Adjustment range: 0 – 120 seconds. Default: 0 seconds.

- Configurable relay outputs: Control includes (4) relay output contacts (3 A, 30 VDC). These outputs can be configured to activate on any control warning or shutdown fault as well as ready to load, not in auto, common alarm, common warning and common shutdown.

- Ready to load (generator set running) signal: Operates when the generator set has reached 90% of rated speed and voltage and latches until generator set is switched to off or idle mode.

Communications Connections Include:

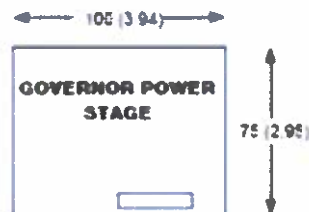
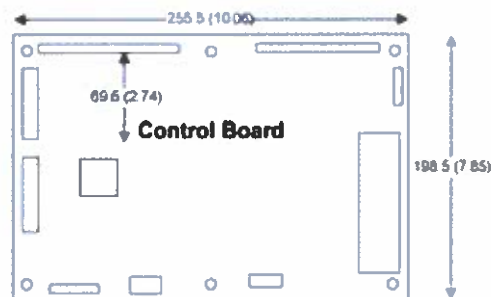
- PC tool interface: This RS-485 communication port allows the control to communicate with a personal computer running InPower software.

- Modbus RS-485 port: Allows the control to communicate with external devices such as PLCs using Modbus protocol.

Note - An RS-232 or USB to RS-485 converter is required for communication between PC and control.

- Networking: This RS-485 communication port allows connection from the control to the other Cummins products.

Mechanical Drawings



PowerCommand Human Machine Interface HMI320



Description

This control system includes an intuitive operator interface panel that allows for complete genset control as well as system metering, fault annunciation, configuration and diagnostics. The interface includes five genset status LED lamps with both internationally accepted symbols and English text to comply with customer's needs. The interface also includes an LED backlit LCD display with tactile feel soft-switches for easy operation and screen navigation. It is configurable for units of measurement and has adjustable screen contrast and brightness.

The *run/off/auto* switch function is integrated into the interface panel.

All data on the control can be viewed by scrolling through screens with the navigation keys. The control displays the current active fault and a time-ordered history of the five previous faults.

Features

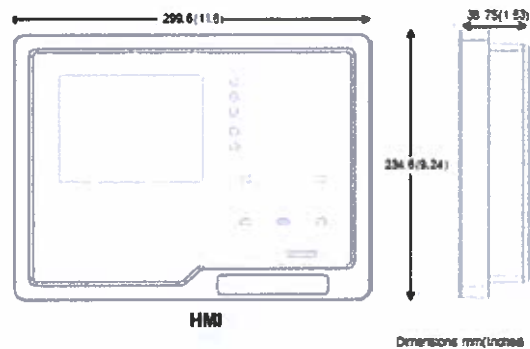
- LED indicating lamps:
 - Genset running
 - Remote start
 - Not in auto
 - Shutdown
 - Warning
 - Auto
 - Manual and stop
- 320 x 240 pixels graphic LED backlight LCD.
- Four tactile feel membrane switches for LCD defined operation. The functions of these switches are defined dynamically on the LCD.
- Seven tactile feel membrane switches dedicated screen navigation buttons for up, down, left, right, ok, home and cancel.
- Six tactile feel membrane switches dedicated to control for auto, stop, manual, manual start, fault reset and lamp test/panel lamps.

- Two tactile feel membrane switches dedicated to control of circuit breaker (where applicable).
- Allows for complete genset control setup.
- Certifications: Suitable for use on generator sets that are designed, manufactured, tested and certified to relevant UL, NFPA, ISO, IEC, Mil Std., CE and CSA standards.
- LCD languages supported: English, Spanish, French, German, Italian, Greek, Dutch, Portuguese, Finnish, Norwegian, Danish, Russian and Chinese Characters.

Communications connections include:

- PC tool interface - This RS-485 communication port allows the HMI to communicate with a personal computer running InPower.
- This RS-485 communication port allows the HMI to communicate with the main control board.

Mechanical Drawing



Software

InPower (beyond 6.5 version) is a PC-based software service tool that is designed to directly communicate to PowerCommand generator sets and transfer switches, to facilitate service and monitoring of these products.

Environment

The control is designed for proper operation without recalibration in ambient temperatures from -40 °C to +70 °C (-40 °F to 158 °F) and for storage from -55 °C to +80 °C (-67 °F to 176 °F). Control will operate with humidity up to 95%, non-condensing.

The HMI is designed for proper operation in ambient temperatures from -20 °C to +70 °C (-4 °F to 158 °F) and for storage from -30 °C to +80 °C (-22 °F to 176 °F).

The control board is fully encapsulated to provide superior resistance to dust and moisture. Display panel has a single membrane surface, which is impervious to effects of dust, moisture, oil and exhaust fumes. This panel uses a sealed membrane to provide long reliable service life in harsh environments.

The control system is specifically designed and tested for resistance to RFI/EMI and to resist effects of vibration to provide a long reliable life when mounted on a generator set. The control includes transient voltage surge suppression to provide compliance to referenced standards.

Certifications

PowerCommand meets or exceeds the requirements of the following codes and standards:

- NFPA 110 for level 1 and 2 systems.
- ISO 8528-4:2005 compliance, controls and switchgear (second edition)
- CE marking: The control system is suitable for use on generator sets to be CE-marked.
- EN50081-1,2 residential/light industrial emissions or industrial emissions.
- EN50082-1,2 residential/light industrial or industrial susceptibility.
- ISO 7637-2, level 2; DC supply surge voltage test.
- Mil Std 202C, Method 101 and ASTM B117: Salt fog test.
- UL 6200 recognized and suitable for use on UL 2200 Listed generator sets.
- CSA C282-M1999 compliance
- CSA 22.2 No. 14 M91 industrial controls.
- PowerCommand control systems and generator sets are designed and manufactured in ISO 9001 certified facilities.

Warranty

All components and subsystems are covered by an express limited one year warranty. Other optional and extended factory warranties and local distributor maintenance agreements are available.



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

Our energy working for you.™

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PDS-1569 | PD00000157 | (05/21)





Alternator Data Sheet Frame Size: HC5F

Characteristics		1-bearing weight		2-bearing weight					
Weights:	Stator assembly:	1775 lb	805 kg	1775 lb	805 kg				
	Rotor assembly:	1508 lb	684 kg	1444 lb	655 kg				
	Complete assembly:	3715 lb	1685 kg	3735 lb	1694 kg				
Maximum speed:		2250 rpm							
Excitation current:	Full load:	2.6 Amps							
	No load:	0.6 Amps							
Insulation system:	Class H throughout								
3 Ø Ratings	(0.8 power factor)	60 Hz (winding no)							
		<u>347/600</u> (07/17)	<u>110/190</u> <u>220/380</u> (311)	<u>120/208</u> <u>240/416</u> (311)	<u>127/220</u> <u>254/440</u> (311)	<u>133/230</u> <u>266/460</u> (311)	<u>139/240</u> <u>277/480</u> (311)	<u>120/240</u> <u>Delta</u> (311)	
150° C rise ratings	@40C	kW	700	570	625	655	678	700	625
		kVA	875	713	781	819	848	875	781
125° C rise ratings	@40C	kW	660	538	590	620	640	660	590
		kVA	825	673	738	775	800	825	738
105° C rise ratings	@40C	kW	600	500	550	575	585	600	550
		kVA	750	625	688	719	731	750	688
80° C rise ratings	@40C	kW	528	440	484	506	514	528	484
		kVA	660	550	605	633	643	660	605
3 Ø Reactances	(per unit ± 10%)	<u>347/600</u> (07/17)	<u>110/190</u> <u>220/380</u> (311)	<u>120/208</u> <u>240/416</u> (311)	<u>127/220</u> <u>254/440</u> (311)	<u>133/230</u> <u>266/460</u> (311)	<u>139/240</u> <u>277/480</u> (311)	<u>120/240</u> <u>Delta</u> (311)	
(Based on full load at 125° C rise rating)									
Synchronous			2.44	3.64	3.33	3.13	2.95	2.80	3.33
Transient			0.11	0.17	0.16	0.15	0.14	0.13	0.16
Subtransient			0.09	0.12	0.11	0.10	0.10	0.09	0.11
Negative sequence			0.16	0.23	0.21	0.20	0.19	0.18	0.21
Zero sequence			0.07	0.10	0.09	0.08	0.08	0.08	0.09
3 Ø Motor Starting	(90% sustained voltage)	<u>347/600</u> (07/17)	<u>110/190</u> <u>220/380</u> (311)	<u>120/208</u> <u>240/416</u> (311)	<u>127/220</u> <u>254/440</u> (311)	<u>133/230</u> <u>266/460</u> (311)	<u>139/240</u> <u>277/480</u> (311)	<u>120/240</u> <u>Delta</u> (311)	
Maximum kVA			2429	2429	2429	2429	2429	2429	
Time Constants	(sec)	<u>347/600</u> (07/17)	<u>110/190</u> <u>220/380</u> (311)	<u>120/208</u> <u>240/416</u> (311)	<u>127/220</u> <u>254/440</u> (311)	<u>133/230</u> <u>266/460</u> (311)	<u>139/240</u> <u>277/480</u> (311)	<u>120/240</u> <u>Delta</u> (311)	
Transient			0.08	0.08	0.08	0.08	0.08	0.08	
Subtransient			0.012	0.012	0.012	0.012	0.012	0.012	
Open circuit			2.5	2.5	2.5	2.5	2.5	2.5	
DC			0.019	0.019	0.019	0.019	0.019	0.019	
Windings	(@22° C)	<u>347/600</u> (07/17)	<u>110/190</u> <u>220/380</u> (311)	<u>120/208</u> <u>240/416</u> (311)	<u>127/220</u> <u>254/440</u> (311)	<u>133/230</u> <u>266/460</u> (311)	<u>139/240</u> <u>277/480</u> (311)	<u>120/240</u> <u>Delta</u> (311)	
Stator resistance (Ohms L-L)			0.0098	0.0074	0.0074	0.0074	0.0074	0.0074	
Rotor resistance (Ohms)			2.16	2.16	2.16	2.16	2.16	2.16	
Number of leads			12	12	12	12	12	12	



Data Sheet

Circuit Breakers

Description

This Data sheet provides circuit breaker manufacturer part numbers and specifications. The Circuit breaker box description is the rating of that breaker box installation on a Cummins Generator. Please refer to the website of the circuit breaker manufacturer for breaker specific ratings and technical information.

Applicable Models

Engine	Models					
Kubota	C10D6	C15D6	C20D6			
QSJ2.4	C20N6	C25N6	C30N6	C30N6H	C36N6	C36N6H
	C40N6	C40N6H	C50N6H	C60N6H		
B3.3	C25D6	C30D6	C35D6	C40D6	C50D6	C60D6
QSJ5.9G	C45N6	C50N6	C60N6	C70N6	C80N6	C100N6
QSJ8.9G	C125N6	C150N6				
QSB5	DSFAC	DSFAD	DSFAE	C50D6C	C60D6C	C80D6C
	C100D6C	C125D6C				
QSB7	DSGAA	DSGAB	DSGAC	DSGAD	DSGAE	
		C125D6D	C150D6D	C175D6D	C200D6D	
QSL9	DSHAD	DQDAA	DQDAB	DQDAC		
QSM11	DQHAB					
QSX15	DFEJ	DFEK				

Instructions

1. Locate the circuit breaker feature code or part number and use the charts below to find the corresponding manufacturer circuit breaker catalog number.
2. Use the first letter of the circuit breaker catalog number to determine the "frame" of the breaker. If the first letter is an "N", use the second letter. Then follow the corresponding website link from the table below to find the breaker catalog number description.

Please refer to the catalog numbering systems page, which is given in the chart, to understand the nomenclature of the catalog number.

Frame	Catalog name*	Catalog number description page(s)
P	0612CT0101 http://www.schneider-electric.us/en/download/document/0612CT0101/	16-17
H, J, and L	0611CT1001 http://www.schneider-electric.us/en/download/document/0611CT1001/	8-9
Q	0734CT0201 http://www.schneider-electric.us/en/download/document/0734CT0201/	4

*The following link may also be used to search specifically by the breaker part number or for the catalog name listed above. <http://products.schneider-electric.us/technical-library/>

3. Search the catalog by using the first 3 letters of the breaker catalog number and the first 5 numbers to find information such as trip curves, accessories, and dimensional details regarding the circuit breaker.

*If the catalog number starts with "N", skip the N and begin your search with the second letter.

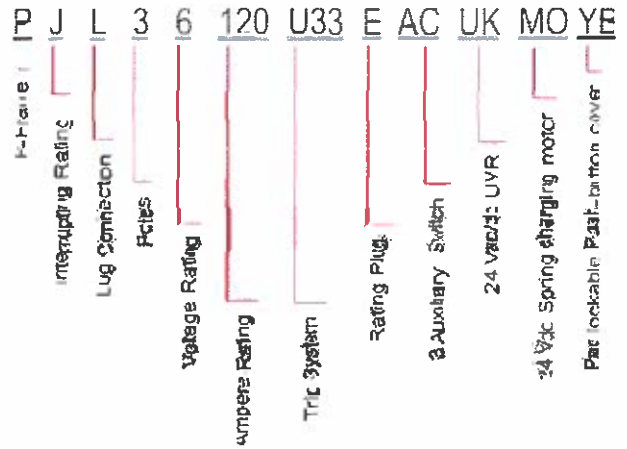
*If the first 3 letters are "PJP," the search will not work. You will need to start with just "PJ" and use the description pages to obtain the information you are looking for on the "PJP."

Example

After finding your circuit breaker catalog number to be "PJL36120U33EACUKMOYB," navigate to the P-frame catalog by using the link provided.

Look at pages 16-17 of the pdf catalog to find the nomenclature of the breaker.

Search the P-frame spec sheet using the search "PJL36120."



Mechanically Operated Breakers

Feature Code	Breaker Box Description	Cummins Part #	Manufacturer	Breaker Catalog Number	Trip Unit	Plug Type
KC60-2	Circuit Breaker-1200A,Right CB on Right side,3-Pole, UL 600,IEC 690, 100%	0320-2183	Schneider Electric	PJP36120U31E	MicroLogic 3.0 LI	E
KC61-2	Circuit Breaker-1200A,Left CB on Right side,3-Pole, UL 600,IEC 690, 100%	0320-2183	Schneider Electric	PJP36120U31E	MicroLogic 3.0 LI	E
KC62-2	Circuit Breaker-800A,Right CB on Right side,3-Pole,UL 600,IEC 690 100%	0320-2182	Schneider Electric	PJP36080U31F	MicroLogic 3.0 LI	F
KC63-2	Circuit Breaker-800A,Left CB on Right side,3-Pole, UL 600,IEC 690 100%	0320-2182	Schneider Electric	PJP36080U31F	MicroLogic 3.0 LI	F
KC64-2	Circuit Breaker-600A,Right CB on Right side,3-Pole, UL 600,IEC 690, 100%	A044T468	Schneider Electric	NLGL36600U33X-600A	MicroLogic 3.3S	N/A
KC65-2	Circuit Breaker-600A,Left CB on Right side,3-Pole, UL 600,IEC 690, 100%	A044T468	Schneider Electric	NLGL36600U33X-600A	MicroLogic 3.3S	N/A
KC66-2	Circuit Breaker-400A,Right CB on Right side,3-Pole,UL 600,IEC 690 100%	A045U083	Schneider Electric	NLGL36400U33XLY-400A	MicroLogic 3.3S	N/A
KC67-2	Circuit Breaker-400A,Left CB on Right side,3-Pole, UL 600,IEC 690 100%	A045U083	Schneider Electric	NLGL36400U33XLY-400A	MicroLogic 3.3S	N/A
KS80-2	CircuitBreaker-15A,Right,3P,600VAC,80%,UL	0320-2346-72	Schneider Electric	HGL36015	Thermal Magnetic	N/A
KS81-2	CircuitBreaker-15A,Left,3P,600VAC,80%,UL	0320-2346-72A	Schneider Electric	HGL36015	Thermal Magnetic	N/A
KS84-2	CircuitBreaker-20A,Right,3P,600VAC,80%,UL	0320-2346-71	Schneider Electric	HGL36020	Thermal Magnetic	N/A
KS85-2	CircuitBreaker-20A,Left,3P,600VAC,80%,UL	0320-2346-71A	Schneider Electric	HGL36020	Thermal Magnetic	N/A
KS88-2	CircuitBreaker-30A,Right,3P,600VAC,80%,UL	0320-2346-70	Schneider Electric	HGL36030	Thermal Magnetic	N/A
KS89-2	CircuitBreaker-30A,Left,3P,600VAC,80%,UL	0320-2346-70A	Schneider Electric	HGL36030	Thermal Magnetic	N/A
KS94-2	CircuitBreaker-40A,Right,3P,600VAC,80%,UL	0320-2346-69	Schneider Electric	HGL36040	Thermal Magnetic	N/A
KS95-2	CircuitBreaker-40A,Left,3P,600VAC,80%,UL	0320-2346-69A	Schneider Electric	HGL36040	Thermal Magnetic	N/A



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CERTIFICATE OF COMPLIANCE

SEISMIC DESIGN OF NONSTRUCTURAL COMPONENTS AND SYSTEMS



Certification No.

VMA-50957-01C (Revision 10)

Expiration Date: 6/30/2023

Certification Parameters:

The nonstructural products (mechanical and/or electrical components) listed on this certificate are CERTIFIED¹ FOR SEISMIC APPLICATIONS in accordance with the following building code² releases.

IBC 2015, 2012, 2009, 2006

The following model designations, options, and accessories are included in this certification. Reference report number VMA-50957-01 as issued by The VMC Group for a complete list of certified models, included accessories/options, and certified installation methods.

Cummins Power Generation, Inc.; Diesel Gensets
DSGAA-E, DSHAD, DQDAA-C, DQHAA-B, DFEJ-K; 100kW - 500kW

The above referenced equipment is APPROVED for seismic application when properly installed³, used as intended, and contains a Seismic Certification Label referencing this Certificate of Compliance⁴. As limited by the tabulated values, below grade, grade, and roof-level installations, installations in essential facilities, for life safety applications, and/or of equipment containing hazardous contents are permitted and included in this certification with an Equipment Importance Factor assigned as $I_p=1.5$. The equipment is qualified by successful seismic shake table testing at the nationally recognized University of California Berkeley Pacific Earthquake Engineering Research Center under the review of the ISO Accredited Product Certification Agency, the VMC Group.

Certified Seismic Design Levels			
Certified IBC	Importance $I_p \leq 1.5$ Soil Classes A-E Risk Categories I-IV Design Categories A-F	$z/h \leq 1.0$	$z/h = 0.0$
		$S_{ps} \leq 0.647 g$	$S_{ps} \leq 1.940 g$

Certified Seismic Installation Methods ⁸	
External Isolation Mounting From Unit Base To Fuel Tank	External Isolation Mounting From Unit Base To Rigid Structure
Rigid Mounting From Unit Base To Fuel Tank	Rigid Mounting From Unit Base To Rigid Structure

HEADQUARTERS
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Toll Free: 800.569.8423
Fax: 973.492.8430

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Houston, TX 77041
Phone: 713.466.0003
Fax: 713.466.1355

thevmcgroup.com





CERTIFICATE OF COMPLIANCE

SEISMIC DESIGN OF NONSTRUCTURAL COMPONENTS AND SYSTEMS

Certified Product Table:

Series	Model	Max Rating [kW]	Length [in]	Width [in]	Height [in]	S _{DS} @ z/h=0	S _{DS} @ z/h=1	Tank Range [gal]	Enclosure ¹	Mounting Configurations
DFEx (QSX15)	J, K	450, 500	366	86	128	1.94	0.64	270-2525	F183, F200-F205	Rigid Mounting From Unit Base To Rigid Structure / Fuel Tank External Isolation Mounting From Unit Base to Rigid Structure/ Fuel Tank
DQDAx (QSL9-G7)	A, B, C	250, 275, 300	266	90	134	2.48	2.00	270-2050		
DQHAx (QSM11)	A, B	275, 300	226	80	128	2.28	2.28	270-1700		
DSHAx (QSL9-G2)	D	230	143	42	110			282-1296	F172-173, F182, F216-217	
DSGAx (QSB7)	A, B, C, D, E	100, 125, 150, 175, 200	184	44	114	2.48	2.00	309-1140	F173, F182, F216-217, F232-233	Rigid Mounting From Unit Base To Rigid Structure / Fuel Tank

¹Note: The F201, F202, F204, & F205 are certified in the tested mineral wool foam configuration, as well as the analyzed PU foam configuration highlighted in the FEA section of Certification Report VMA-50957-01

Group	Type	S _{DS} (z/h=0)	S _{DS} (z/h=1)	A _{FLEX-H}	A _{RIG-H}	A _{FLEX-V}	A _{RIG-V}	Rigid Mounting F _p /W _p	Isolated Mounting F _p /W _p
Seismic	AC156	1.940	0.647	1.94	0.776	1.293	0.518	0.466	1.455

This certification includes the open generator set and the enclosed generator set when installed with or without the sub-base tank. The generator set and included options shall be a catalogue design and factory supplied. The generator set and applicable options shall be installed and attached to the building structure per the manufacturer supplied seismic installation instructions. This certification excludes After Treatment Units (ATUs), all non-factory supplied accessories, including but not limited to mufflers, isolation/restraint devices, remote control panels, remote radiators, pumps and other electrical/mechanical components.



VMA-50957-01C (Revision 10)
Issue Date: Thursday, March 2, 2017
Revision Date: Monday, January 25, 2021
Expiration Date: Friday, June 30, 2023



VMC GROUP
THE POWER OF TOGETHER™



CERTIFICATE OF COMPLIANCE

SEISMIC DESIGN OF NONSTRUCTURAL COMPONENTS AND SYSTEMS

Notes & Comments:

1. All equipment listed herein successfully passed the seismic acceptance criteria for shake testing non-structural components and systems as set forth in the ICC AC-156. The Test Response Spectrum (TRS) enveloped the Required Response Spectrum (RRS) for all units tested. The tested units were representative sample(s) of a contingent of models and all remained captive and structurally sound after the seismic shake simulation. The units also remained functionally operational after the simulation testing as functional testing was completed by the equipment manufacturer before and after the seismic simulations. Although a seismic qualified unit inherently contains some wind resisting capacity, that capacity is undetermined and is excluded from this certification. Snow/ice loads have been neglected and thus limit the unit to be installed both indoors (covered by an independent protective structure) and out of doors (exposed to accumulating snow/ice) for ground snow loads no greater than 30 psf for all applications.
2. The following building codes are addressed under this certification:
 - IBC 2015 referencing ASCE7-10 and ICC-ES AC-156
 - IBC 2012 referencing ASCE7-10 and ICC-ES AC-156
 - IBC 2009 referencing ASCE7-05 and ICC-ES AC-156
 - IBC 2006 referencing ASCE7-05 and ICC-ES AC-156
3. Refer to the manufacturer supplied installation drawings for anchor requirements and mounting considerations for seismic applications. Required anchor locations, size, style, and load capacities (tension and shear) may be specified on the installation drawings or specified by a 3rd party. Mounting requirement details such as anchor brand, type, embedment depth, edge spacing, anchor-to-anchor spacing, concrete strength, special inspection, wall design, and attachment to non-building structures must be outlined and approved by the Engineer of Record for the project or building. Structural walls, structural floors, and housekeeping pads must also be seismically designed and approved by the project or building Structural Engineer of Record to withstand the seismic anchor loads as defined on the installation drawings. The installing contractor is responsible for ensuring the proper installation of all anchors and mounting hardware.
4. For this certificate and certification to remain valid, this certificate must correspond to the "Seismic Certification Label" found affixed to the unit by the factory. The label ensures the manufacturer built the unit in conformance to the IBC seismic design criteria set forth by the Certified Seismic Qualification Agency, the VMC Group, and meets the seismic design levels claimed by this certificate.
5. Mechanical, Electrical, and Plumbing connections to the equipment must be flexibly attached as to not transfer load through the connection. The structural integrity of any conduit, cable trays, piping, ductwork and/or flexible connections is the responsibility of others. This certification does not guarantee the equipment will remain compliant to NEMA, IP, UL, or CSA standards after a seismic event.
6. This certificate applies to units manufactured at:
Cummins Power Generation, Inc., 1400 73rd Ave NE, Minneapolis, MN 55432
7. This certification follows the VMC Group's ISO-17065 Scheme.
8. The certified seismic installation methods states are a summary for all series this certificate covers, for more detailed information on the certified seismic installation methods, see the certified product tables.

John P. Giuliano, PE
President, VMC Group



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2021 EPA Tier 2 Exhaust Emission Compliance Statement 500DFEK Stationary Emergency 60 Hz Diesel Generator Set

Compliance Information:

The engine used in this generator set complies with Tier 2 emissions limit of U.S. EPA New Source Performance Standards for stationary emergency engines under the provisions of 40 CFR 60 Subpart IIII.

Engine Manufacturer: Cummins Inc.
 EPA Certificate Number: MCEXL015.AAJ-024
 Effective Date: 06/10/2020
 Date Issued: 06/10/2020
 EPA Engine Family (Cummins Emissions Family): MCEXL015.AAJ

Engine Information:

Model: QSX/QSX15/QSX15-G/QSX15-G9 Bore: 5.39 in. (137 mm)
 Engine Nameplate HP: 755 Stroke: 6.65 in. (169 mm)
 Type: 4 Cycle, In-line, 6 Cylinder Diesel Displacement: 912 cu. in. (15 liters)
 Aspiration: Turbocharged and CAC Compression ratio: 17.0:1
 Emission Control Device: Electronic Control Exhaust stack diameter: 8 in. (203 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	4.3	0.4	0.10	5.7	0.6	0.13
EPA Emissions Limit	4.8	2.6	0.15	6.4	3.5	0.20

Test methods: EPA emissions recorded per 40 CFR Part 60, 89, 1039, 1065 and weighted at load points prescribed in the regulations for constant speed engines.

Diesel fuel specifications: Cetane number: 40-50, Reference: ASTM D975 No. 2-D, 300-500 ppm Sulfur

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.



Sound pressure level @ 7 meters, dB(A)

See notes 1-8 listed below

Configuration		Measurement location number								Average
		1	2	3	4	5	6	7	8	
Standard – unhoused	Infinite exhaust	89	92	92	91	88	91	91	93	91
F183 – residential muffler	Mounted muffler	88	90	90	89	88	88	88	90	89
F200 – weather	Mounted muffler	91	90	85	88	89	88	85	91	89
F201 – quiet site II first stage	Mounted muffler	90	89	84	83	79	81	83	90	87
F202 – quiet site II second stage	Mounted muffler	71	73	71	72	73	74	74	73	73

Sound power level, dB(A)

See notes 2-6, 9, 10 listed below

Configuration		Octave band center frequency (Hz)								Overall sound power level
		63	125	250	500	1000	2000	4000	8000	
Standard – unhoused (note 3)	Infinite exhaust	82	98	104	109	112	113	111	113	119
F183 – residential muffler	Mounted muffler	105	114	115	111	108	108	102	101	119
F200 – weather	Mounted muffler	101	108	106	110	112	111	107	102	118
F201 – quiet site II first stage	Mounted muffler	101	108	105	108	111	109	106	99	116
F202 – quiet site II second stage	Mounted muffler	84	93	93	96	98	99	96	89	104

Exhaust sound power level, dB(A)

Open exhaust (no muffler) @ rated load	Octave band center frequency (Hz)								Overall sound power level
	63	125	250	500	1000	2000	4000	8000	
	103	119	125	123	125	126	127	121	133

Note:

1. Position 1 faces the engine front. The positions proceed around the generator set in a counter-clockwise direction in 45° increments. All positions are at 7 m (23 ft) from the surface of the generator set and 1.2 m (48 in.) from floor level.
2. Sound levels are subject to instrumentation, measurement, installation and manufacturing variability.
3. Sound data with remote-cooled generator sets are based on rated loads without cooling fan noise.
4. Sound levels for aluminum enclosures are approximately 2 dB(A)s higher than listed sound levels for steel enclosures.
5. Sound data for generator set with infinite exhaust do not include exhaust noise.
6. Data is based on full rated load with standard radiator-cooling fan package.
7. Sound pressure levels are measured per ANSI S1.13 and ANSI S12.18, as applicable.
8. Reference sound pressure is 20 µPa.
9. Sound power levels per ISO 3744 and ISO 8528-10, as applicable.
10. Reference power = 1 pw (10⁻¹² W).
11. Exhaust sound power levels are per ISO 6798, as applicable.



Prototype Test Support (PTS) 60 Hz test summary



<u>Generator set models</u>	<u>Representative prototype</u>
450DFE J 500DFEK	Model: 500DFEK Alternator: HC5F Engine: QSX15-G9

The following summarizes prototype testing conducted on the designated representative prototype of the specified models. This testing is conducted to verify the complete generator set electrical and mechanical design integrity. Prototype testing is conducted only on generator sets not sold as new equipment.

Maximum surge power: 516 kW
The generator set was evaluated to determine the stated maximum surge power.

Maximum motor starting: 2429 kVA
The generator set was tested to simulate motor starting by applying the specified kVA load at low lagging power factor (0.4 or lower). With this load applied, the generator set recovered to a minimum of 90% rated voltage.

Torsional analysis and testing:
The generator set was tested to verify that the design is not subjected to harmful torsional stresses in excess of 5000 psi. A spectrum analysis of the transducer output was conducted over the speed range of 1200 to 2000 RPM.

Cooling system: 50 °C ambient
0.50 in. H₂O restriction

The cooling system was tested to determine ambient temperature and static restriction capabilities. The test was performed at full rated load in elevated ambient temperature under static restriction conditions.

Durability:
The generator set was subjected to a minimum 500 hour endurance test operating at variable load up to the Standby rating based upon MIL-STD-705 to verify structural soundness and durability of the design.

Electrical and mechanical strength:
The generator set was tested to several single phase and three phase faults to verify that the generator can safely withstand the forces associated with short circuit conditions. The generator set was capable of producing full rated output at the conclusion of the testing.

Steady state performance:
The generator set was tested to verify steady state operating performance was within the specified maximum limits.

Voltage regulation:	± 0.5%
Random voltage variation:	± 0.3%
Frequency regulation:	Isochronous
Random frequency variation:	± 0.25%

Transient performance:
The generator set was tested with the standard alternator to verify single step loading capability as required by NFPA 110. Verify acceptable Voltage and frequency response on load addition or rejection were evaluated. The following results were recorded:

Full load acceptance:

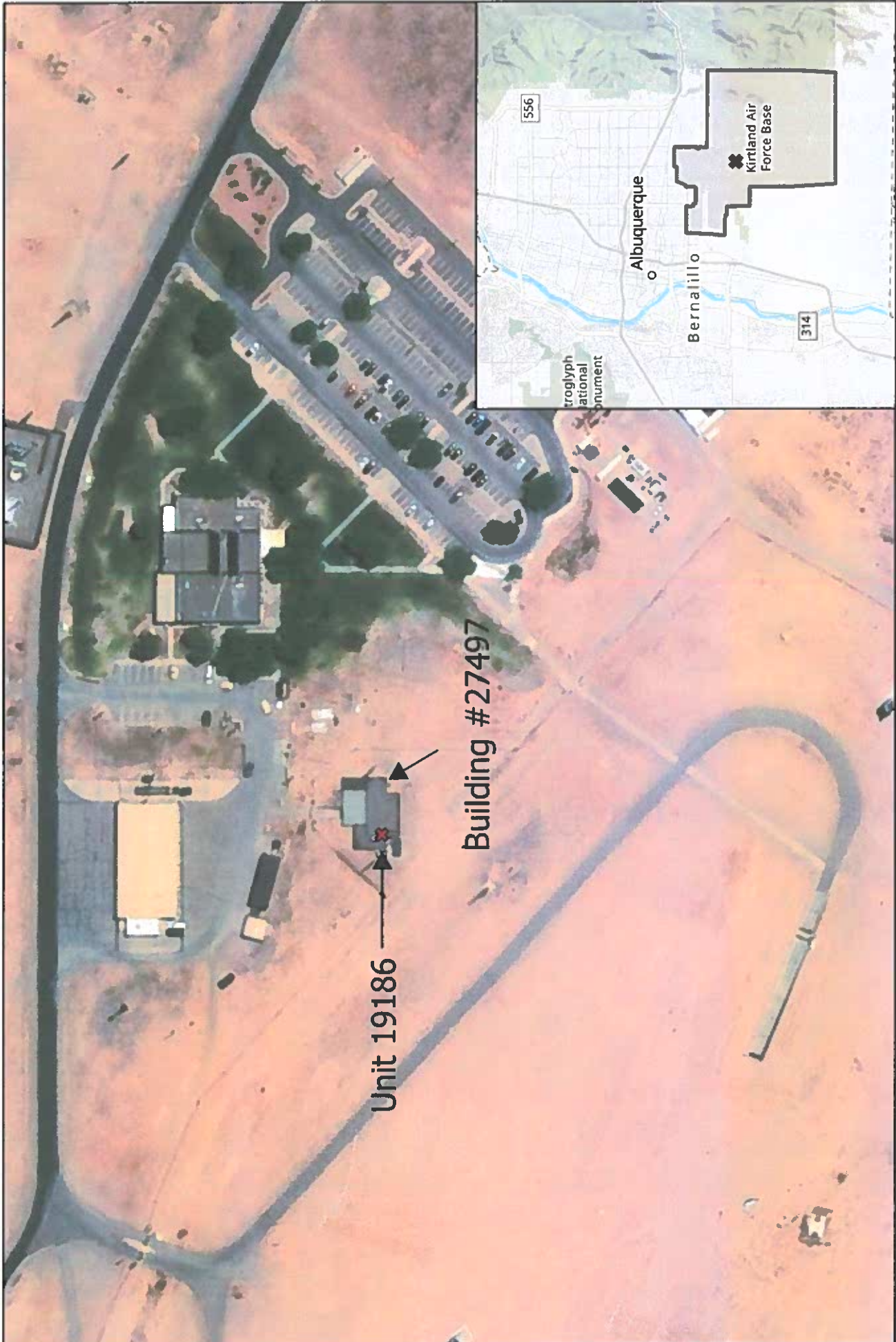
Voltage dip:	30.1%
Recovery time:	3.6 seconds
Frequency dip:	9.9%
Recovery time:	3.8 seconds

Full load rejection:

Voltage rise:	12.8%
Recovery time:	3.8 seconds
Frequency rise:	3.2%
Recovery time:	1.5 seconds

Harmonic analysis:
(per MIL-STD-705B, method 601.4)

<u>Harmonic</u>	<u>Line to Line</u>		<u>Line to Neutral</u>	
	<u>No load</u>	<u>Full load</u>	<u>No load</u>	<u>Full load</u>
3	0.1	0.1	0.1	0.1
5	0.3	1.2	0.3	1.1
7	0.4	1.1	0.4	1.0
9	0.0	0.0	0.0	0.0
11	0.7	0.9	0.6	0.8
13	0.2	0.3	0.1	0.2
15	0.0	0.0	0.0	0.0



Unit 19186

Building #27497

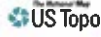


Kirtland AFB
Air Emissions Sources

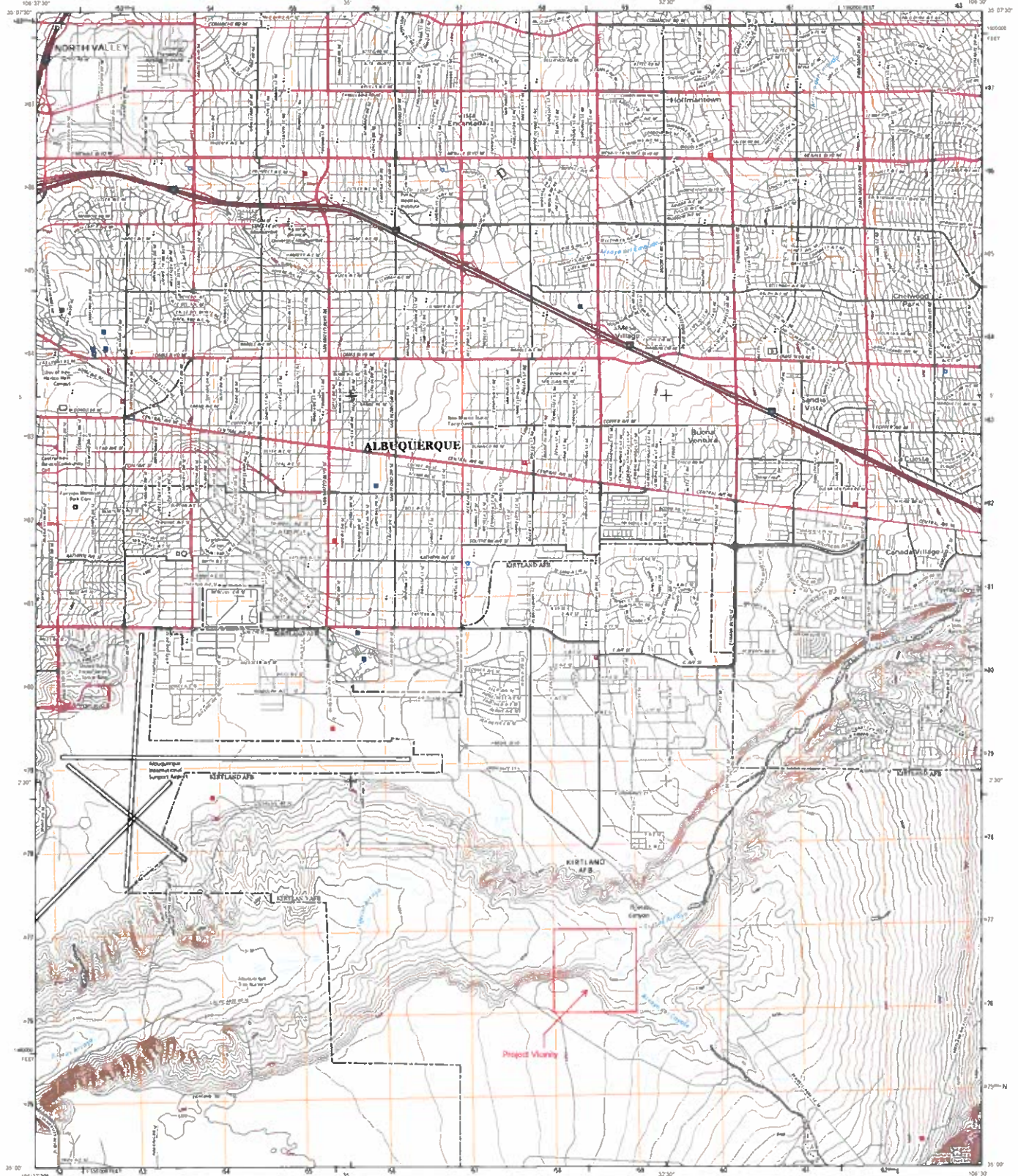
Sources: Kirtland AFB, City of Albuquerque, Bernalillo County, USGS, ESRI, Garmin, BLM, EPA, New Mexico State University



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



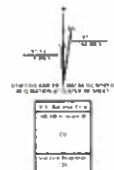
ALBUQUERQUE EAST QUADRANGLE
NEW MEXICO BEINGAL & CO. CO
7.5 MINUTE SERIES



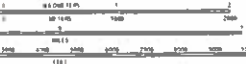
Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
North Carolina System of 1983 (NCS83) in quadrants and
1:80,000 scale of the National Engineering and Surveying
1:80,000 scale of the National Engineering and Surveying
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Inventory: NAD 83 2011
Base: 2000 2011 4 m
Number: 1000 1011
By State only: National Engineering and Surveying 2011
Scale: 1:80,000 National Engineering and Surveying 1000
Boundary: Census 2000 2011
Public Land Survey System: 2011



SCALE 1:24,000



ROAD CLASSIFICATION	
Expressway	Local Collector
Trunking Hwy	State Road
State	400
Principal Road	US Road
	State Road 1

ROAD CLASSIFICATION	
Expressway	Local Collector
Trunking Hwy	State Road
State	400
Principal Road	US Road
	State Road 1

CONTOUR INTERVAL 10 FEET (3 METERS)

NOT TO SCALE (SEE GRID)

This map is published in compliance with the
National Engineering and Surveying Act of 1966 (Public Law 89-11)
A standard 4-foot wide map is published at a scale of 1:80,000

ALBUQUERQUE EAST, NM
2013

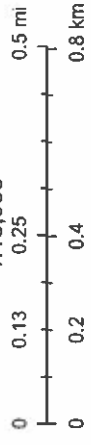


Bernalillo County Atlas - Address, History, Zone



3/10/2022, 10:43:14 AM

1:18,056



- Road Inventory Labels
- Abq Platted Parcels
- Abq Platted Easements
- BC Platted Parcels
- BC Platted Easements
- BC Boundary
- BC Platted Parcels
- Zone Atlas Index

Kirtland AFB - Process Flow Diagram for Unit #19186

- - process flow direction
- - exhaust flow direction
- - pictured reference

