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Kirtland Air Force Base

20.11.41 NMAC Construction Permit Application
Modification to Permit #1786-M3
New Emergency Generator and Existing Unit Removal
Well #16 Water Plant Facility, Building 25952
(Unit Code 19178)

377 MSG/CE Environmental
Kirtland AFB, New Mexico



City of Albuquerque
Environmental Health Department
Air Quality Program



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

20.11.41 NMAC Air Quality Permit Application
For

EMERGENCY DIESEL ENGINES

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

Section 1. General Information

Date Submitted: 11/15/16

1. Company Name: U.S. Air Force - Kirtland Air Force Base Ph: (505)846-8546 Fax: (505) 853-1647
2. Company Address: 377 MSG/CEIE, 2050 Wyoming Blvd SE Suite A116 City: Kirtland AFB, Albuquerque State: NM Zip: 87117-5270
3. Company Mailing Address (if different): same as above Zip: same as above
4. Company Contact: Mr. John Pike Title: Chief, Installation Management Ph: (505) 853-8546 Email: john.pike@us.af.mil
5. Facility Name: Water Plant, Building 25952, Well #16 Facility Hours: 24 hours per day (8am to 5pm for general business)
6. Facility Address: SE intersection of Ridgecrest Ave and Randolph Rd. SE, Bldg. 25952 City: Kirtland AFB, Albuquerque State: NM Zip: 87117
7. Local Business Mailing Address (if different): (same as above) Email: Not Applicable
8. Facility Environmental Contact: Ms. Melissa Clark Title: Chief, Environmental Management Ph: (505) 853-1588 Fax: (505) 853-6970
9. Email Address: melissa.clark.8@us.af.mil 10. Type of Business: National Security - U.S. Dept. of Defense
11. Environmental Consultant Name and E-Mail Address (if applicable): Not applicable
12. North American Industry Classification System (NAICS): 928110 13. Standard Industrial Classification (SIC): 9711
14. UTM coordinates (required): Zone 13S, 356,879 m east, 3,879,868 m north 15. Facility Ph: (505) 853-1588 Fax: (505)853-6970
16. Billing Contact: Ms. Andria Cuevas Title: Air Quality Program Manager Ph: (505) 846-2522 Fax: (505)853-6970
17. Billing Address: 377 MSG/CEIE Environmental, 2050 Wyoming Blvd SE, Bldg 20685 City: Kirtland AFB State: NM Zip: 87117
18. Is this an Initial Installation: OR Modification of an Existing Unit: Replacement 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: 03/27/2017
 Anticipated start-up date: 04/03/2017

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.

Unit ID	Process Equipment Unit	Manufacturer	Model Number	Serial Number	Manufacture Date	Modification Date	Engine Size In Horsepower (Hp)	Size of Generator In kilowatts (kW)
19178	Engine	Cummins	QSK23-G7 NR2	TBD	TBD	N/A	1220	N/A
	Generator	Cummins	750QCB	TBD	TBD	N/A	N/A	750

Section 3. Stack and Emissions Information (Both units have identical stack parameters)

Stack Height Above Ground & Stack Diameter In Feet		Stack Temperature	Stack Flow Rate & Exit Direction
12 feet stack height approx.	10 inches (0.833) diameter approx.	~888°F	~5,358 ft ³ /min - Flow Rate approx. Exit - upward

Section 4.1 Potential Emission Rate Uncontrolled Emissions (Unit ID 19178)

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
2016	CO	2.60	x	1220	=	3172.0	+	453.6	=	6.99	x	8,760	+	2,000	=	30.63
	NO _x	4.15	x	1220	=	5063.0	+	453.6	=	11.2	x	8,760	+	2,000	=	48.89
	NMHC	0.19	x	1220	=	231.8	+	453.6	=	0.51	x	8,760	+	2,000	=	2.24
	*NO _x + NMHC	4.80	x	1220	=	5856.0	+	453.6	=	12.9	x	8,760	+	2,000	=	56.55
	**SO _x	0.12	x	1220	=	146.4	+	453.6	=	0.32	x	8,760	+	2,000	=	1.41
	***PM	0.15	x	1220	=	183.0	+	453.6	=	0.40	x	8,760	+	2,000	=	1.77

* 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 5.1 Potential to Emit (Requested allowable rate) (Controlled Emissions) (Unit ID 19178)

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

Pollutant	Emission in Pounds Per Hour	T I M E S	Requested Operating Hours Per Year	E Q U A L S	Pounds Per Year	D I V I D E	Pounds Per Ton	E Q U A L S	Emission In Tons Per Year
CO	6.99	x	200	=	1398.59	+	2,000	=	0.70
NO _x	11.2	x	200	=	2232.36	+	2,000	=	1.12
NMHC	0.51	x	200	=	102.20	+	2,000	=	0.051
*NO _x + NMHC	12.9	x	200	=	2582.01	+	2,000	=	1.29
**SO _x	0.32	x	200	=	64.55	+	2,000	=	0.032
***PM	0.40	x	200	=	80.69	+	2,000	=	0.04

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.

Eric H. Froehlich, Colonel, USAF
Print Name


Sign Name

Installation Commander, Kirtland AFB
Title

7 Nov 16
Date

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

Horsepower/ kW	Tier (CFR Section)	Year Of Manufacture	CO (g/hp-hr)	NOx 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 ¹	6.0			7.8	0.93*	0.75	* Use AP-42 Section 3.3 SOx factors if <600Hp and Section 3.4 if >600Hp, as shown on this table, or manufacturer's factors. Manufacturer's factors shall be used when larger than AP-42 factors.
		2007 2008 +	6.0 6.0			5.6 5.6	0.93* 0.93*	0.6 0.3	
≥ 11 Hp < 25 Hp	1 (60.4205)	Pre 2007 ¹	4.9			7.1	0.93*	0.6	
		2007 2008 +	4.9 4.9			5.6 5.6	0.93* 0.93*	0.6 0.3	
≥ 8 kW < 19 kW	4 (60.4202)	Pre 2007 ¹	4.1			7.1	0.93*	0.6	
		2007 2008 +	4.1 4.1			5.6 5.6	0.93* 0.93*	0.45 0.22	
≥ 25 Hp < 50 Hp	1 (60.4205)	Pre 2007 ¹	3.03**	6.9	1.12**	3.0	0.93*	1.0**	
		2007 2008 +	3.7 3.7			5.6 3.5	0.93* 0.93*	0.3 0.3	
≥ 37 kW < 75 kW	2 (60.4202) - (89.112)	Pre 2007 ¹	3.03**	6.9	1.12**	3.0	0.93*	1.0**	
		2007 2008 +	3.7 3.7			5.6 3.5	0.93* 0.93*	0.3 0.3	
≥ 100 Hp < 175 Hp	1 (60.4205)	Pre 2007 ¹	3.03**	6.9	1.12**	3.0	0.93*	1.0**	
		2007 +	3.7			3.0	0.93*	0.22	
≥ 75 kW < 130 kW	3 (60.4202) - (89.112)	Pre 2007 ¹	8.5	6.9	1.0	3.0	0.93* for < 6000Hp or 3.67* for > 6000Hp	0.4	
		2007 +	2.6			3.0		0.15	
> 750 Hp > 560 kW	23 (60.4202) - (89.112)	Pre 2007 ¹	8.5	6.9	1.0	4.8	3.67	0.4	
		2007***	2.6			4.8		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).

KIRTLAND AIR FORCE BASE

Application for Modification to Permit 1786-M3 for a New Emergency Generator and Existing Emission Unit Removals Well #16 Water Plant Facility, Building 25952 (Unit Code 19178)

Supplemental Information

Project Description

This permit application is for a new diesel Cummins 750 KW emergency generator proposed to be installed at Well #16, Building 25952, located SE of the intersection of Ridgecrest Ave. and Randolph Rd. It will provide back-up electrical power for the new electric motor drive on the well pump and other associated operations. The following emission sources associated with Well #16 in Permit 1786-M3 will be removed prior to the installation of the new emergency generator: Unit #5 (Unit ID 19104) and Unit #6 (Unit ID 19146) natural gas emergency generator. The removal of the two existing units and the addition of the new emergency generator will result in a decrease of overall annual ton per year emissions. The detailed summary of specific pollutant emission increases and decreases as a result of the proposed modification are included in Attachment B and require a permit modification under 20.11.41.29 NMAC.

Operational and Maintenance Strategy

20.11.41.13.E(5) New Mexico Administrative Code (NMAC) *Application Contents* states that the application must include an operational and maintenance strategy detailing (a) the 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, (b) the nature of emissions during routine startup or shutdown of the source and the source's air pollution control equipment, (c) the steps the applicant will take to minimize emissions during routine startup or shutdown.

In the event of a malfunction that causes an exceedance of the emission limits, the notification requirements of 20.11.49 NMAC *Excess Emissions* will be followed. The emergency generator is exercised monthly and the operator will be responsible for shutting down the generator if there is a malfunction, such as vacuum loss, low oil pressure, overheating, or overly high revolutions per minute. Internal combustion engines typically have increased particulate emissions at startup, until the engine has warmed up. This is normal and no specific mitigation measures will be employed. Shutdown emissions are not anticipated from this type of equipment. The emergency generator does not have pollution control equipment installed. Routine preventative maintenance for the emergency generator will be conducted to ensure proper operation and minimize emissions.

Air Quality Impact Analysis

The new emergency generator is expected to comply with the Ambient Air Quality Standards (AAQS). As stated in the City of Albuquerque Environmental Health Department (AEHD) Air Quality Division Internal Combustion Engine Permitting Policy, effective November 18, 1998, *internal combustion engines permitted for emergency use do not require an air dispersion modeling analysis*. The new generator is being permitted for emergency use; therefore no air dispersion modeling is required.

All other items required by 20.11.41 NMAC *Construction Permits* can be found in the permit application forms and the following attachments:

- Attachment A:** Application Review Fee Checklist
- Attachment B:** Permit Application Checklist and Public Notice Documentation
- Attachment C:** Manufacturer's Specifications for Generator and EPA Exhaust Emission Compliance Statement
- Attachment D:** Generator Location Map and Aerial Photo
- Attachment E:** Engine Process Flow Diagram

Attachment A
Application Review Fee Checklist



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



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 (KAFB)	
Company Address	2050 Wyoming Blvd. SE, Suite A-116, Kirtland AFB, NM 87117	
Facility Name	KAFB Well #16 (un-manned facility)	
Facility Address	SE of intersection of Ridgcrest Ave. and Randolph Rd. SE., Kirtland AFB, NM 87117	
Contact Person	Andria Cuevas, Air Program Manager	
Contact Person Phone Number	(505) 846-2522, andria.cuevas.1@us.af.mil	
Are these application review fees for an existing permitted source located within the City of Albuquerque or Bernalillo County?	<u>Yes</u>	No
If yes, what is the permit number associated with this modification?	Permit # 1786-M3	
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	<u>No</u>

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
Stationary Source Review Fees (Not Based on Proposed Allowable Emission Rate)			
	Source Registration required by 20.11.40 NMAC	\$ 544.00	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	\$ 1,088.00	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)			
	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	\$ 816.00	2302
	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	\$ 1,632.00	2303
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	\$ 3,265.00	2304
	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	\$ 4,897.00	2305
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	\$ 6,530.00	2306
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	\$8,162.00	2307
X	<i>Not Applicable</i>	<i>See Section Above</i>	
Federal Program Review Fees (In addition to the Stationary Source Application Review Fees above)			
	40 CFR 60 - "New Source Performance Standards" (NSPS)	\$ 1,088.00	2308
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	\$ 1,088.00	2309
	40 CFR 63 - (NESHAPs) Promulgated Standards	\$ 1,088.00	2310
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	\$ 10,883.00	2311
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	\$ 5,442.00	2312
	20.11.60 NMAC, Non-Attainment Area Permit	\$ 5,442.00	2313
X	<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	\$ 1,088.00	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	\$ 816.00	2322
X	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	\$ 1,632.00	2323
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	\$ 3,265.00	2324
	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	\$ 4,897.00	2325
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	\$ 6,530.00	2326
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	\$8,162.00	2327
	<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	\$ 5,442.00	2333
	20.11.61 NMAC, Prevention of Significant Deterioration	\$ 5,442.00	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)			
X	40 CFR 60 - "New Source Performance Standards" (NSPS)	\$ 1,088.00	2328
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	\$ 1,088.00	2329
	40 CFR 63 - (NESHAPs) Promulgated Standards	\$ 1,088.00	2330
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	\$ 10,883.00	2331
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	\$ 5,442.00	2332
	20.11.60 NMAC, Non-Attainment Area Permit	\$ 5,442.00	2333
	<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	<i>Not Applicable</i>	<i>See Sections II, III or V</i>	

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	\$
Section III Total	\$ 2,720.00
Section IV Total	\$
Section V Total	\$
Total Application Review Fee	\$ 2,720.00

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 4th day of Nov 2016

Eric H. Froehlich, Colonel, USAF
Print Name

Installation Commander, Kirtland AFB
Print Title


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.

City of Albuquerque

DATE: 11/07/16

CHECK # 29675

REFERENCE: Wells 15 Air Quality Permit

AMOUNT: 2720.00

HOLD TO LIGHT TO VIEW WATERMARK IN PAPER. HEAT SENSITIVE BED IMAGE DISAPPEARS WITH HEAT. DETECTION CIRCLE REVEALS A LOCK WHEN TESTED.

GRANCOR ENTERPRISES
2121 MENAUL NE
ALBUQUERQUE, NM 87107

WELLS FARGO BANK, N.A.
ALBUQUERQUE, NM 87107
95-219/1070

29675

DATE	11/07/16	AMOUNT
		\$*****2,720.00

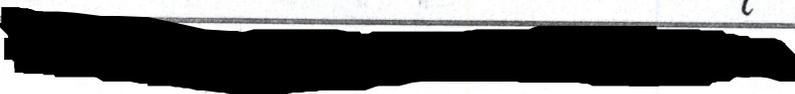
Two Thousand Seven Hundred Twenty and 00/100

TO THE City of Albuquerque
ORDER OF Air Quality Division
PO Box 1293
Albuquerque, NM 87103



[Handwritten Signature]

AUTHORIZED SIGNATURE



Security features. Details on back

Attachment B

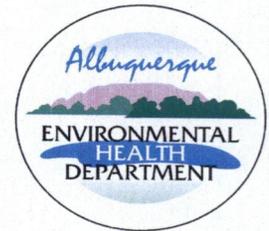
**Permit Application Checklist and
Public Notice Documentation**



City of Albuquerque

Environmental Health Department

Air Quality Program



Permit Application Checklist

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

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

All applicants shall:

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

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

- R. contain all calculations used to estimate **potential emission rate** and **controlled emissions**.
- S. contain the basis for the estimated control efficiencies and sufficient engineering data for verification of the control equipment operation, including if necessary, design drawings, test reports, and factors which affect the normal operation (e.g. limits to normal operation).
- T. contain fuel data for each existing and/or proposed piece of fuel burning equipment.
#2 ULSD Diesel fuel that is commercially available.
- U. contain the anticipated maximum production capacity of the entire facility and the requested production capacity after construction and/or modification.
- V. contain the stack and exhaust gas parameters for all existing and proposed emission stacks.
- W. N/A provide an ambient impact analysis using a atmospheric dispersion model approved by the US Environmental Protection Agency (EPA), and the Department to demonstrate compliance with the ambient air quality standards for the City of Albuquerque and Bernalillo County (See 20.11.01 NMAC). If you are modifying an existing source, the modeling must include the emissions of the entire source to demonstrate the impact the new or modified source(s) will have on existing plant emissions. **(Not applicable for emergency generators)**
- X. contain a preliminary operational plan defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown.
- Y. contain a process flow sheet, including a material balance, of all components of the facility that would be involved in routine operations. Indicate all emission points, including fugitive points.
- Z. contain a full description, including all calculations and the basis for all control efficiencies presented, of the equipment to be used for air pollution control. This shall include a process flow sheet or, if the Department so requires, layout and assembly drawings, design plans, test reports and factors which affect the normal equipment operation, including control and/or process equipment operating limitations.
- AA. contain description of the equipment or methods proposed by the applicant to be used for emission measurement. *EPA Certificate of Conformity provided in lieu of stack testing the new emergency generator engine.*
- BB. be signed under oath or affirmation by a corporate officer, authorized to bind the company into legal agreements, certifying to the best of his or her knowledge the truth of all information submitted.

CUEVAS, ANDRIA R CIV USAF AFGSC 377 MSG/CEIE

From: 377 ABW/PA Administrative Mailbox
Sent: Monday, November 14, 2016 5:01 PM
Cc: 377 MSG/CE Environmental Air Quality
Subject: Kirtland Notice of Intent to Construct
Attachments: Notice of Intent to Construct - KAFB Well #16 Generator.pdf

To whom it may concern:

Attached please find information pertaining to an application for an air permit modification being submitted to the Albuquerque Environmental Health Department Air Quality Division for Air Quality Permit #1786-M2 on Kirtland AFB.

You are receiving this email in accordance with 20.11.41.13.B NMAC which requires Kirtland AFB 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 with-in one-half mile of the exterior boundaries of the property.

Current Contact Information for Comments and Inquires:

Name: Kirtland AFB Public Affairs Office
Address: 2000 Wyoming Blvd SE
Phone Number: (505) 846-5991
E-Mail Address: 377ABW.PA@us.af.mil

Thank you,

Kirtland Public Affairs
505.846-5991

Contact Group Name:

Part 41 Notification list (Updated 10Nov16)

Members:

Clayton Heights/Lomas Del Cielo Cabrera
Clayton Heights/Lomas Del Cielo Molina-Dodge
Distric 6 Coalition of NAs-Dennis
East Gateway Coalition-Hartman
East Gateway Coalition-Mickelson
Elder Homestead NA-Marian Jordan
Four Hills Village HOA
Four Hills Village HOA-Brian McKeever
Juan Tabo Hills NA-Manring
Juan Tabo Hills NA-Megen Blackburn
Juan Tabo Hills NA-Walker
Kirtland Community Assoc-Elizabeth Aikin
Kirtland Community Assoc-Kimberly Brown
La Mesa Comm Improvement Assoc-Nancy Bearce
La Mesa Community Improvement Assoc-Charles Bennet
Mirabella-Miravista NA-David McGrogan
Mirabella-Miravista NA-Laurie Estrada
Parkland Hills NA-Daniel Spanogle
Siesta Hills NA-Pete Stromberg
Singing Arrow NA
Singing Arrow NA-Davidson
Singing Arrow-Mark Burton
South Los Altos NA-Allen Osborn
South Los Altos NA-Eileen Jessen
South San Pedro NA-Orozco-Geist
Southeast Heights NA-John Pate
Southeast Heights NA-Miller
Terracita HOA-Chase
Terracita HOA-Cheryl Peifer
Trumbull Village Assoc-Barrs
Trumbull Village Assoc-Joanne Landry
University Heights NA
University Heights NA-Joe Gallegos
University Heights NA-Julie Kidder
Victory Hills NA-Patty Willson
Victory Hills NA-Robert Stembridge
Willow Wood NA-Frank Bushman
Willow Wood NA-Jonathan Hollinger
Yale Village NA-Donald Love
Yale Village NA-Kim Love

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marianjor@aol.com
4hhassoc@gmail.com
brian4hvha@gmail.com
Maureen.manring@yahoo.com
admin@jthna.com
tyu@eridex.org
bakieaikin@comcast.net
kande0@yahoo.com
nancymbearce@gmail.com
cb4innm@gmail.com
david.mcgrogan@gmail.com
Laudonest@gmail.com
danspanogle@gmail.com
siesta2pete@gmail.com
info@abqsana.org
dydavidson@msn.com
mark@abqsana.org
a.osborn06@comcast.net
eileentjessen@gmail.com
jgeist80@comcast.net
jpate@molzencorbin.com
[gmiller@mrwmla.com](mailto:gmilller@mrwmla.com)
ichase@cgres.com
cpeifer57@gmail.com
gee@hotmail.com
landry54@msn.com
info@uhanm.org
burquejoe2000@yahoo.com
juliemkidder@gmail.com
info@willsonstudio.com
flathatcat@yahoo.com
fbushman@arraytechinc.com
jrholl@gmail.com
donaldlove08@gmail.com
klove726@gmail.com



Notice of Intent to Construct

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

Applicant's Name and Address: U.S. Air Force – Kirtland Air Force Base (KAFB)

Owner / Operator's Name and Address: Col. Eric H. Froehlich, 2000 Wyoming Blvd SE, Albuquerque, NM 87117

Actual or Estimated Date the Application will be submitted to the Department: 31 October, 2016

Exact Location of the Source or Proposed Source:

B25952 – Kirtland Air Force Base, Southeast of intersection of Ridgcrest Avenue and Randolph Ave SE, Kirtland AFB, NM 87117 (Unit 19178)

Description of the Source: One new 1220 horsepower (hp) emergency generator to provide backup electrical power to KAFB Water Plant Well #16 Building 25952 during PNM utility outages.

Nature of the Business: National Security/Defense, Military Base

Process or Change for which the permit is requested: Modification to Permit #1786-M3 to remove a natural gas fired well shaft engine and a natural gas fired emergency generator. Addition of one 1220 horsepower diesel emergency generator. Well shaft engine is being replaced with an electric engine.

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

Net Changes In Emissions

Initial ATC Permit #1786-M3

(Only for permit Modifications or Technical Revisions)

	Pounds Per Hour (lbs/hr)	Tons Per Year (tpy)
CO	37.6	6.13
NOx	104	16.7
SO2	6.08	0.63
VOC	7.22	1.84
TSP	5.91	0.65
PM10	5.91	0.65
PM2.5	5.91	0.65
VHAP	N/A	N/A

	lbs/hr	tpy	Estimated Total TPY
CO	+2.24	-2.15	4.0
NOx	+1.56	-6.14	10.6
SO2	+0.31	+0.02	0.65
VOC	-1.09	-1.23	0.61
TSP	+0.33	-0.01	0.64
PM10	+0.33	-0.01	0.64
PM2.5	+0.33	-0.01	0.64
VHAP	N/A	N/A	N/A

Maximum Operating Schedule: 24 hours/day, 365 days/year

Normal Operating Schedule: 9 hours/day, 312 days/year

Ver.11/13

Current Contact Information for Comments and Inquires:

Name: Kirtland AFB Public Affairs Office
Address: 2000 Wyoming Blvd SE
Phone Number: (505) 846-5991
E-Mail Address: 377ABW.PA@us.af.mil

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

Environmental Health Manager
Stationary Source Permitting
Albuquerque Environmental Health Department
Air Quality Program
PO Box 1293
Albuquerque, New Mexico 87103
(505) 768-1972

Other comments and questions may be submitted verbally.

Please refer to the company name and facility name, as used in this notice or send a copy of this notice along with your comments, since the Department may not have received the permit application at the time of this notice. Please include a legible mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, if required, the Department's notice will be published in the legal section of the Albuquerque Journal and mailed to neighborhood associations and neighborhood coalitions near the facility location or near the facility proposed location.



City of Albuquerque

Environmental Health Department

Air Quality Program



Public Notice Sign Guidelines

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

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

Name: Melissa Clark, Chief, Environmental Management

Contact: melissa.clark.8@us.af.mil

Company/Business: Kirtland Air Force Base

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



Attachment C

**Manufacturer's Specifications for Generator
and
EPA Exhaust Emission Compliance Statement**

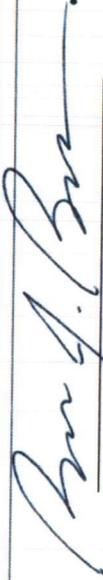


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2016 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT

OFFICE OF TRANSPORTATION
AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: Cummins Inc.
(U.S. Manufacturer or Importer)
Certificate Number: GCEXL023.AAB-041

Effective Date:
12/30/2015
Expiration Date:
12/31/2016


Byron J. Bunker, Division Director
Compliance Division

Issue Date:
12/30/2015
Revision Date:
N/A

Model Year: 2016
Manufacturer Type: Original Engine Manufacturer
Engine Family: GCEXL023.AAB

Mobile/Stationary Indicator: Stationary
Emissions Power Category: 560<kW<=2237
Fuel Type: Diesel
After Treatment Devices: No After Treatment Devices Installed
Non-after Treatment Devices: Electronic Control, Engine Design Modification

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

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

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

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



Exhaust Emission Data Sheet

750DQCB

60 Hz Diesel Generator Set

EPA NSPS Stationary Emergency

Engine Information:

Model: Cummins Inc QSK23-G7 NR2	Bore: 6.69 in. (170 mm)
Type: 4 Cycle, In Line, 6 Cylinder Diesel	Stroke: 6.69 in. (170 mm)
Aspiration: Turbocharged and CAC	Displacement: 1413 cu. in. (23.1 liters)
Compression Ratio: 16.0:1	
Emission Control Device: Turbocharged with Charge Air Cooled	

PERFORMANCE DATA	<u>1/4</u> Standby	<u>1/2</u> Standby	<u>3/4</u> Standby	<u>Full</u> Standby	<u>Full</u> Prime
Engine HP @ Stated Load (1800 RPM)	275	550	825	1100	989
Fuel Consumption (gal/hr)	15.2	27.6	39.5	50.5	46.5
Exhaust Gas Flow (CFM)	2270.8	3464.5	4460.2	5160.8	4864
Exhaust Temperature (°F)	623.6	726.9	786.2	840	815
EXHAUST EMISSION DATA					
HC (Total Unburned Hydrocarbons)	0.77	0.33	0.19	0.12	0.15
NOx (Oxides of Nitrogen as NO2)	2.91	3.31	4.15	5.87	5.27
CO (Carbon Monoxide)	0.95	0.37	0.19	0.28	0.25
PM (particular Matter)	0.27	0.1	0.05	0.05	0.05
SO2 (Sulfur Dioxide)	0.12	0.11	0.1	0.1	0.1
Smoke (Bosch)	0.84	0.5	0.35	0.38	0.36

All values are Grams per HP-Hour

TEST CONDITIONS

Data was recorded during steady-state rated engine speed (± 25 RPM) with full load ($\pm 2\%$). Pressures, temperatures, and emission rates were stabilized.

Fuel Specification: 46.5 Cetane Number, 0.035 Wt.% Sulfur; Reference ISO8178-5, 40CFR86.1313-98 Type 2-D and ASTM D975 No. 2-D.

Fuel Temperature: 99 ± 9 °F (at fuel pump inlet)

Intake Air Temperature: 77 ± 9 °F

Barometric Pressure: 29.6 ± 1 in. Hg

Humidity: NOx measurement corrected to 75 grains H₂O/lb dry air

Reference Standard: ISO 8178

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



2016 EPA Tier 2 Exhaust Emission Compliance Statement 750DQCB 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 when tested per ISO8178 D2.

Engine Manufacturer:	Cummins Inc
EPA Certificate Number:	GCEXL023.AAB-041
Effective Date:	12/30/2015
Date Issued:	12/30/2015
EPA Engine Family :	GCEXL023.AAB

Engine Information:

Model:	QSK23 / QSX23-G7 NR2	Bore:	6.69 in. (170 mm)
Engine Nameplate HP:	1220	Stroke:	6.69 in. (170 mm)
Type:	4 Cycle, In-line, 6 Cylinder Diesel	Displacement:	1413 cu. in. (23.2 liters)
Aspiration:	Turbocharged and CAC	Compression Ratio:	16.0:1
Emission Control Device:	Engine Design Modification	Exhaust Stack Diameter:	10 in.

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 - Diesel Fuel (300-4000 ppm Sulfur)	4.3	0.3	0.10	5.7	0.4	0.13
EPA Emissions Limit	4.8	2.6	0.15	6.4	3.5	0.20
Test Results - CARB Diesel Fuel (<15 ppm Sulfur)	3.9	0.3	0.09	5.2	0.4	0.11
CARB Emissions Limit	4.8	2.6	0.15	6.4	3.5	0.20

The CARB emission values are based on CARB approved calculations for converting EPA (500 ppm) fuel to CARB (15 ppm) fuel.

Test Methods: EPA/CARB Nonroad emissions recorded per 40CFR89 (ref. ISO8178-1) and weighted at load points prescribed in Subpart E, Appendix A for Constant Speed Engines (ref. ISO8178-4, D2)

Diesel Fuel Specifications: Cetane Number: 40-48. Reference: ASTM D975 No. 2-D.

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

Tests conducted using alternate test methods, instrumentation, fuel or reference conditions can yield different results.

Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.

Generator set data sheet

Model: DQCB
Frequency: 60
Fuel type: Diesel
KW rating: 750 standby
 680 prime
Emissions level: EPA NSPS Stationary Emergency Tier 2

Exhaust emission data sheet:	EDS-1087
Exhaust emission compliance sheet:	EPA-1121
Sound data sheet:	MSP-1159
Sound data sheet – with seismic feature codes L228-2 (IBC) and/or L225-2 (OSHPD):	MSP-1013
Cooling system data in various ambient conditions:	MCP-248
Cooling system data in various ambient conditions – with seismic feature codes L228-2 (IBC) and/or L225-2 (OSHPD):	MCP-174
Prototype test summary data sheet:	PTS-160

Fuel consumption	Standby				Prime				Continuous
	kW (kVA)				kW (kVA)				kW (kVA)
Ratings	750 (938)				680 (850)				
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full	
US gph	16.0	28.0	40.0	51.0	15.0	25.0	36.5	48.0	
L/hr	60.6	106.0	151.4	193.1	56.8	94.6	138.2	181.7	

Engine	Standby rating	Prime rating	Continuous rating
Engine manufacturer	Cummins Inc.		
Engine model	QSK23-G7 NR2		
Configuration	Cast Iron, in line, 6 cylinder		
Aspiration	Turbocharged and air-to-air aftercooled		
Gross engine power output, kWm (bhp)	910 (1220)	808 (1085)	
BMEP at set rated load, kPa (psi)	2435 (353)	2214 (321)	
Bore, mm (in)	170 (6.69)		
Stroke, mm (in)	170 (6.69)		
Rated speed, rpm	1800		
Piston speed, m/s (ft/min)	10.21 (2010)		
Compression ratio	16:1		
Lube oil capacity, L (qt)	102 (108)		
Overspeed limit, rpm	2100		
Regenerative power, kW	93		

Fuel flow		
Maximum fuel flow, L/hr (US gph)	685 (181)	
Maximum fuel inlet restriction, kPa (in Hg)	13.44 (4)	
Maximum fuel inlet temperature, °C (°F)	71 (160)	

Air

	Standby rating	Prime rating	Continuous rating
Combustion air, m ³ /min (scfm)	64 (2242)	62 (2189)	
Maximum air cleaner restriction, kPa (in H ₂ O)	6.2 (25)		
Alternator cooling air, m ³ /min (cfm)	117 (4156)		

Exhaust

Exhaust flow at set rated load, m ³ /min (cfm)	152 (5358)	146 (5147)	
Exhaust temperature, °C (°F)	476 (888)	458 (856)	
Maximum back pressure, kPa (in H ₂ O)	10.1 (40.8)		

Standard set-mounted radiator cooling (non-seismic)

Ambient design, °C (°F)	50 (122)		
Fan load, kW _m (HP)	24 (32)		
Coolant capacity (with radiator), L (US gal)	109.5 (29)		
Cooling system air flow, m ³ /min (scfm)	998 (35233)		
Total heat rejection, MJ/min (Btu/min)	32.3 (30655)	29.6 (28065)	
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.12 (0.5)		
Maximum fuel return line restriction kPa (in Hg)	30.47 (9)		

Optional set-mounted radiator cooling (with seismic feature codes L228-2 (IBC) and/or L225-2 (OSHPD))

Ambient design, °C (°F)	50 (122)		
Fan load, kW _m (HP)	27 (36)		
Coolant capacity (with radiator), L (US gal)	89 (23.5)		
Cooling system air flow, m ³ /min (scfm)	1252 (44183)		
Total heat rejection, MJ/min (Btu/min)	32.3 (30655)	29.6 (28065)	
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.12 (0.5)		
Maximum fuel return line restriction, kPa (in Hg)	30.47 (9)		

Optional heat exchanger cooling

Set coolant capacity, L (US gal)			
Heat rejected, jacket water circuit, MJ/min (Btu/min)			
Heat rejected, aftercooler circuit, MJ/min (Btu/min)			
Heat rejected, fuel circuit, MJ/min (Btu/min)			
Total heat radiated to room, MJ/min (Btu/min)			
Maximum raw water pressure, jacket water circuit, kPa (psi)			
Maximum raw water pressure, aftercooler 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, aftercooler 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, aftercooler circuit, L/min (US gal/min)			
Minimum raw water flow at 27 °C (80 °F) inlet temp, fuel circuit, L/min (US gal/min)			
Raw water delta P at min flow, jacket water circuit, kPa (psi)			
Raw water delta P at min flow, aftercooler circuit, kPa (psi)			
Raw water delta P at min flow, fuel circuit, kPa (psi)			
Maximum jacket water outlet temp, °C (°F)			
Maximum aftercooler inlet temp, °C (°F)			
Maximum aftercooler inlet temp at 25 °C (77 °F) ambient, °C (°F)			
Maximum fuel return line restriction, kPa (in Hg)			

Optional remote radiator cooling¹

	Standby rating	Prime rating	Continuous rating
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, aftercooler circuit, L/min (US gal/min)			
Heat rejected, jacket water circuit, MJ/min (Btu/min)			
Heat rejected, aftercooler circuit, MJ/min (Btu/min)			
Heat rejected, fuel circuit, MJ/min (Btu/min)			
Total heat radiated to room, MJ/min (Btu/min)			
Maximum friction head, jacket water circuit, kPa (psi)			
Maximum friction head, aftercooler circuit, kPa (psi)			
Maximum static head, jacket water circuit, m (ft)			
Maximum static head, aftercooler circuit, m (ft)			
Maximum jacket water outlet temp, °C (°F)			
Maximum aftercooler inlet temp at 25 °C (77 °F) ambient, °C (°F)			
Maximum aftercooler 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)	6075 (13395)
Unit wet weight kgs (lbs)	6337 (13973)

Notes:

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

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

Derating factors

Standby	Engine power available up to 1371 m (4497 ft) at ambient temperatures up to 40 °C (104 °F). Above these elevations, derate at 4.4% per 305 m (1000 ft). Above 40 °C (104 °F) derate 10% per 10 °C (18 °F).
Prime	Engine power available up to 1084 m (3555 ft) at ambient temperatures up to 40 °C (104 °F). Above these elevations, derate at 4.5% per 305 m (1000 ft). Above 40 °C (104 °F) derate 20.9% per 10 °C (18 °F).
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

Voltage	Connection ¹	Temp rise degrees C	Duty ²	Single phase factor ³	Max surge kVA ⁴	Winding No.	Alternator data sheet	Feature Code
380-480	Wye	125/105	S/P		3313	312	ADS-310	B282-2
220/380	Wye	105/80	S/P		4234	311	ADS-312	B599-2
480	Wye	105/80	S/P		3313	312	ADS-310	B600-2
480	Wye	80	S		3866	312	ADS-311	B601-2
600	Wye	105/80	S/P		3313	7	ADS-310	B603-2
600	Wye	80	S/P		3866	7	ADS-311	B604-2
380	Wye	80	S		4234	312	ADS-312	B660-2
480	Wye	125	P		2944	312	ADS-309	B718-2
600	Wye	125	P		2944	7	ADS-309	B720-2
190-480	Wye	125/105	S/P		2944	311	ADS-309	B731-2
208/416	Wye	105/80	S/P		3866	311	ADS-311	B733-2
208/416	Wye	80	S		4234	311	ADS-312	B734-2
400	Wye	105	S		3866	312	ADS-311	B735-2
480	Wye	125	S		2944	312	ADS-309	B738-2
600	Wye	125	S		2944	7	ADS-309	B739-2
416	Wye	125/105	S/P		3313	312	ADS-310	B741-2

Notes:

¹ Limited single phase capability is available from some three phase rated configurations. To obtain single phase rating, multiply the three phase kW rating by the Single Phase Factor³. All single phase ratings are at unity power factor.

² Standby (S), Prime (P) and Continuous ratings (C).

³ Factor for the *Single Phase Output from Three Phase Alternator* formula listed below.

⁴ Maximum rated starting kVA that results in a minimum of 90% of rated sustained voltage during starting.

Formulas for calculating full load currents:

Three phase output

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

Single phase output

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

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

North America
1400 73rd Avenue N.E.
Minneapolis, MN 55432
USA

Phone 763 574 5000
Fax 763 574 5298

Our energy working for you.™

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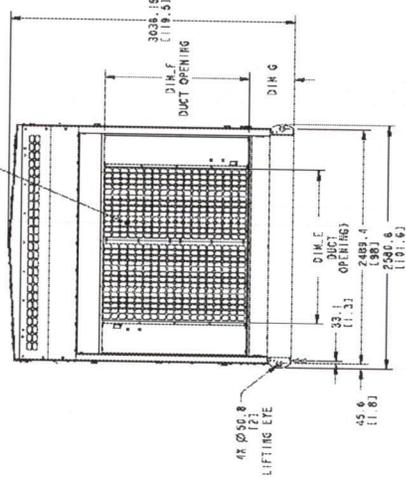
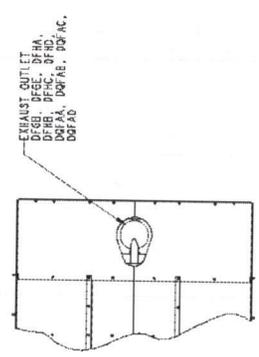
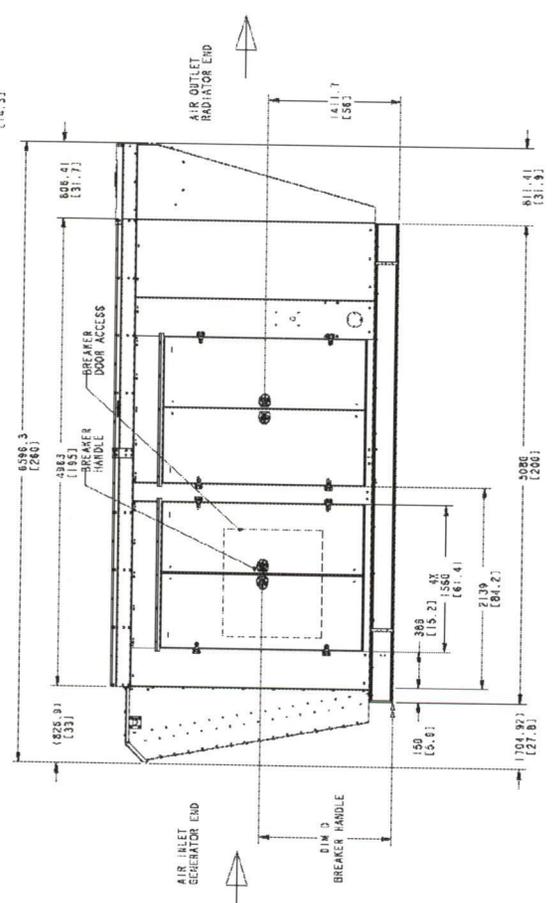
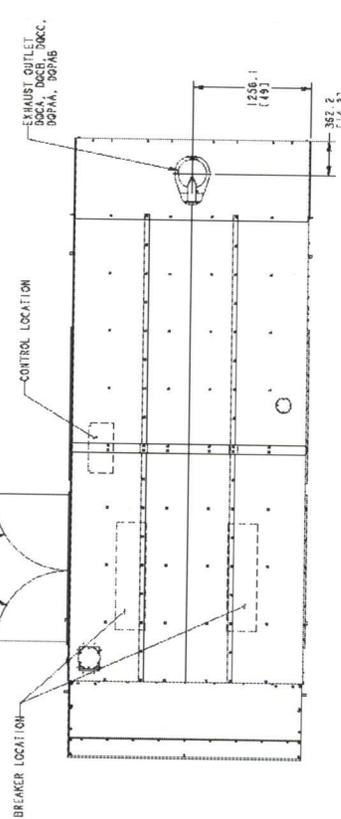
D-3353h (3/14)



cumminspower.com

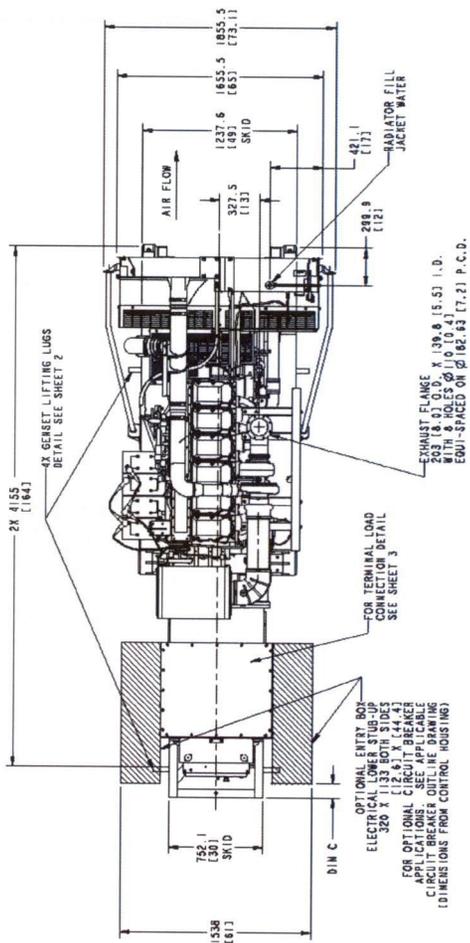
REVISED
A034L222

NO.	DATE	BY	CHKD.	DESCRIPTION
1	10/15/83	J. H. HANLEY	J. H. HANLEY	ISSUED FOR FABRICATION
2	11/15/83	J. H. HANLEY	J. H. HANLEY	REVISED TO SHOW DOOR SWING
3	12/15/83	J. H. HANLEY	J. H. HANLEY	REVISED TO SHOW DOOR SWING
4	01/15/84	J. H. HANLEY	J. H. HANLEY	REVISED TO SHOW DOOR SWING
5	02/15/84	J. H. HANLEY	J. H. HANLEY	REVISED TO SHOW DOOR SWING
6	03/15/84	J. H. HANLEY	J. H. HANLEY	REVISED TO SHOW DOOR SWING
7	04/15/84	J. H. HANLEY	J. H. HANLEY	REVISED TO SHOW DOOR SWING
8	05/15/84	J. H. HANLEY	J. H. HANLEY	REVISED TO SHOW DOOR SWING
9	06/15/84	J. H. HANLEY	J. H. HANLEY	REVISED TO SHOW DOOR SWING
10	07/15/84	J. H. HANLEY	J. H. HANLEY	REVISED TO SHOW DOOR SWING
11	08/15/84	J. H. HANLEY	J. H. HANLEY	REVISED TO SHOW DOOR SWING
12	09/15/84	J. H. HANLEY	J. H. HANLEY	REVISED TO SHOW DOOR SWING



GENERAL INFORMATION		DESIGNATION	
1. TITLE	OUTLINE, ENCLOSURE	1. PART NO.	A034L222
2. DRAWING NO.	10000000000000000000	2. REV.	1
3. DATE	10/15/83	3. REV.	
4. DRAWN BY	J. H. HANLEY	4. REV.	
5. CHECKED BY	J. H. HANLEY	5. REV.	
6. APPROVED BY	J. H. HANLEY	6. REV.	
7. PROJECT NO.	10000000000000000000	7. REV.	
8. SHEET NO.	1	8. REV.	
9. TOTAL SHEETS	1	9. REV.	
10. DRAWING SCALE	AS SHOWN	10. REV.	
11. PROJECT TITLE	COMPUTER	11. REV.	
12. PROJECT NO.	10000000000000000000	12. REV.	
13. PROJECT TITLE	COMPUTER	13. REV.	
14. PROJECT NO.	10000000000000000000	14. REV.	
15. PROJECT TITLE	COMPUTER	15. REV.	
16. PROJECT NO.	10000000000000000000	16. REV.	
17. PROJECT TITLE	COMPUTER	17. REV.	
18. PROJECT NO.	10000000000000000000	18. REV.	
19. PROJECT TITLE	COMPUTER	19. REV.	
20. PROJECT NO.	10000000000000000000	20. REV.	

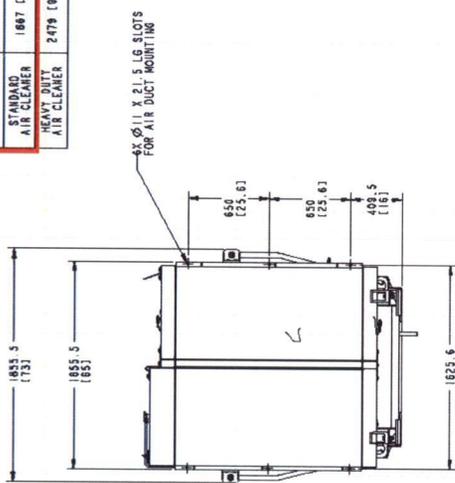
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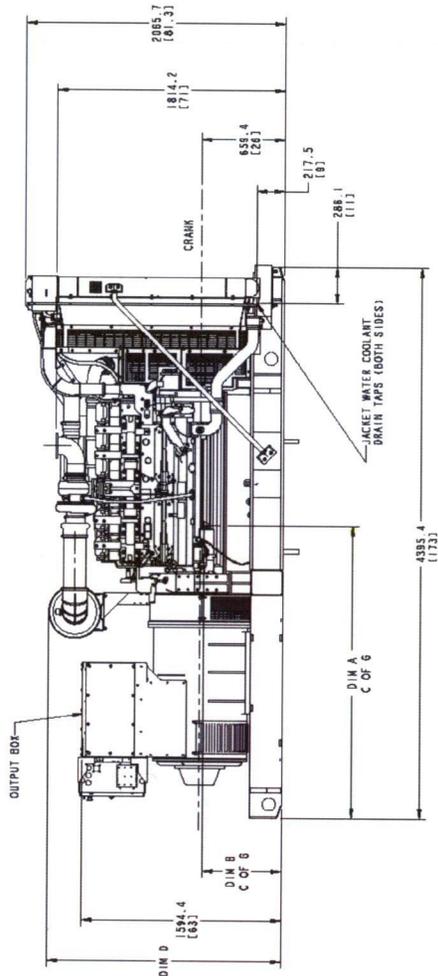
- NOTES:
1. DIMENSIONS SHOWN IN () BRACKETS ARE INCHES.
 2. FUEL INLET HOSE-1650 (65) LONG WITH 1"-11.5 RPT EXTERNAL FITTING.
 3. FUEL RETURN HOSE-2000 (79) LONG WITH 1"-11.5 RPT EXTERNAL FITTING.
 4. GENSET SHIPPED FILLED WITH ENGINE OIL.

GEN FRAME SIZE	DIM A C OF G	DIM B C OF G	DIM C	GENSET WT W/ COOLANT		GENSET WT COOLANT	
				KGS	LEBS	KGS	LEBS
H56G	2031 (80)	764 (30.1)	109	6075	13365	6337	13933
H66H	2084 (81.2)	761 (30)	109	6225	13726	6487	14324
H66J	2038 (80.2)	754 (30.1)	109	6360	14038	6642	14625
H66K	2112 (83.2)	758 (30.2)	109	6553	14670	6915	15247

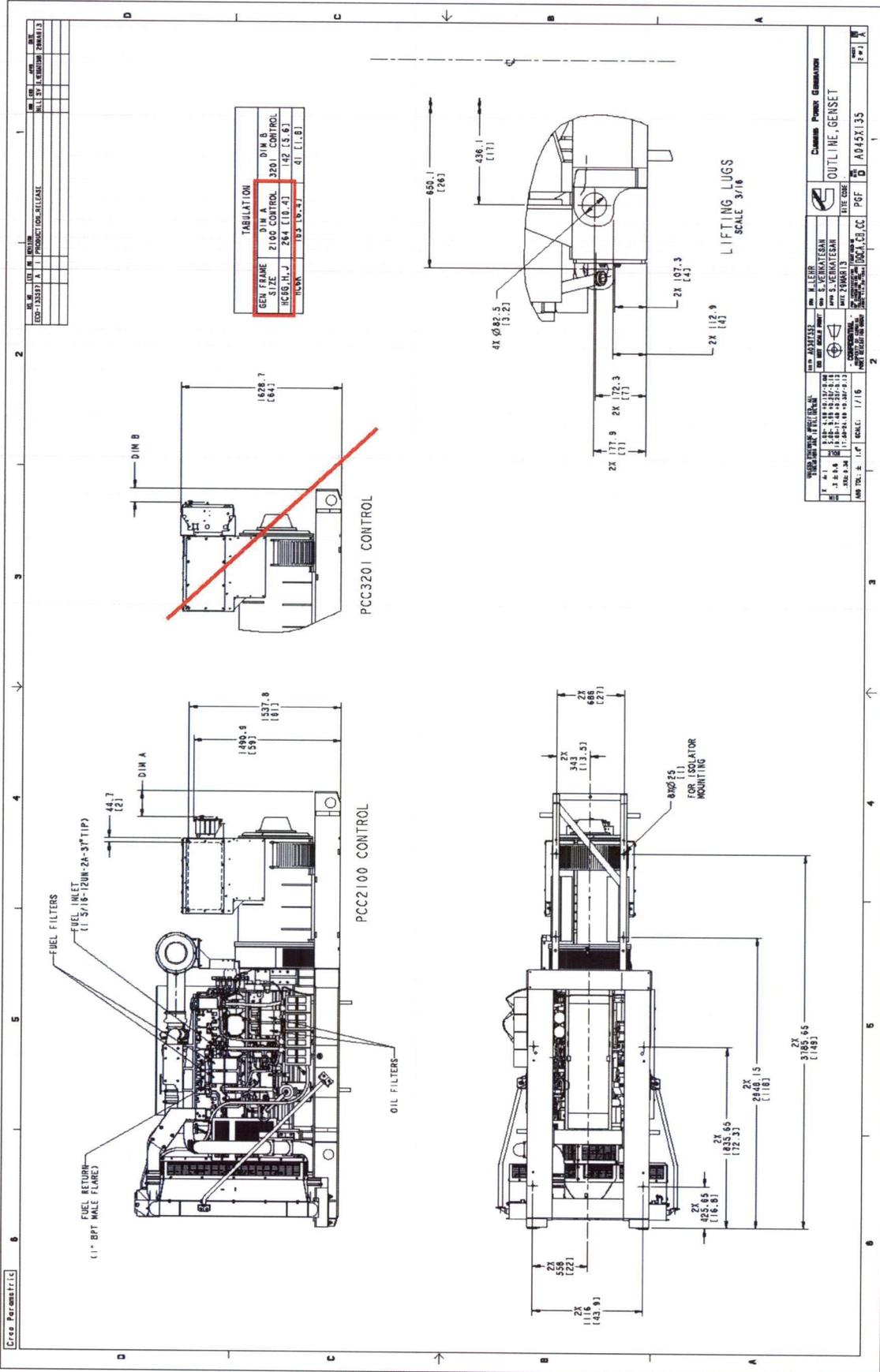
TABULATION	
AIR CLEANER OPTION	DIM D HEIGHT
STANDARD AIR CLEANER	1867 (74)
HEAVY DUTY AIR CLEANER	2479 (97.6)



RADIATOR END VIEW



<p>VEEVA ENGINEERING (PVT) LTD. 100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/226/227/228/229/230/231/232/233/234/235/236/237/238/239/240/241/242/243/244/245/246/247/248/249/250/251/252/253/254/255/256/257/258/259/260/261/262/263/264/265/266/267/268/269/270/271/272/273/274/275/276/277/278/279/280/281/282/283/284/285/286/287/288/289/290/291/292/293/294/295/296/297/298/299/300/301/302/303/304/305/306/307/308/309/310/311/312/313/314/315/316/317/318/319/320/321/322/323/324/325/326/327/328/329/330/331/332/333/334/335/336/337/338/339/340/341/342/343/344/345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425/426/427/428/429/430/431/432/433/434/435/436/437/438/439/440/441/442/443/444/445/446/447/448/449/450/451/452/453/454/455/456/457/458/459/460/461/462/463/464/465/466/467/468/469/470/471/472/473/474/475/476/477/478/479/480/481/482/483/484/485/486/487/488/489/490/491/492/493/494/495/496/497/498/499/500/501/502/503/504/505/506/507/508/509/510/511/512/513/514/515/516/517/518/519/520/521/522/523/524/525/526/527/528/529/530/531/532/533/534/535/536/537/538/539/540/541/542/543/544/545/546/547/548/549/550/551/552/553/554/555/556/557/558/559/560/561/562/563/564/565/566/567/568/569/570/571/572/573/574/575/576/577/578/579/580/581/582/583/584/585/586/587/588/589/590/591/592/593/594/595/596/597/598/599/600/601/602/603/604/605/606/607/608/609/610/611/612/613/614/615/616/617/618/619/620/621/622/623/624/625/626/627/628/629/630/631/632/633/634/635/636/637/638/639/640/641/642/643/644/645/646/647/648/649/650/651/652/653/654/655/656/657/658/659/660/661/662/663/664/665/666/667/668/669/670/671/672/673/674/675/676/677/678/679/680/681/682/683/684/685/686/687/688/689/690/691/692/693/694/695/696/697/698/699/700/701/702/703/704/705/706/707/708/709/710/711/712/713/714/715/716/717/718/719/720/721/722/723/724/725/726/727/728/729/730/731/732/733/734/735/736/737/738/739/740/741/742/743/744/745/746/747/748/749/750/751/752/753/754/755/756/757/758/759/760/761/762/763/764/765/766/767/768/769/770/771/772/773/774/775/776/777/778/779/780/781/782/783/784/785/786/787/788/789/790/791/792/793/794/795/796/797/798/799/800/801/802/803/804/805/806/807/808/809/810/811/812/813/814/815/816/817/818/819/820/821/822/823/824/825/826/827/828/829/830/831/832/833/834/835/836/837/838/839/840/841/842/843/844/845/846/847/848/849/850/851/852/853/854/855/856/857/858/859/860/861/862/863/864/865/866/867/868/869/870/871/872/873/874/875/876/877/878/879/880/881/882/883/884/885/886/887/888/889/890/891/892/893/894/895/896/897/898/899/900/901/902/903/904/905/906/907/908/909/910/911/912/913/914/915/916/917/918/919/920/921/922/923/924/925/926/927/928/929/930/931/932/933/934/935/936/937/938/939/940/941/942/943/944/945/946/947/948/949/950/951/952/953/954/955/956/957/958/959/960/961/962/963/964/965/966/967/968/969/970/971/972/973/974/975/976/977/978/979/980/981/982/983/984/985/986/987/988/989/990/991/992/993/994/995/996/997/998/999/1000</p>	<p>DATE: 17/16 DRAWN BY: [REDACTED] CHECKED BY: [REDACTED] APPROVED BY: [REDACTED]</p>
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Attachment D

**Generator Location Map and
Aerial Photo**

Bldg. 25952 Well #16
Emergency Generator



**Generator Location Map
Kirtland Air Force Base, Albuquerque, New Mexico**



Google

© 2016 Google

Imagery Date: 11/1/2015 13 S 356772.40 m E 3879924.17 m N elev 5366 ft eye alt 67

Air Guard Dr

1991

Google Earth - New Placemark

Name: Well #16

Zone: 13 S

Easting: 356878.67 m E

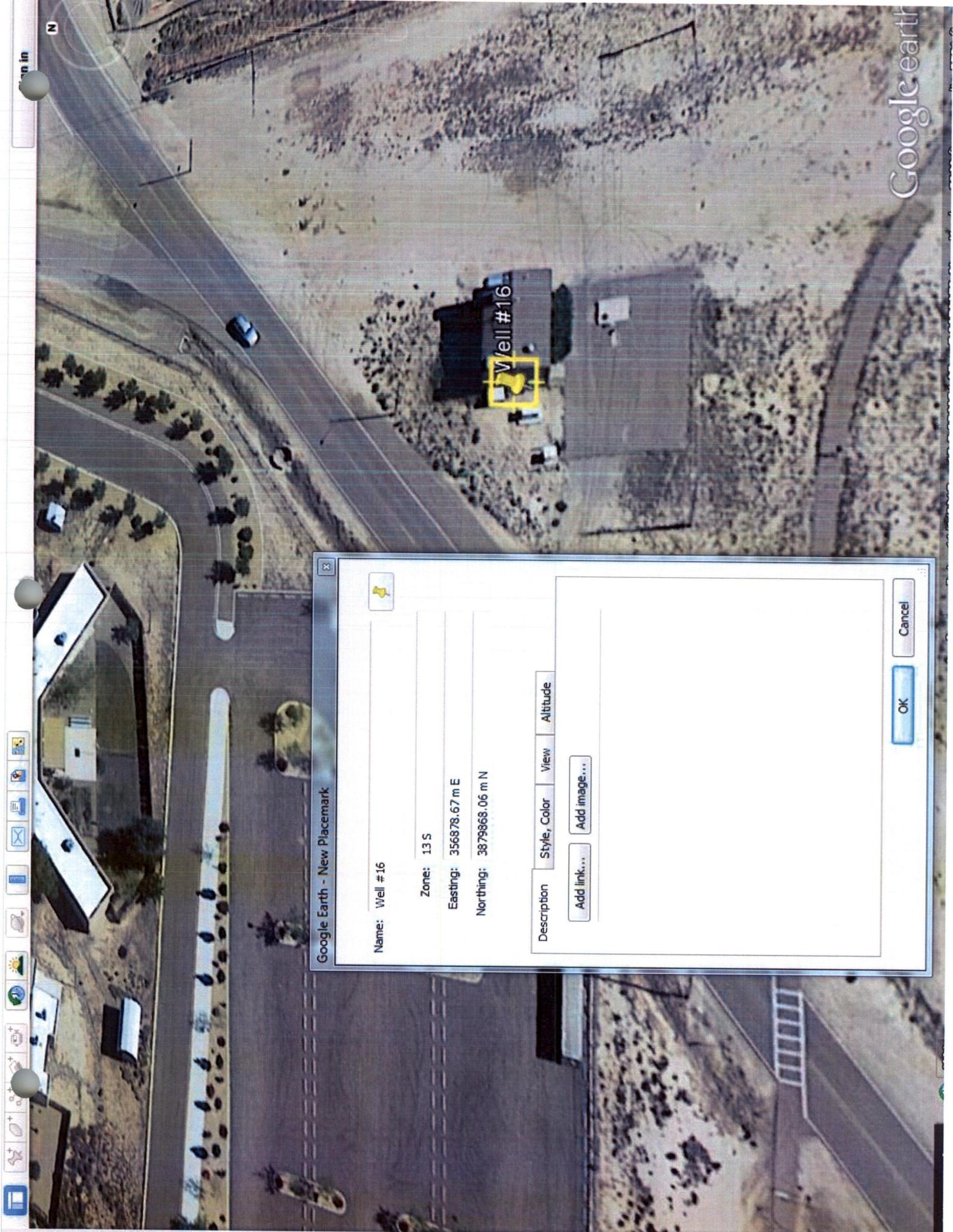
Northing: 3879868.06 m N

Description Style, Color View Altitude

Add link... Add image...

OK Cancel

Well #16



N

Attachment E
Engine Process Flow Diagram

Process Flow Diagram for an Engine

