



## Kirtland Air Force Base

20.11.41 NMAC Construction Permit Application  
Emergency Generators  
Starfire Optical Range

377 MSG/CEIE  
Kirtland AFB, New Mexico

OCT 29 '21 AM 11:38

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## KIRTLAND AIR FORCE BASE

### **Application for Modification to Permit #1759-M1-RV1 for the Kirtland Air Force Base Starfire Optical Range**

#### **FACT SHEET**

Kirtland Air Force Base (AFB) is submitting this application for a modification to Authority to Construct Permit #1759-M1-RV1 from the Albuquerque Environmental Health Department (AEHD) Air Quality Division. Permit #1759-M1-RV1 currently applies to five emergency generators with Process Equipment Unit Numbers 1 - 5 (Unit ID Nos. 19135, 19155, 19156, 19157, and 19158) which provide backup power to the Starfire Optical Range (SOR) Telescopic Atmospheric Compensation (TAC) Laboratory at Building 66048.

Kirtland AFB is submitting this application to remove the quinquennial stack testing requirement for Unit 1 (Unit ID No. 19135) contained in permit condition I.6.h). This unit is a 1334 horsepower, natural gas fired, emergency engine located at the Starfire Optical Range. This unit provides emergency power in the event of local utility power failure. Kirtland AFB Title V Permit #527-RN1 Condition 3.1.3, states that the unit is not subject to the National Emissions Standard for Hazardous Air Pollutants (NESHAP) Subpart ZZZZ since it meets the requirements of an Existing Institutional Emergency Stationary Reciprocating Internal Combustion Engine (RICE). Specifically, 40 CFR 63, Subpart ZZZZ, §63.6585(f)(3), exempts Unit 19135 because it does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in 40 CFR 63, Subpart ZZZZ §63.6640(f)(2)(ii) and (iii), and the Unit does not operate for the purpose specified in 40 CFR 63, Subpart ZZZZ §63.6640(f)(4)(ii). As such, there are no federal requirements to perform stack tests on this unit. Regardless, stack testing on this unit has been performed periodically since its installation over 15 years ago, and has consistently demonstrated compliance with permit requirements. Therefore, Kirtland AFB is submitting this application to eliminate the quinquennial compliance testing requirement, permit condition I.6.h). No other changes are being requested at this time. The following application and forms are provided for completeness, however, the information in them remains unchanged from previous permit applications.

Certification by the applicant's official representative that the information in this application is accurate (as required by 20.11.41.13.B(10) NMAC) is included with the permit application forms in Attachment A. Attachment B contains the completed AEHD permit application checklist to ensure that the required elements have been included in this application. The Notice of Intent to Construct is also contained in Attachment D.

Although no changes are being requested, hourly, annual, and potential emissions from the emission sources are included in Attachment C. Refer to Attachment D for a map illustrating the locations of the Process Equipment. Refer to Attachment E for a process flow diagram for an internal combustion engine.

Routine preventative maintenance will be conducted on each engine to ensure proper operation. The operators will be responsible for shutting down the generators and engines if there is a malfunction, such as vacuum loss, low oil pressure, overheating, or overly high revolutions per minute. The following recordkeeping and ongoing compliance activities will be performed.

- Kirtland AFB will maintain records of the hours of operation for the engines;
- Kirtland AFB will calculate annual emissions from the engines using appropriate emission factors and annual operating hours;
- Kirtland AFB will include emissions and hours of operation from the engines in an annual emissions report to be submitted to the AEHD to ensure that no exceedances of the 20.11.41 NMAC permit limits occur; and
- Kirtland AFB will maintain organization-required maintenance logs to show that the engines are in good working condition.

Attachment A – Permit Application Forms

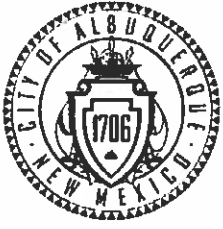
Attachment B – Permit Application Checklist and Notice of Intent to Construct

Attachment C – Emission Calculations

Attachment D – Emergency Generator Location Map

Attachment E – Emergency Generator Process Flow Diagram

**Attachment A**  
**AEHD Permit Application Forms**



**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:  
3<sup>rd</sup> Floor, Suite 3023 - One Civic Plaza NW, Albuquerque, New Mexico 87103  
(505) 768 - 1972 aqd@cabq.gov (505) 768 - 1977 (Fax)



**Application for Air Pollutant Sources in Bernalillo County  
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

Clearly handwrite or type

Corporate Information

Submission Date: 10/27/2021

1. Company Name U.S. Air Force – Kirtland Air Force Base
2. Street Address 2050 Wyoming Blvd. SE, Suite 116 Zip 87117-5270
3. Company City Kirtland AFB, Albuquerque 4. Company State NM 5. Company Phone (505) 853-1588 6. Company Fax (505) 853-6970
7. Company Mailing Address: 377 MSG/CEIE, 2050 Wyoming Blvd. SE, Suite 116 Zip 87117-5270
8. Company Contact and Title Ms. Melissa Clark, Chief, Environmental Management 9. Phone (505) 853-1588
10. E-mail melissa.clark.8@us.af.mil

**Stationary Source (Facility) Information: [Provide a plot plan (legal description/drawing of facility property) with overlay sketch of facility processes; Location of emission points; Pollutant type and distances to property boundaries]**

1. Facility Name Starfire Optical Range 2. Street Address AFRL/RDS SOR, Mount Washington Rd. Building 66048
3. City Albuquerque 4. State NM 5. Facility Phone (505) 846-5611 6. Facility Fax (505) 853-3314
7. Facility Mailing Address (Local) AFRL/RDS SOR 3550 Aberdeen Ave SE Att. Billy Pike Zip 87117
8. Latitude - Longitude or UTM Coordinates of Facility UTM-E (m): 366,725.4 UTM-N (m): 3,869,860.9
9. Facility Contact and Title Mr. Billy Pike 10. Phone (505) 846-9614 11. E-mail: billy.pike.1@us.af.mil

**General Operation Information (if any further information request does not pertain to your facility, write N/A on the line or in the box)**

1. Facility Type (description of your facility operations) Emergency generators for backup power for the Starfire Optical Telescope laboratory at Bldg 66048 in the event of power loss
2. Standard Industrial Classification (SIC 4 digit #) 9711
3. North American Industry Classification System (NAICS Code #) 928110
4. Is facility currently operating in Bernalillo County. Yes If yes, date of original construction 03/2004  
If no, planned startup is  / /
5. Is facility permanent Yes If no, give dates for requested temporary operation - from  / / through  / /
6. Is facility process equipment new No If no, give actual or estimated manufacture or installation dates in the Process Equipment Table.
7. Is application for a modification, expansion, or reconstruction (altering process, or adding, or replacing process equipment, etc.) to an existing facility which will result in a change in emissions No. If yes, give the manufacture date of modified, added, or replacement equipment in the Process Equipment Table modification date column, or the operation changes to existing process/equipment which cause an emission increase.
8. Is facility operation (circle one) [Continuous **Intermittent** Batch]

9. Estimated % of production Jan-Mar 25 Apr-Jun 25 Jul-Sept 25 Oct-Dec 25

10. Current or requested operating times of facility 24 hrs/day 7 days/wk 4 wks/mo 12 mos/yr (**up to 200 hrs/yr**)

11. Business hrs 12:00  am/ pm to 11:59 am/ pm (24 hrs/day)

12. Will there be special or seasonal operating times other than shown above No If yes, explain \_\_\_\_\_

13. Raw materials processed N/A

14. Saleable item(s) produced N/A

15. Permitting Action Being Requested

New Permit  Permit Modification  Technical Permit Revision  Administrative Permit Revision  
Current Permit #: 1759-M1-RV1 Current Permit #: \_\_\_\_\_ Current Permit #: \_\_\_\_\_

**Application for Air Pollutant Sources in Bernalillo County  
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

**PROCESS EQUIPMENT TABLE**

**(Generator-Crusher-Screen-Conveyor-Boiler-Mixer-Spray Guns-Saws-Sander-Oven-Dryer-Furnace-Incinerator, etc.) Match the Process Equipment Units listed on this Table to the same numbered line if also listed on Emissions & Stack Table (page 6).**

Process Equipment Unit	Manufacturer	Model #	Serial #	Manufacture Date	Installation Date	Modification Date	Size or Process Rate (Hp;kW;Btu;ft <sup>3</sup> ;lbs; tons;yd <sup>3</sup> ;etc.)	Fuel Type
1. Emergency Generator Building 66048 Unit Code 19135	Engine Cummins Generator Stanford	Engine GTA50G3 Generator HC16341	Engine 25245737 Generator 0142251101	Engine 11/01 Generator 11/01	03/04	N/A	1334 Hp.	Natural Gas
2. Emergency Generator Building 66001 Unit Code 19155	Engine Doosan Generator Generac	Engine P180FE Generator 10452760100	Engine EUSOB801355 Generator 2101244	Engine 9/08 Generator 1/28/09	01/10	N/A	752 Hp.	Diesel Fuel
3. Emergency Generator Building 66001 Unit Code 19156	Engine Doosan Generator Generac	Engine P180FE Generator 10452760100	Engine EUSOB801355 Generator 2101245	Engine 12/08 Generator 1/28/09	01/10	N/A	752 Hp.	Diesel Fuel
4. Emergency Generator Building 66001 Unit Code 19157	Engine Doosan Generator Generac	Engine P180FE Generator 10452760700	Engine EUSOB801355 Generator 2101248	Engine 9/08 Generator 1/28/09	01/10	N/A	752 Hp.	Diesel Fuel
5. Emergency Generator Building 66001 Unit Code 19158	Engine Doosan Generator Generac	Engine P180FE Generator 10452760700	Engine EUSOB801355 Generator 2101249	Engine 12/08 Generator 1/28/09	01/10	N/A	752 Hp.	Diesel Fuel

1. Basis for Equipment Size or Process Rate (Manufacturers data, Field Observation/Test, etc.) Manufacturer's Data  
Submit information for each unit as an attachment

**Application for Air Pollutant Sources in Bernalillo County  
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

**TABLE EXEMPTED SOURCES AND EXEMPTED ACTIVITIES**

(Generator-Crusher-Screen-Conveyor-Boiler-Mixer-Spray Guns-Saws-Sander-Oven-Dryer-Furnace-Incinerator, etc.) Match the Process Equipment Units listed on this Table to the same numbered line if also listed on Emissions & Stack Table (page 6).

Process Equipment Unit	Manufacturer	Model #	Serial #	Manufacture Date	Installation Date	Modification Date	Size or Process Rate (Hp;kW;Btu;ft <sup>3</sup> ;lbs; tons;yd <sup>3</sup> ;etc.)	Fuel Type
1. NA							HR. YR.	
2. NA							HR. YR.	
3. NA							HR. YR.	
4. NA							HR. YR.	
5. NA							HR. YR.	
6.							HR. YR.	
7.							HR. YR.	
8.							HR. YR.	
9.							HR. YR.	
10.							HR. YR.	
11.							HR. YR.	
12.							HR. YR.	
13.							HR. YR.	
14.							HR. YR.	
15.							HR. YR.	

1. Basis for Equipment Size or Process Rate (Manufacturers data, Field Observation/Test, etc.) \_\_\_\_\_  
Submit information for each unit as an attachment

**NOTE: Copy this table if additional space is needed (begin numbering with 16., 17., etc.)**



**Application for Air Pollutant Sources in Bernalillo County  
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

**UNCONTROLLED EMISSIONS OF INDIVIDUAL AND COMBINED PROCESSES**

(Process potential under physical/operational limitations during a 24 hr/day and 365 day/year = 8,760 hrs)

Process Equipment Unit*	Carbon Monoxide (CO)	Oxides of Nitrogen (NOx)	Nonmethane Hydrocarbons NMHC (VOCs)	Oxides of Sulfur (SOx)	Total Suspended Particulate Matter (TSP)	Method(s) used for Determination of Emissions (AP-42, Material balance, field tests, manufacturers data, etc.)
1. Emergency Generator Building 66048 Unit Code 19135	1. 45.67 lbs/hr	52.82 lbs/hr	0.68 lbs/hr	0.0072 lbs/hr	0.12 lbs/hr	AP-42 Section 3.2 and Manufacturer Data
	1a. 200.3 tons/yr	231.35 tons/yr	2.96 tons/yr	0.032 tons/yr	0.53 tons/yr	
2. Emergency Generator Building 66001 Unit Code 19155	2. 4.24 lbs/hr	6.76 lbs/hr	0.47 lbs/hr	0.02 lbs/hr	0.19 lbs/hr	AP-42 Section 3.4 and Manufacturer Data
	2a. 18.57 tons/yr	29.60 tons/yr	2.08 tons/yr	0.09 tons/yr	0.84 tons/yr	
3. Emergency Generator Building 66001 Unit Code 19156	3. 4.24 lbs/hr	6.76 lbs/hr	0.47 lbs/hr	0.02 lbs/hr	0.19 lbs/hr	AP-42 Section 3.4 and Manufacturer Data
	3a. 18.57 tons/yr	29.60 tons/yr	2.08 tons/yr	0.09 tons/yr	0.84 tons/yr	
4. Emergency Generator Building 66001 Unit Code 19157	4. 4.24 lbs/hr	6.76 lbs/hr	0.47 lbs/hr	0.02 lbs/hr	0.19 lbs/hr	AP-42 Section 3.4 and Manufacturer Data
	4a. 18.57 tons/yr	29.60 tons/yr	2.08 tons/yr	0.09 tons/yr	0.84 tons/yr	
5. Emergency Generator Building 66001 Unit Code 19158	5. 4.24 lbs/hr	6.76 lbs/hr	0.47 lbs/hr	0.02 lbs/hr	0.19 lbs/hr	AP-42 Section 3.4 and Manufacturer Data
	5a. 18.57 tons/yr	29.60 tons/yr	2.08 tons/yr	0.09 tons/yr	0.84 tons/yr	
Totals of Uncontrolled Emissions	62.62 lbs/hr	79.85 lbs/hr	2.57 lbs/hr	0.09 lbs/hr	0.89 lbs/hr	
	274.30 tons/yr	349.74 tons/yr	11.26 tons/yr	0.40 tons/yr	3.90 tons/yr	

\* If any one (1) of these process units, or combination of units, has an uncontrolled emission greater than (>) 10 lbs/hr or 25 tons/yr for any of the above pollutants (based on 8760 hrs of operation), then a permit will be required. Complete this application along with additional checklist information requested on accompanying instruction sheet. Copy this Table if additional space is needed (begin numbering with 11., 12., etc.)

\* If all of these process units, individually and in combination, have an uncontrolled emission less than or equal to ( $\leq$ ) 10 lbs/hr or 25 tons/yr for all of the above pollutants (based on 8760 hrs of operation), but > 1 ton/yr for any of the above pollutants - then a source registration is required.

If your facility does not require a registration or permit, based on above emissions, complete the remainder of this application to determine if a registration or permit would be required for Toxic or Hazardous air pollutants used at your facility.

NOTE: Copy this table if additional space is needed (begin numbering with 16., 17., etc.)

**Application for Air Pollutant Sources in Bernalillo County  
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

**CONTROLLED EMISSIONS OF INDIVIDUAL AND COMBINED PROCESSES**

**(Based on current operations with emission controls OR requested operations with emission controls)**

**Process Equipment Units listed on this Table should match up to the same numbered line and Unit as listed on Uncontrolled Table (pg. 3)**

Process Equipment Unit	Carbon Monoxide (CO)	Oxides of Nitrogen (NOx)	Nonmethane Hydrocarbons NMHC (VOCs)	Oxides of Sulfur (SOx)	Total Suspended Particulate Matter (TSP)	Control Method	% Efficiency
1. Emergency Generator Building: 66048 Unit Code: 19135	1. 45.7 lbs/hr	52.8 lbs/hr	0.68 lbs/hr	0.007lbs/hr	0.12 lbs/hr	Operating Hours	NA
	1a. 4.57 tons/yr	5.28 tons/yr	0.068 tons/yr	0.001 tons/yr	0.01 tons/yr		
2. Emergency Generator Building: 66001 Unit Code: 19155	2. 4.24 lbs/hr	6.76 lbs/hr	0.47 lbs/hr	0.02 lbs/hr	0.19 lbs/hr	Operating Hours	NA
	2a. 0.42 tons/yr	0.68 tons/yr	0.047 tons/yr	0.002 tons/yr	0.02 tons/yr		
3. Emergency Generator Building: 66001 Unit Code: 19156	3. 4.24 lbs/hr	6.76 lbs/hr	0.47 lbs/hr	0.02 lbs/hr	0.19 lbs/hr	Operating Hours	NA
	3a. 0.42 tons/yr	0.68 tons/yr	0.047 tons/yr	0.002 tons/yr	0.02 tons/yr		
4. Emergency Generator Building: 66001 Unit Code: 19157	4. 4.24 lbs/hr	6.76 lbs/hr	0.47 lbs/hr	0.02 lbs/hr	0.19 lbs/hr	Operating Hours	NA
	4a. .042 tons/yr	0.68 tons/yr	0.047 tons/yr	0.002 tons/yr	0.02 tons/yr		
5. Emergency Generator Building: 66001 Unit Code: 19158	5. 4.24 lbs/hr	6.76 lbs/hr	0.47 lbs/hr	0.02 lbs/hr	0.19 lbs/hr	Operating Hours	NA
	5a. 0.42 tons/yr	0.68 tons/yr	0.047 tons/yr	0.002 tons/yr	0.02 tons/yr		
<b>Totals of Controlled Emissions (1 - 5)</b>	<b>62.6 lbs/hr</b>	<b>79.85 lbs/hr</b>	<b>2.57 lbs/hr</b>	<b>0.09 lbs/hr</b>	<b>0.89 lbs/hr</b>		
	<b>6.26 tons/yr</b>	<b>7.98 tons/yr</b>	<b>0.26 tons/yr</b>	<b>0.01 tons/yr</b>	<b>0.09 tons/yr</b>		

1. Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test, AP-42 , etc.) N/A

2. Explain and give estimated amounts of any Fugitive Emissions associated with facility processes N/A

**Application for Air Pollutant Sources in Bernalillo County  
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

**\*\*TOXIC EMISSIONS**

**VOLATILE, HAZARDOUS, & VOLATILE HAZARDOUS AIR POLLUTANT EMISSION TABLE**

Product Categories (Coatings, Solvents, Thinners, etc.)	Volatile Organic Compound (VOC), Hazardous Air Pollutant (HAP), or Volatile Hazardous Air Pollutant (VHAP) Primary To The Representative As Purchased Product	Chemical Abstract Service Number (CAS) Of VOC, HAP, Or VHAP From Representative As Purchased Product	VOC, HAP, Or VHAP Concentration Of Representative As Purchased Product (pounds/gallon, or %)	1. How were Concentrations Determined (CPDS, MSDS, etc.)	Total Product Purchases For Category		Quantity Of Product Recovered & Disposed For Category		Total Product Usage For Category
					lbs/yr	gal/yr	lbs/yr	gal/yr	
I. NA					lbs/yr	(-)	lbs/yr	(=)	lbs/yr
					gal/yr		gal/yr		gal/yr
II. NA					lbs/yr	(-)	lbs/yr	(=)	lbs/yr
					gal/yr		gal/yr		gal/yr
III. NA					lbs/yr	(-)	lbs/yr	(=)	lbs/yr
					gal/yr		gal/yr		gal/yr
IV. NA					lbs/yr	(-)	lbs/yr	(=)	lbs/yr
					gal/yr		gal/yr		gal/yr
V. NA					lbs/yr	(-)	lbs/yr	(=)	lbs/yr
					gal/yr		gal/yr		gal/yr
VI.					lbs/yr	(-)	lbs/yr	(=)	lbs/yr
					gal/yr		gal/yr		gal/yr
VII.					lbs/yr	(-)	lbs/yr	(=)	lbs/yr
					gal/yr		gal/yr		gal/yr
VIII.					lbs/yr	(-)	lbs/yr	(=)	lbs/yr
					gal/yr		gal/yr		gal/yr
IX.					lbs/yr	(-)	lbs/yr	(=)	lbs/yr
					gal/yr		gal/yr		gal/yr
X.					lbs/yr	(-)	lbs/yr	(=)	lbs/yr
					gal/yr		gal/yr		gal/yr
TOTAL >>>>>> NA					lbs/yr	(-)	lbs/yr	(=)	lbs/yr
					gal/yr		gal/yr		gal/yr

1. Basis for percent (%) determinations (Certified Product Data Sheets, Material Safety Data Sheets, etc.). Submit, as an attachment, information on one (1) product from each Category listed above which best represents the average of all the products purchased in that Category. Copy this Table if additional space is needed (begin numbering with XI., XII., etc.)

**\*\*NOTE: A REGISTRATION IS REQUIRED, AT MINIMUM, FOR ANY AMOUNT OF HAP OR VHAP EMISSION. A PERMIT MAY BE REQUIRED FOR THESE EMISSIONS, DETERMINED ON A CASE-BY-CASE EVALUATION.**

**Application for Air Pollutant Sources in Bernalillo County  
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

**MATERIAL AND FUEL STORAGE TABLE**

(Tanks, barrels, silos, stockpiles, etc.) Copy this table if additional space is needed (begin numbering with 6., 7., etc.)

Storage Equipment	Product Stored	Capacity (bbls - tons gal - acres, etc)	Above or Below Ground	Construction (welded, riveted) & Color	Install Date	Loading Rate	Offloading Rate	True Vapor Pressure	Control Equipment	Seal Type	% Eff
2. Tank	Diesel Fuel	837 gallons	Above Ground – Under Generator	Welded/Black	01/10	N/A HR. YR.	N/A HR. YR.	Psia	N/A	N/A	N/A
3. Tank	Diesel Fuel	837 gallons	Above Ground – Under Generator	Welded/Black	01/10	N/A HR. YR.	N/A HR. YR.	Psia	N/A	N/A	N/A
4. Tank	Diesel Fuel	837 gallons	Above Ground – Under Generator	Welded/Black	01/10	N/A HR. YR.	N/A HR. YR.	Psia	N/A	N/A	N/A
5. Tank	Diesel Fuel	837 gallons	Above Ground – Under Generator	Welded/Black	01/10	N/A HR. YR.	N/A HR. YR.	Psia	N/A	N/A	N/A

1. Basis for Loading/Offloading Rate (Manufacturers data, Field Observation/Test, etc.) Submit information for each unit as an attachment

NA

2. Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test, AP-42, etc.) Submit information for each unit as an attachment

NA

**Application for Air Pollutant Sources in Bernalillo County  
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

**STACK AND EMISSION MEASUREMENT TABLE**

If any equipment from the Process Equipment Table (Page 2) is also listed in this Stack Table, use the same numbered line for the Process Equipment unit on both Tables to show the association between the Process Equipment and its Stack. Copy this table if additional space is needed (begin numbering with 6., 7., etc.).

Process Equipment	Pollutant (CO, NOx, TSP, Toluene, etc)	Control Equipment	Control Efficiency	Stack Height & Diameter in feet	Stack Temp.	Stack Velocity & Exit Direction	Emission Measurement Equipment Type	Range- Sensitivity- Accuracy-
1. Emergency Generator Building 66048 Unit Code 19135	CO, NOx, TSP, SOx, NMHC	N/A	N/A	H: 14.5 ft D: 1.0 ft	1206°F	11,417 ft <sup>3</sup> /min Exit - Vertical	N/A	N/A
2. Emergency Generator Building 66001 Unit Code 19155	CO, NOx, TSP, SOx, NMHC	N/A	N/A	H: 11.6 ft D: 0.5 ft	1300°F	5357 ft <sup>3</sup> /min Exit - Vertical	N/A	N/A
3. Emergency Generator Building 66001 Unit Code 19156	CO, NOx, TSP, SOx, NMHC	N/A	N/A	H: 11.6 ft D: 0.5 ft	1300°F	5357 ft <sup>3</sup> /min Exit - Vertical	N/A	N/A
4. Emergency Generator Building 66001 Unit Code 19157	CO, NOx, TSP, SOx, NMHC	N/A	N/A	H: 11.6 ft D: 0.5 ft	1300°F	5357 ft <sup>3</sup> /min Exit - Vertical	N/A	N/A
5. Emergency Generator Building 66001 Unit Code 19158	CO, NOx, TSP, SOx, NMHC	N/A	N/A	H: 11.6 ft D: 0.5 ft	1300°F	5357 ft <sup>3</sup> /min Exit - Vertical	N/A	N/A

1. Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test, AP-42, etc.) Submit information for each unit as an attachment

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 registration or permit.

Signed this 25th day of October, 2021

JASON F. VATTIONI, Colonel, USAF  
Print Name

Commander, 377th Air Base Wing  
Print Title

VATTIONI.JASON.F.1170028640 Digitally signed by VATTIONI.JASON.F.1170028640  
Date: 2021.10.25 18:01:37 -0600

Signature

**Attachment B**

**AEHD Permit Application Checklist and  
Notice of Intent to Construct**



# City of Albuquerque

## Environmental Health Department

### Air Quality Program



### Permit Application Checklist

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

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

All applicants shall:

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

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



- Q.  contain the basis or source for each emission rate (include the manufacturer's specification sheets, AP-42 Section sheets, test data, or other data when used as the source).
- R.  contain all calculations used to estimate **potential emission rate** and **controlled emissions**.
- S.  contain the basis for the estimated control efficiencies and sufficient engineering data for verification of the control equipment operation, including if necessary, design drawings, test reports, and factors which affect the normal operation (e.g. limits to normal operation).
- T.  contain fuel data for each existing and/or proposed piece of fuel burning equipment.
- U.  contain the anticipated maximum production capacity of the entire facility and the requested production capacity after construction and/or modification.
- V.  contain the stack and exhaust gas parameters for all existing and proposed emission stacks.
- W.  provide an ambient impact analysis using a atmospheric dispersion model approved by the US Environmental Protection Agency (EPA), and the Department to demonstrate compliance with the ambient air quality standards for the City of Albuquerque and Bernalillo County (See 20.11.01 NMAC). If you are modifying an existing source, the modeling must include the emissions of the entire source to demonstrate the impact the new or modified source(s) will have on existing plant emissions.
- X.  contain a preliminary operational plan defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown.
- Y.  contain a process flow sheet, including a material balance, of all components of the facility that would be involved in routine operations. Indicate all emission points, including fugitive points.
- Z.  contain a full description, including all calculations and the basis for all control efficiencies presented, of the equipment to be used for air pollution control. This shall include a process flow sheet or, if the Department so requires, layout and assembly drawings, design plans, test reports and factors which affect the normal equipment operation, including control and/or process equipment operating limitations.
- AA.  contain description of the equipment or methods proposed by the applicant to be used for emission measurement.
- BB.  be signed under oath or affirmation by a corporate officer, authorized to bind the company into legal agreements, certifying to the best of his or her knowledge the truth of all information submitted.



**Timothy M. Keller,**  
Mayor

**Public Participation**

**List of Neighborhood Associations  
and Neighborhood Coalitions  
MEMORANDUM**

**To:** Andria Cuevas, Program Manager  
**From:** Carina G. Munoz-Dyer, Environmental Health Supervisor  
**Subject:** Determination of Neighborhood Associations and Coalitions  
 within 0.5 mile of the Kirtland Air Force Base Property in Bernalillo County, NM  
**Date:** October 6, 2021

**DETERMINATION:**

On October 6, 2021 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 the Kirtland Air Force Base Property in Bernalillo County, NM.

I then used the City of Albuquerque Office (COA) of Neighborhood Coordination's Monthly Master NA List dated October2021 and the Bernalillo County (BC) Monthly Neighborhood Association October2021 Excel file to determine the contact information for each NA and NC located within 0.5 mile of the Kirtland Air Force Base Property 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	Mandy Warr	<a href="mailto:mandy@theremedyspa.com">mandy@theremedyspa.com</a> ;
	Patricia Willson	<a href="mailto:info@willsonstudio.com">info@willsonstudio.com</a> ;
East Gateway Coalition	Michael Brasher	<a href="mailto:brasher@aps.edu">brasher@aps.edu</a> ;
	Julie Dreike	<a href="mailto:dreikeja@comcast.net">dreikeja@comcast.net</a> ;
	James Andrews	<a href="mailto:jamesw.andrews01@gmail.com">jamesw.andrews01@gmail.com</a>
	Coalition Email	<a href="mailto:eastgatewaycoalition@gmail.com">eastgatewaycoalition@gmail.com</a> ;
East Mountain District 5 Coalition	Lisa Davis	<a href="mailto:ldavis@eastmountaincoalition.org">ldavis@eastmountaincoalition.org</a> ;
	Paul Butler	<a href="mailto:info@eastmountaincoalition.org">info@eastmountaincoalition.org</a> ;
Elder Homestead Neighborhood Association	Marian Jordan	<a href="mailto:marianjor@aol.com">marianjor@aol.com</a> ;
	Sandra Perea	<a href="mailto:sp-wonderwoman@comcast.net">sp-wonderwoman@comcast.net</a> ;
	Association Email	<a href="mailto:elderhomesteadna@gmail.com">elderhomesteadna@gmail.com</a> ;
Four Hills Village Association	Ellen Lipman	<a href="mailto:elkaleyah@aol.com">elkaleyah@aol.com</a> ;
	Steve Brugge	<a href="mailto:spbrugge@gmail.com">spbrugge@gmail.com</a> ;
Juan Tabo Hills Neighborhood Association	Richard Lujan	<a href="mailto:richtriple777@msn.com">richtriple777@msn.com</a> ;
	Ryan Giar	<a href="mailto:ryangiar@gmail.com">ryangiar@gmail.com</a> ;

La Mesa Community Improvement Association	Idalia Lechuga-Tena	<a href="mailto:idalialt@gmail.com">idalialt@gmail.com;</a>
	Dayna Mares	<a href="mailto:dayna.mares76@gmail.com">dayna.mares76@gmail.com;</a>
	Association Email	<a href="mailto:lamesainternationaldistrict@gmail.com">lamesainternationaldistrict@gmail.com;</a>
Parkland Hills Neighborhood Association	Robert Leming	<a href="mailto:phnapresident@gmail.com">phnapresident@gmail.com;</a>
	Mary Darling	<a href="mailto:mldarling56@yahoo.com">mldarling56@yahoo.com;</a>
Siesta Hills Neighborhood Association	Kathy Pierson	<a href="mailto:kp-shna@centurylink.net">kp-shna@centurylink.net;</a>
	Rachel Baca	<a href="mailto:rbaca@bizjournals.com">rbaca@bizjournals.com;</a>
	Association Email	<a href="mailto:siesta2na.pres@gmail.com">siesta2na.pres@gmail.com;</a>
South Los Altos Neighborhood Association	Stephen Martos-Ortiz	<a href="mailto:sdmartos91@gmail.com">sdmartos91@gmail.com;</a>
	Debbie Conger	<a href="mailto:debsla@swcp.com">debsla@swcp.com;</a> <a href="mailto:notices@slananm.org">notices@slananm.org;</a>
	Association Email	<a href="mailto:contact@slananm.org">contact@slananm.org;</a>
South San Pedro Neighborhood Association	Khadijah Bottom	<a href="mailto:khadijahasili@vizionz.org">khadijahasili@vizionz.org;</a>
	Zabdiel Aldaz	<a href="mailto:zabdiel505@gmail.com">zabdiel505@gmail.com;</a>
Southeast Heights Neighborhood Association	John Pate	<a href="mailto:jpate@molzencorbin.com">jpate@molzencorbin.com;</a>
	Pete Belletto	<a href="mailto:pmbdoc@yahoo.com">pmbdoc@yahoo.com;</a>
Trumbull Village Association	Alyce Ice	<a href="mailto:alyceice@gmail.com">alyceice@gmail.com;</a>
	Joanne Landry	<a href="mailto:landry54@msn.com">landry54@msn.com;</a>
Victory Hills Neighborhood Association	Melissa Williams	<a href="mailto:mansdf@comcast.net">mansdf@comcast.net;</a>
	Patricia Willson <i>Included under District 6 Coalitions of Neighborhood Associations</i>	
Willow Wood Neighborhood Association	Samantha Martinez	<a href="mailto:samijoster@gmail.com">samijoster@gmail.com;</a>
	Pamela Meyer	<a href="mailto:pmeyer@sentrymgt.com">pmeyer@sentrymgt.com;</a>
Yale Village Neighborhood Association	Kim Love	<a href="mailto:klove726@gmail.com">klove726@gmail.com;</a>
	Donald Love	<a href="mailto:donaldlove08@comcast.net">donaldlove08@comcast.net;</a>
	Association Email	<a href="mailto:yalevillage@comcast.net">yalevillage@comcast.net;</a>

***\*If email address is not listed, provide public notice via certified mail and include a copy of each mail receipt with the application submittal.***

**From:** [377 MSG/CE Environmental Air Quality](#)  
**To:** ["mandy@theremedyspa.com"](#); ["info@willsonstudio.com"](#); ["brasher@aps.edu"](#); ["dreikeja@comcast.net"](#); ["jamesw.andrews01@gmail.com"](#); ["eastgatewaycoalition@gmail.com"](#); ["ldavis@eastmountaincoalition.org"](#); ["info@eastmountaincoalition.org"](#); ["marianior@aol.com"](#); ["so-wonderwoman@comcast.net"](#); ["elderhomesteadna@gmail.com"](#); ["elkaleyah@aol.com"](#); ["sbrugge@gmail.com"](#); ["richtriple777@msn.com"](#); ["ryanglar@gmail.com"](#); ["daliait@gmail.com"](#); ["dayna.mares76@gmail.com"](#); ["jamesinternationaldistrict@gmail.com"](#); ["phnapresident@gmail.com"](#); ["mldarling56@yahoo.com"](#); ["ko-shna@centurylink.net"](#); ["rbaca@bizjournals.com"](#); ["siesta2na.pres@gmail.com"](#); ["sdmartos91@gmail.com"](#); ["debsla@swcp.com"](#); ["notices@slanm.org"](#); ["contact@slanm.org"](#); ["khadijahasili@vizionz.org"](#); ["zabdiel505@gmail.com"](#); ["joate@molzencorbin.com"](#); ["pmbdoc@yahoo.com"](#); ["alycejce@gmail.com"](#); ["landry54@msn.com"](#); ["mansdf@comcast.net"](#); ["samijoster@gmail.com"](#); ["pmeyer@sentrymgt.com"](#); ["klove726@gmail.com"](#); ["donaldlove08@comcast.net"](#); ["yalevillage@comcast.net"](#)  
**Cc:** [377 ABW/PA Administrative Mailbox](#); [CLARK, MELISSA B GS-14 USAF AFGSC 377 MSG/CFE](#)  
**Subject:** Public Notice of Proposed Air Quality Construction Permit Application (1759-M1-RV1)  
**Date:** Tuesday, October 26, 2021 7:51:00 AM  
**Attachments:** [Permit 1759 Notice of Intent.pdf](#)  
**Importance:** High

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	Starfire Optical Range (SOR)
Site or Facility Address	AFRL/SOR, Mount Washington Rd, Bldg 66048
New or Existing Source	Existing; Requesting Modification to Permit #1759-M1-RV1
Anticipated Date of Application Submittal	27 October 2021
Summary of Proposed Source to Be Permitted	Kirtland AFB is submitting this application to remove the quinquennial stack testing requirement for Unit 1 (Unit ID No. 19135) contained in permit condition I.6.h). Unit 1 is a 1334 horsepower, natural gas fired, emergency engine located at the Starfire Optical Range. This unit provides emergency power in the event of local utility power failure, and it is not subject to federal requirements for stack testing under the National Emissions Standard for Hazardous Air Pollutants (NESHAP) Subpart ZZZZ (40 CFR 63.6580) since it meets the requirements of an Existing Institutional Emergency Stationary Reciprocating Internal Combustion Engine as stated in Kirtland AFB Operating Permit #527-RN1. There are no federal requirements to perform stack tests on this unit; therefore, Kirtland AFB is submitting this application to eliminate the quinquennial compliance testing requirement, permit condition I.6.h).

***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](mailto: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](mailto: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*): Kirtland AFB Public Affairs Office

Address (*Domicilio*): 2000 Wyoming Blvd. SE

Phone Number (*Número Telefónico*): (505)846-5991

E-mail Address (*Correo Electrónico*): 377ABW.PA@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:* 1 November 2021

**Description of the source:**

*Descripción de la fuente:* Emergency Generators for backup power at the Starfire Optical Range

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

*Ubicación exacta de la fuente o fuente propuesta:*

AFRL/RDS SOR, Mount Washington Rd. Building 66048

**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:*

Requesting removal of quinquennial stack testing requirement for Unit 1 Emergency Generator. During this permit review, a couple of emission calculations errors were discovered and updated. Additionally, NO<sub>x</sub> and VOC emissions are represented separately as opposed to combined NO<sub>x</sub> +NMHC.

**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

**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:*

<b>Air Contaminant</b>  <i>Contaminante de aire</i>	<b>Proposed Construction Permit</b> <i>Permiso de Construcción Propuesto</i>		<b>Net Changes</b> <b>(for permit modification or technical revision)</b> <i>Cambio Neto de Emisiones</i> <i>(para modificación de permiso o revisión técnica)</i>	
	pounds per hour <i>libras por hora</i>	tons per year <i>toneladas por año</i>	pounds per hour <i>libras por hora</i>	tons per year <i>toneladas por año</i>
<b>CO</b>	62.6	6.26	0	0
<b>NOx</b>	79.9	7.98	27.1	2.7
<b>VOC</b>	2.57	0.26	2.21	1.22
<b>SO2</b>	0.09	0.01	-8.44	-0.84
<b>PM10</b>	0.89	0.09	0	0
<b>PM2.5</b>	0.89	0.09	0	0
<b>HAP</b>	0	0	0	0

**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](http://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](http://www.cabq.gov/airquality/air-quality-permits)*

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

1. Applicant's Name: **U.S. Air Force - Kirtland Air Force Base**  
 Director or Operator's Name: **KIRTLAND AIR FORCE BASE**  
 Number of Employees or Devices: **NO EMPLOYEES**

2. Anticipated Start Date: **NOVEMBER 2011**

3. Exact Location of the Source of Proposed Emission: **10000 S. JAMES ST. BLDG 10000**

4. Description of the Proposed Activity: **REPAIR AND MAINTENANCE OF AIRCRAFT**

5. Nature of Business: **NATIONAL SECURITY**

6. Estimated Annual Quantity of the Major Air Pollutants to be Emitted:  
 (List pollutant and quantity in tons per year)

Major Air Pollutant	Proposed Construction Permit	Permit to Install	Permit to Operate
CO	48.5	4.00	0.00
NOx	12.0	1.00	0.00
SOx	0.0	0.00	0.00
PM10	0.0	0.00	0.00
PM2.5	0.0	0.00	0.00
VOC	1.0	1.00	0.00

7. Name of the Construction Site: **10000 S. JAMES ST. BLDG 10000**

8. Name of the Construction Contractor: **KIRTLAND AFB PUBLIC AFFAIRS OFFICE**

9. Name of the Construction Site Supervisor: **JOHN W. WATSON**

10. Name of the Construction Site Inspector: **JOHN W. WATSON**

11. Name of the Construction Site Engineer: **JOHN W. WATSON**

12. Name of the Construction Site Operator: **JOHN W. WATSON**

13. Name of the Construction Site Maintenance Person: **JOHN W. WATSON**

14. Name of the Construction Site Safety Person: **JOHN W. WATSON**

15. Name of the Construction Site Security Person: **JOHN W. WATSON**

16. Name of the Construction Site Environmental Person: **JOHN W. WATSON**

17. Name of the Construction Site Health Person: **JOHN W. WATSON**

18. Name of the Construction Site Welfare Person: **JOHN W. WATSON**

19. Name of the Construction Site Other Person: **JOHN W. WATSON**

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

1. Applicant's Name: **U.S. Air Force - Kirtland Air Force Base**  
 Director or Operator's Name: **KIRTLAND AIR FORCE BASE**  
 Number of Employees or Devices: **NO EMPLOYEES**

2. Anticipated Start Date: **NOVEMBER 2011**

3. Exact Location of the Source of Proposed Emission: **10000 S. JAMES ST. BLDG 10000**

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5. Nature of Business: **NATIONAL SECURITY**

6. Estimated Annual Quantity of the Major Air Pollutants to be Emitted:  
 (List pollutant and quantity in tons per year)

Major Air Pollutant	Proposed Construction Permit	Permit to Install	Permit to Operate
CO	48.5	4.00	0.00
NOx	12.0	1.00	0.00
SOx	0.0	0.00	0.00
PM10	0.0	0.00	0.00
PM2.5	0.0	0.00	0.00
VOC	1.0	1.00	0.00

7. Name of the Construction Site: **10000 S. JAMES ST. BLDG 10000**

8. Name of the Construction Contractor: **KIRTLAND AFB PUBLIC AFFAIRS OFFICE**

9. Name of the Construction Site Supervisor: **JOHN W. WATSON**

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19. Name of the Construction Site Other Person: **JOHN W. WATSON**

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

1. Applicant's Name: **U.S. Air Force - Kirtland Air Force Base**  
 Director or Operator's Name: **KIRTLAND AIR FORCE BASE**  
 Number of Employees or Devices: **NO EMPLOYEES**

2. Anticipated Start Date: **NOVEMBER 2011**

3. Exact Location of the Source of Proposed Emission: **10000 S. JAMES ST. BLDG 10000**

4. Description of the Proposed Activity: **REPAIR AND MAINTENANCE OF AIRCRAFT**

5. Nature of Business: **NATIONAL SECURITY**

6. Estimated Annual Quantity of the Major Air Pollutants to be Emitted:  
 (List pollutant and quantity in tons per year)

Major Air Pollutant	Proposed Construction Permit	Permit to Install	Permit to Operate
CO	48.5	4.00	0.00
NOx	12.0	1.00	0.00
SOx	0.0	0.00	0.00
PM10	0.0	0.00	0.00
PM2.5	0.0	0.00	0.00
VOC	1.0	1.00	0.00

7. Name of the Construction Site: **10000 S. JAMES ST. BLDG 10000**

8. Name of the Construction Contractor: **KIRTLAND AFB PUBLIC AFFAIRS OFFICE**

9. Name of the Construction Site Supervisor: **JOHN W. WATSON**

10. Name of the Construction Site Inspector: **JOHN W. WATSON**

11. Name of the Construction Site Engineer: **JOHN W. WATSON**

12. Name of the Construction Site Operator: **JOHN W. WATSON**

13. Name of the Construction Site Maintenance Person: **JOHN W. WATSON**

14. Name of the Construction Site Safety Person: **JOHN W. WATSON**

15. Name of the Construction Site Security Person: **JOHN W. WATSON**

16. Name of the Construction Site Environmental Person: **JOHN W. WATSON**

17. Name of the Construction Site Health Person: **JOHN W. WATSON**

18. Name of the Construction Site Welfare Person: **JOHN W. WATSON**

19. Name of the Construction Site Other Person: **JOHN W. WATSON**



Informational sign 1: Contains text and a small diagram or table. The text is mostly illegible due to blurring.

Informational sign 2: Contains text and a small diagram or table. The text is mostly illegible due to blurring.

Informational sign 3: Contains text and a table of data.

Item	Quantity	Unit	Price
1.00	1.00	EA	1.00
2.00	2.00	EA	2.00
3.00	3.00	EA	3.00
4.00	4.00	EA	4.00
5.00	5.00	EA	5.00
6.00	6.00	EA	6.00
7.00	7.00	EA	7.00
8.00	8.00	EA	8.00
9.00	9.00	EA	9.00
10.00	10.00	EA	10.00



## Proposed Air Quality Construction Permit

### Permiso de Construcción de Calidad del Aire Propuesto



1. 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: KIRTLAND AIR FORCE BASE  
 Nombre del Propietario u Operador: KIRTLAND AIR FORCE BASE
2. Actual or Estimated Date the Application will be Submitted to the Department:  
 Fecha Actual o Estimada en que se Entrará la Solicitud al Departamento: 1 NOVEMBER 2021
3. Exact Location of the Source or Proposed Source:  
 Ubicación Exacta de la Fuente o Fuente Propuesta: AFRL/SOR, MOUNT WASHINGTON RD, Bldg 6608
4. Description of the Source: EMERGENCY GENERATORS FOR BACK-UP POWER @ STARFIRE OPTICAL Range (608)  
 Nature of Business: NATIONAL SECURITY  
 Tipo de Negocio: NATIONAL SECURITY  
 Process or change for which a permit is requested:  
 Proceso o cambio para el cual se solicita el permiso: REQUEST REMOVAL OF QUINQUENNIAL STACK TESTING REQUIREMENT FOR UNIT #1. EMISSION CHANGES REFLECT UPDATES TO FORMER CALCULATION ERRORS  
 Preliminary estimate of the maximum quantities of each regulated air contaminant the source will emit:  
 Estimación preliminar de las cantidades máximas de cada contaminante de aire regulado que la fuente va a emitir:

Air Contaminant Contaminante de Aire	Proposed Construction Permit Permiso de Construcción Propuesta		Net Change Emissions (for permit modification or technical revision) Cambio Neto de Emisiones (para modificación de permiso o revisión técnica)	
	Pounds per hour libras por hora	Tons per year toneladas por año	Pounds per hour libras por hora	Tons per year toneladas por año
CO	62.6	6.26	0	0
NOX	79.9	7.98	27.1	2.7
SO2	0.09	0.01	-3.44	-0.34
PM10	0.89	0.09	0	0
PM2.5	0.89	0.09	0	0
HAP	—	—	—	—
VOC	2.57	0.26	2.21	1.22

5. Maximum Operating Schedule:  
 Horario Máximo de Operaciones: 24 HRS/DAY, 7DAYS/WK, 4 WKS/MO, 12MO/YR, UPTO 200 HR/YR  
 Normal Operation Schedule:  
 Horario Normal de Operaciones: INTERMITTENT
6. Current Contact Information for Comments and Inquiries  
 Datos actuales para Comentarios y Preguntas  
 Name (Nombre): KIRTLAND AFB PUBLIC AFFAIRS OFFICE  
 Address (Domicilio): 2000 WYOMING BLVD SE  
 Phone Number (Número Telefónico): (505) 846-5991  
 Email Address (Correo Electrónico): 377ABW.PA@US.AF.MIL

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

City of Albuquerque, Environmental Health Department, Air Quality Program – Stationary Source Permitting  
 Ciudad de Albuquerque, Departamento de Salud Ambiental, Programa de Calidad del Aire - Permisos para Fuentes Inmóviles  
 (505) 768-1972, aqd@cabq.gov

THIS SIGN 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

**Attachment C**  
**Emission Calculation**  
**Spreadsheets**

**Summary of Emissions  
for the Generators at SOR Location**

Process Equipment Unit No.	Emission Source	Hourly Emissions (lb/hr)						
		Carbon Monoxide	Nitrogen Oxides	Volatile Organic Compounds	Sulfur Oxides	Particulate Matter	Particulate Matter <10µm	Particulate Matter <2.5µm
1	Emergency Generator, Building 66048, ID 19135	45.67	52.82	0.68	0.0072	0.12	0.12	0.12
2	Emergency Generator, Building 66001, ID 19155	4.24	6.76	0.47	0.02	0.19	0.19	0.19
3	Emergency Generator, Building 66001, ID 19156	4.24	6.76	0.47	0.02	0.19	0.19	0.19
4	Emergency Generator, Building 66001, ID 19157	4.24	6.76	0.47	0.02	0.19	0.19	0.19
5	Emergency Generator, Building 66001, ID 19158	4.24	6.76	0.47	0.02	0.19	0.19	0.19
	<b>Total</b>	<b>62.62</b>	<b>79.85</b>	<b>2.57</b>	<b>0.09</b>	<b>0.89</b>	<b>0.89</b>	<b>0.89</b>

Process Equipment Unit No.	Emission Source	Annual Emissions (ton/yr)						
		Carbon Monoxide	Nitrogen Oxides	Volatile Organic Compounds	Sulfur Oxides	Particulate Matter	Particulate Matter <10µm	Particulate Matter <2.5µm
1	Emergency Generator, Building 66048, ID 19135	4.57	5.28	0.068	0.0007	0.012	0.012	0.012
2	Emergency Generator, Building 66001, ID 19155	0.42	0.68	0.047	0.002	0.019	0.019	0.019
3	Emergency Generator, Building 66001, ID 19156	0.42	0.68	0.047	0.002	0.019	0.019	0.019
4	Emergency Generator, Building 66001, ID 19157	0.42	0.68	0.047	0.002	0.019	0.019	0.019
5	Emergency Generator, Building 66001, ID 19158	0.42	0.68	0.047	0.002	0.019	0.019	0.019
	<b>Total</b>	<b>6.26</b>	<b>7.98</b>	<b>0.26</b>	<b>0.01</b>	<b>0.089</b>	<b>0.089</b>	<b>0.089</b>

**Summary of Emissions  
for the Generators at SOR Location**

Process Equipment Unit No.	Emission Source	Potential Emissions (ton/yr)						
		Carbon Monoxide	Nitrogen Oxides	Volatile Organic Compounds	Sulfur Oxides	Particulate Matter	Particulate Matter <10µm	Particulate Matter <2.5µm
1	Emergency Generator, Building 66048, ID 19135	200.03	231.35	2.96	0.032	0.53	0.53	0.53
2	Emergency Generator, Building 66001, ID 19155	18.57	29.60	2.08	0.09	0.84	0.84	0.84
3	Emergency Generator, Building 66001, ID 19156	18.57	29.60	2.08	0.09	0.84	0.84	0.84
4	Emergency Generator, Building 66001, ID 19157	18.57	29.60	2.08	0.09	0.84	0.84	0.84
5	Emergency Generator, Building 66001, ID 19158	18.57	29.60	2.08	0.09	0.84	0.84	0.84
	<b>Total</b>	<b>274.30</b>	<b>349.74</b>	<b>11.26</b>	<b>0.40</b>	<b>3.90</b>	<b>3.90</b>	<b>3.90</b>

**Summary of Generator Emissions  
Emission Calculation Spreadsheet  
Emergency Generator at Building 66048 (Unit ID 19135)  
Process Equipment Unit No. 1**

Generator  
1334 hp

Criteria Air Pollutants	Emission Estimation Data Source <sup>1</sup>	Hourly Emissions <sup>2</sup> (lb/hr)	Annual Emissions <sup>3</sup> (ton/yr)	PTE <sup>4</sup> (ton/yr)
Carbon Monoxide	AP-42 EF, Calculated Fuel Flow (Sheet 2)	45.67	4.57	200.03
Nitrogen Oxides	Manufacturer EF (Sheet 1)	52.82	5.28	231.35
Particulate Matter <sup>5</sup>	AP-42 EF, Calculated Fuel Flow (Sheet 2)	0.12	0.012	0.53
Particulate Matter <10µm	AP-42 EF, Calculated Fuel Flow (Sheet 2)	0.12	0.012	0.53
Particulate Matter <2.5µm	AP-42 EF, Calculated Fuel Flow (Sheet 2)	0.12	0.012	0.53
Sulfur Oxides	AP-42 EF, Calculated Fuel Flow (Sheet 2)	0.0072	0.00072	0.032
Volatile Organic Compounds	Manufacturer EF (Sheet 1)	0.68	0.068	2.96

The generator operates a maximum of 200 hours per year and is powered by natural gas.

<sup>1</sup> Emission Estimation Data Source Explanations:

*Manufacturer EF (Sheet 1)*: Emission calculations were performed using Manufacturer Emission Factors.

*AP-42 EF, Calculated Fuel Flow (Sheet 2)*: Emission calculations were performed using AP-42 Emission Factors and calculated Fuel Flow using the manufacturer specified brake specific fuel consumption.

*AP-42 EF, Manufacturer Fuel Flow (Sheet 3)*: Emission calculations were performed using AP-42 Emission Factors and Manufacturer Specified Fuel Flow.

Emissions are estimated for the generator using the methodology described in each sheet.

<sup>2</sup> Refer to calculations on specific sheet for emission calculation methodology.

<sup>3</sup> Annual emissions are based on 200 hours of operation per year.  
Refer to calculations on specific sheet for emission calculation methodology.

<sup>4</sup> Potential to Emit (PTE) was calculated based on the number of hours in a year (8760 hours per year).  
The following equation was used to calculate PTE:  
$$\text{PTE (ton/yr)} = \text{Hourly emissions (lb/hr)} * 8760 \text{ (hrs/yr)} / 2000 \text{ (lb/ton)}$$

<sup>5</sup> Assumed Particulate Matter emissions equal Particulate Matter < 10 µm and Particulate Matter <2.5 µm emissions.



**Sheet 1 - Manufacturer Emission Factors  
Emission Calculation Spreadsheet  
Emergency Generator at Building 66048 (Unit ID 19135)  
Process Equipment Unit No. 1**

**Generator  
1334 hp**

<b>Criteria Air Pollutants</b>	<b>Manufacturer Emission Factors<sup>1</sup> (g/hp-hr)</b>	<b>Hourly Emissions<sup>2</sup> (lb/hr)</b>	<b>Annual Emissions<sup>3</sup> (ton/yr)</b>	<b>PTE<sup>4</sup> (ton/yr)</b>
Carbon Monoxide	4.74	13.94	1.39	61.06
Nitrogen Oxides	17.96	52.82	5.28	231.35
Particulate Matter Particulate Matter <10µm Particulate Matter <2.5µm	Manufacturer emission factors not available			
Sulfur Oxides				
Volatile Organic Compounds <sup>5</sup>	0.23	0.68	0.068	2.96

The generator operates a maximum of 200 hours per year and is powered by natural gas.

<sup>1</sup> The highest emission factor for the load was used.

<sup>2</sup> The following equation was used to calculate hourly emissions for each pollutant:

$$\text{Hourly emissions (lb/hr)} = \text{EF (g/hp-hr)} * \text{hp} / 453.6 \text{ (g/lb)}$$

where: EF = Emission Factor

hp = horse power

<sup>3</sup> The following equation was used to calculate annual emissions for each pollutant:

$$\text{Annual emissions (ton/yr)} = \text{Hourly emissions (lb/hr)} * 200 \text{ (hrs/yr)} / 2000 \text{ (lb/ton)}$$

<sup>4</sup> Potential to Emit (PTE) was calculated based on the number of hours in a year (8760 hours per year).

The following equation was used to calculate PTE:

$$\text{PTE (ton/yr)} = \text{Hourly emissions (lb/hr)} * 8760 \text{ (hrs/yr)} / 2000 \text{ (lb/ton)}$$

<sup>5</sup> Emission factor is for non-methane hydrocarbons (NMHC). VOC emissions conservatively assumed to be equal to NMHC.

**Sheet 2 - AP-42 Emission Factors, Calculated Fuel Flow  
Emission Calculation Spreadsheet  
Emergency Generator at Building 66048 (Unit ID 19135)  
Process Equipment Unit No. 1**

Generator  
1334 hp

Criteria Air Pollutants	AP-42 Emission Factors <sup>1</sup> (lb/MMBtu)	Fuel Use <sup>2</sup> (scf/hr)	Heating Value (HV) <sup>3</sup> (Btu/scf)	Hourly Emissions <sup>4</sup> (lb/hr)	Annual Emissions <sup>5</sup> (ton/yr)	PTE <sup>6</sup> (ton/yr)
Carbon Monoxide	3.72	12036.1	1020	45.67	4.57	200.03
Nitrogen Oxides	2.27	12036.1	1020	27.87	2.79	122.06
Particulate Matter <sup>7,8</sup>	0.00991	12036.1	1020	0.12	0.012	0.53
Particulate Matter <10µm	0.00991	12036.1	1020	0.12	0.012	0.53
Particulate Matter <2.5µm	0.00991	12036.1	1020	0.12	0.012	0.53
Sulfur Oxides	0.000588	12036.1	1020	0.0072	0.0007	0.032
Volatile Organic Compounds	0.0296	12036.1	1020	0.36	0.036	1.59

The generator operates a maximum of 200 hours per year and is powered by natural gas.

<sup>1</sup> Emission factors from EPA AP-42 Section 3.2 Natural Gas-fired Reciprocating Engines, Table 3.2-3 Uncontrolled Emission Factors for 4-Stroke Rich Burn Engines (July 2000). Manufacturer emission data sheet reports that the engine exhaust percent oxygen is 2.9% in standby mode and the Cummins representative states this engine is a rich burn engine. Worst case emission factor was selected for CO and NOx even though the worst case emission factor is associated with different load ratings.

<sup>2</sup> The following equation was used to calculate hourly fuel use:  

$$\text{Hourly fuel use} = \text{hp} * \text{Manufacturer Specified brake specific fuel consumption (9,203 Btu/hp-hr)} * 1/\text{HV (Btu/scf)}$$
 The manufacturer specified brake specific fuel consumption resulting in the highest emissions is 9,203 Btu/hp-hr (Continuous Mode).

<sup>3</sup> The heating value (HV) of natural gas is given in AP-42 Section 3.2 Table 3.3-2 (footnote b) as 1020 Btu/scf (July 2000).

<sup>4</sup> The following equation was used to calculate hourly emissions for each pollutant:  

$$\text{Hourly emissions (lb/hr)} = \text{EF (lb/MM Btu)} * \text{fuel use (scf/hr)} * \text{HV (Btu/scf)} / 1000000$$
 where: EF = Emission Factor  
 HV = Heating Value

<sup>5</sup> The following equation was used to calculate annual emissions for each pollutant:  

$$\text{Annual emissions (ton/yr)} = \text{Hourly emissions (lb/hr)} * 200 \text{ (hrs/yr)} / 2000 \text{ (lb/ton)}$$

<sup>6</sup> Potential to Emit (PTE) was calculated based on the number of hours in a year (8760 hours per year).  
 The following equation was used to calculate PTE:  

$$\text{PTE (ton/yr)} = \text{Hourly emissions (lb/hr)} * 8760 \text{ (hrs/yr)} / 2000 \text{ (lb/ton)}$$

<sup>7</sup> Data is total particulate.

<sup>8</sup> Assumed particulate matter (PM) emissions equal PM <10 µm and PM <2.5 µm emissions.

**Sheet 3 - AP-42 Emission Factors, Manufacturer Specification Fuel Flow  
Emission Calculation Spreadsheet  
Emergency Generator at Building 66048 (Unit ID 19135)  
Process Equipment Unit No. 1**

Generator  
1334 hp

Criteria Air Pollutants	AP-42 Emission Factors <sup>1</sup> (lb/MMBtu)	Fuel Use <sup>2</sup> (scf/hr)	Heating Value (HV) <sup>3</sup> (Btu/scf)	Hourly Emissions <sup>4</sup> (lb/hr)	Annual Emissions <sup>5</sup> (ton/yr)	PTE <sup>6</sup> (ton/yr)
Carbon Monoxide	3.72	11600.0	1020	44.02	4.40	192.79
Nitrogen Oxides	2.27	11600.0	1020	26.86	2.69	117.64
Particulate Matter <sup>7,8</sup>	0.00991	11600.0	1020	0.12	0.012	0.51
Particulate Matter <10µm	0.00991	11600.0	1020	0.12	0.012	0.51
Particulate Matter <2.5µm	0.00991	11600.0	1020	0.12	0.012	0.51
Sulfur Oxides	0.000588	11600.0	1020	0.0070	0.00070	0.030
Volatile Organic Compounds	0.0296	11600.0	1020	0.35	0.035	1.53

The generator operates a maximum of 200 hours per year and is powered by natural gas

<sup>1</sup> Emission factors from EPA AP-42 Section 3.2 Natural Gas-fired Reciprocating Engines, Table 3.2-3 Uncontrolled Emission Factors for 4-Stroke Rich Burn Engines (July 2000). Manufacturer emission data sheet reports that the engine exhaust percent oxygen is 2.9% in standby mode and the Cummins representative states this engine is a rich burn engine.

<sup>2</sup> Maximum manufacturer specified fuel flow.

<sup>3</sup> The heating value (HV) of natural gas is given in AP-42 Section 3.2 Table 3.3-2 (footnote b) as 1020 Btu/scf (July 2000).

<sup>4</sup> The following equation was used to calculate hourly emissions for each pollutant:  

$$\text{Hourly emissions (lb/hr)} = \text{EF (lb/MM Btu)} * \text{fuel use (scf/hr)} * \text{HV (Btu/scf)} / 1000000$$
 where: EF = Emission Factor  
 HV = Heating Value

<sup>5</sup> The following equation was used to calculate annual emissions for each pollutant:  

$$\text{Annual emissions (ton/yr)} = \text{Hourly emissions (lb/hr)} * 200 \text{ (hrs/yr)} / 2000 \text{ (lb/ton)}$$

<sup>6</sup> Potential to Emit (PTE) was calculated based on the number of hours in a year (8760 hours per year).  
 The following equation was used to calculate PTE:  

$$\text{PTE (ton/yr)} = \text{Hourly emissions (lb/hr)} * 8760 \text{ (hrs/yr)} / 2000 \text{ (lb/ton)}$$

<sup>7</sup> Data is total particulate.

<sup>8</sup> Assumed particulate matter (PM) emissions equal PM <10µm and PM <2.5µm emissions.

**Summary of Generator Emissions  
Emission Calculation Spreadsheet  
Emergency Generators at Building 66001 (Unit IDs 19155, 19156, 19157, and 19158)  
Process Equipment Unit Nos. 2, 3, 4, and 5**

**Generator  
752 hp**

Criteria Air Pollutants	Emission Estimation Data Source <sup>1</sup>	Hourly Emissions <sup>2</sup> (lb/hr)	Annual Emissions <sup>3</sup> (ton/yr)	PTE <sup>4</sup> (ton/yr)
Carbon Monoxide <sup>5</sup>	AP-42 EF, Manufacturer Fuel Flow (Sheet 3)	4.24	0.42	18.57
Nitrogen Oxides <sup>5</sup>	Manufacturer EF (Sheet 1)	6.76	0.68	29.60
Particulate Matter <sup>5</sup>	Manufacturer EF (Sheet 1)	0.19	0.019	0.84
Particulate Matter <10µm	Manufacturer EF (Sheet 1)	0.19	0.019	0.84
Particulate Matter <2.5µm	Manufacturer EF (Sheet 1)	0.19	0.019	0.84
Sulfur Oxides	AP-42 EF, Calculated Fuel Flow (Sheet 2)	0.02	0.002	0.09
Volatile Organic Compounds <sup>5</sup>	AP-42 EF, Calculated Fuel Flow (Sheet 2)	0.47	0.047	2.08

Each generator operates a maximum of 200 hours per year and is powered by diesel fuel.

Please note: These spreadsheets are calculating for one of the four identical generators. The *Summary of Emissions* sheets show individual emissions for each 752 hp generator and total emissions for the facility.

<sup>1</sup> Emission Estimation Data Source Explanations:

*Manufacturer EF (Sheet 1)*: Emission calculations were performed using Manufacturer Emission Factors.

*AP-42 EF, Calculated Fuel Flow (Sheet 2)*: Emission calculations were performed using AP-42 Emission Factors and calculated Fuel Flow.

*AP-42 EF, Manufacturer Fuel Flow (Sheet 3)*: Emission calculations were performed using AP-42 Emission Factors and Manufacturer Specified Fuel Flow.

Unless the pollutant is subject to an NSPS standard (see footnote 5) and emission estimates exceed the applicable standard, worst-case emissions are estimated for the generator using the methodology described.

<sup>2</sup> Refer to calculations on specific sheet for emission calculation methodology.

<sup>3</sup> Annual emissions are based on 200 hours of operation per year.  
Refer to calculations on specific sheet for emission calculation methodology.

<sup>4</sup> Potential to Emit (PTE) was calculated based on the number of hours in a year (8760 hours per year).  
The following equation was used to calculate PTE:  
$$\text{PTE (ton/yr)} = \text{Hourly emissions (lb/hr)} * 8760 \text{ (hrs/yr)} / 2000 \text{ (lb/ton)}$$

<sup>5</sup> These generators are subject to 40 CFR Part 60 Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines and are equipped with model year 2008 engines rated at 752 hp (560.8 kW). Based on the engine rating (560.8 kW) and displacement of less than 10 liters per cylinder, these generators must comply with the emission standards in 40 CFR 89.112 Table 1 for rated power greater than 560 kW, Tier 2 (Model Year 2006 and beyond). These generators meet the standards outlined in this regulation.

**Sheet 1 - Manufacturer Emission Factors  
Emission Calculation Spreadsheet  
Emergency Generators at Building 66001 (Unit IDs 19155, 19156, 19157, and 19158)  
Process Equipment Unit Nos. 2, 3, 4, and 5**

Generator  
752 hp

Criteria Air Pollutants	Manufacturer Emission Factors (g/hp-hr)	Hourly Emissions <sup>1</sup> (lb/hr)	Annual Emissions <sup>2</sup> (ton/yr)	PTE <sup>3</sup> (ton/yr)
Carbon Monoxide	0.786	1.30	0.13	5.71
Nitrogen Oxides	4.076	6.76	0.68	29.60
Particulate Matter	0.116	0.19	0.019	0.84
Particulate Matter <10µm <sup>4</sup>	0.116	0.19	0.019	0.84
Particulate Matter <2.5µm <sup>4</sup>	0.116	0.19	0.019	0.84
Sulfur Oxides	Manufacturer emission factor not available			
Volatile Organic Compounds	0.234	0.39	0.039	1.70

Each generator operates a maximum of 200 hours per year and is powered by diesel fuel.

Please note: These spreadsheets are calculating for one of the four identical generators. The *Summary of Emissions* sheets show individual emissions for each 752 hp generator and total emissions for the facility.

<sup>1</sup> The following equation was used to calculate hourly emissions for each pollutant:  
 Hourly emissions (lb/hr) = EF (g/hp-hr) \* hp / 453.6 (g/lb)  
 where: EF = Emission Factor  
 hp = horse power

<sup>2</sup> The following equation was used to calculate annual emissions for each pollutant:  
 Annual emissions (ton/yr) = Hourly emissions (lb/hr) \* 200 (hrs/yr) / 2000 (lb/ton)

<sup>3</sup> Potential to Emit (PTE) was calculated based on the number of hours in a year (8760 hours per year)  
 The following equation was used to calculate PTE:  
 PTE (ton/yr) = Hourly emissions (lb/hr) \* 8760 (hrs/yr) / 2000 (lb/ton)

<sup>4</sup> Manufacturer exhaust emission data given for Particulate Matter (PM). Assumed PM emissions equal Particulate Matter <10µm and Particulate Matter <2.5µm emissions.

**Sheet 2 - AP-42 Emission Factors, Calculated Fuel Flow  
Emission Calculation Spreadsheet  
Emergency Generators at Building 66001 (Unit IDs 19155, 19156, 19157, and 19158)  
Process Equipment Unit Nos. 2, 3, 4, and 5**

Generator  
752 hp

Criteria Air Pollutants	AP-42 Emission Factors <sup>1</sup> (lb/MMBtu)	Fuel Use <sup>2</sup> (gal/hr)	Heating Value (HV) <sup>3</sup> (Btu/gal)	Hourly Emissions <sup>4</sup> (lb/hr)	Annual Emissions <sup>5</sup> (ton/yr)	PTE <sup>6</sup> (ton/yr)
Carbon Monoxide	0.85	38.4	137000	4.47	0.45	19.60
Nitrogen Oxides	3.2	38.4	137000	16.84	1.68	73.78
Particulate Matter	0.1	38.4	137000	0.53	0.053	2.31
Particulate Matter <10µm <sup>7</sup>	0.1	38.4	137000	0.53	0.053	2.31
Particulate Matter <2.5µm <sup>8</sup>	0.1	38.4	137000	0.53	0.053	2.31
Sulfur Oxides <sup>9</sup>	0.00404	38.4	137000	0.02	0.00	0.09
Volatile Organic Compounds <sup>10</sup>	0.09	38.4	137000	0.47	0.047	2.08

Each generator operates a maximum of 200 hours per year and is powered by diesel fuel.

Please note: These spreadsheets are calculating for one of the four identical generators. The *Summary of Emissions* sheets show individual emissions for each 752 hp generator and total emissions for the facility.

<sup>1</sup> Emission factors from EPA AP-42 Section 3.4 Large Stationary Diesel and All Stationary Dual-Fuel Engines, Table 3.4-1 (October 1996).

<sup>2</sup> The following equation was used to calculate hourly fuel use:  
Hourly fuel use = hp \* Brake specific fuel consumption (7000 Btu/hp-hr) \* 1/HV (Btu/gal)

<sup>3</sup> The heating value (HV) of diesel fuel is given in AP-42 Appendix A: Miscellaneous Data & Conversion Factors (September 1985), Typical Parameters of Various Fuels as 137000 Btu/gal.

<sup>4</sup> The following equation was used to calculate hourly emissions for each pollutant:  
Hourly emissions (lb/hr) = EF (lb/MM Btu) \* fuel use (gal/hr) \* HV (Btu/gal) / 1000000  
where: EF = Emission Factor  
HV = Heating Value

<sup>5</sup> The following equation was used to calculate annual emissions for each pollutant:  
Annual emissions (ton/yr) = Hourly emissions (lb/hr) \* 200 (hrs/yr) / 2000 (lb/ton)

<sup>6</sup> Potential to Emit (PTE) was calculated based on the number of hours in a year (8760 hours per year).  
The following equation was used to calculate PTE:  
PTE (ton/yr) = Hourly emissions (lb/hr) \* 8760 (hrs/yr) / 2000 (lb/ton).

<sup>7,8</sup> Assumed Particulate Matter <2.5µm and Particulate Matter <10µm equal Particulate Matter.

<sup>9</sup> The following equation was used to calculate the sulfur oxides emission factor:  
Sulfur oxides emission factor = 1.01 \* S  
where: S = Percent sulfur in diesel fuel (0.4% from AP-42 Appendix A: Miscellaneous Data & Conversion Factors (September 1985), Typical Parameters of Various Fuels)

<sup>10</sup> Volatile Organic Compounds assumed to be Total Organic Compounds (TOC).

**Sheet 3 - AP-42 Emission Factors, Manufacturer Specification Fuel Flow  
Emission Calculation Spreadsheet  
Emergency Generators at Building 66001 (Unit IDs 19155, 19156, 19157, and 19158)  
Process Equipment Unit Nos. 2, 3, 4, and 5**

Generator  
752 hp

Criteria Air Pollutants	AP-42 Emission Factors <sup>1</sup> (lb/MMBtu)	Fuel Use <sup>2</sup> (gal/hr)	Heating Value (HV) <sup>3</sup> (Btu/gal)	Hourly Emissions <sup>4</sup> (lb/hr)	Annual Emissions <sup>5</sup> (ton/yr)	PTE <sup>6</sup> (ton/yr)
Carbon Monoxide	0.85	36.4	137000	4.24	0.42	18.57
Nitrogen Oxides	3.2	36.4	137000	15.96	1.60	69.89
Particulate Matter	0.1	36.4	137000	0.50	0.050	2.18
Particulate Matter <10 $\mu$ m <sup>7</sup>	0.1	36.4	137000	0.50	0.050	2.18
Particulate Matter <2.5 $\mu$ m <sup>8</sup>	0.1	36.4	137000	0.50	0.050	2.18
Sulfur Oxides <sup>9</sup>	0.404	36.4	137000	2.01	0.20	8.82
Volatile Organic Compounds <sup>10</sup>	0.09	36.4	137000	0.45	0.045	1.97

Each generator operates a maximum of 200 hours per year and is powered by diesel fuel.

Please note: These spreadsheets are calculating for one of the four identical generators. The *Summary of Emissions* sheets show individual emissions for each 752 hp generator and total emissions for the facility.

<sup>1</sup> Emission factors from EPA AP-42 Section 3.4 Large Stationary Diesel and All Stationary Dual-Fuel Engines, Table 3.4-1 (October 1996).

<sup>2</sup> Maximum manufacturer specified fuel flow.

<sup>3</sup> The heating value (HV) of diesel fuel is given in AP-42 Appendix A: Miscellaneous Data & Conversion Factors (September 1985). Typical Parameters of Various Fuels as 137000 Btu/gal.

<sup>4</sup> The following equation was used to calculate hourly emissions for each pollutant:  

$$\text{Hourly emissions (lb/hr)} = \text{EF (lb/MM Btu)} * \text{fuel use (gal/hr)} * \text{HV (Btu/gal)} / 1000000$$
 where: EF = Emission Factor  
 HV = Heating Value

<sup>5</sup> The following equation was used to calculate annual emissions for each pollutant:  

$$\text{Annual emissions (ton/yr)} = \text{Hourly emissions (lb/hr)} * 200 \text{ (hrs/yr)} / 2000 \text{ (lb/ton)}$$

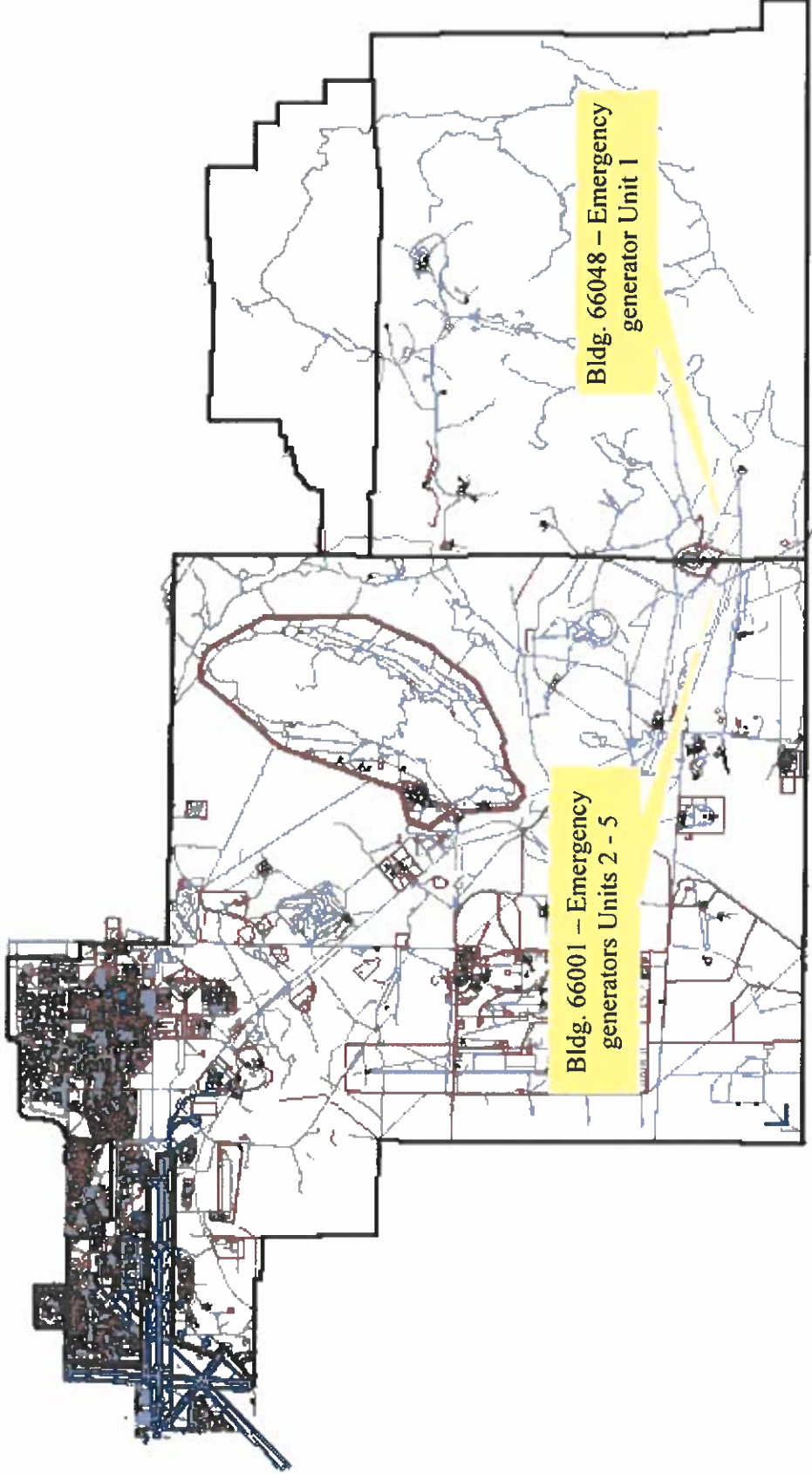
<sup>6</sup> Potential to Emit (PTE) was calculated based on the number of hours in a year (8760 hours per year).  
 The following equation was used to calculate PTE:  

$$\text{PTE (ton/yr)} = \text{Hourly emissions (lb/hr)} * 8760 \text{ (hrs/yr)} / 2000 \text{ (lb/ton)}$$

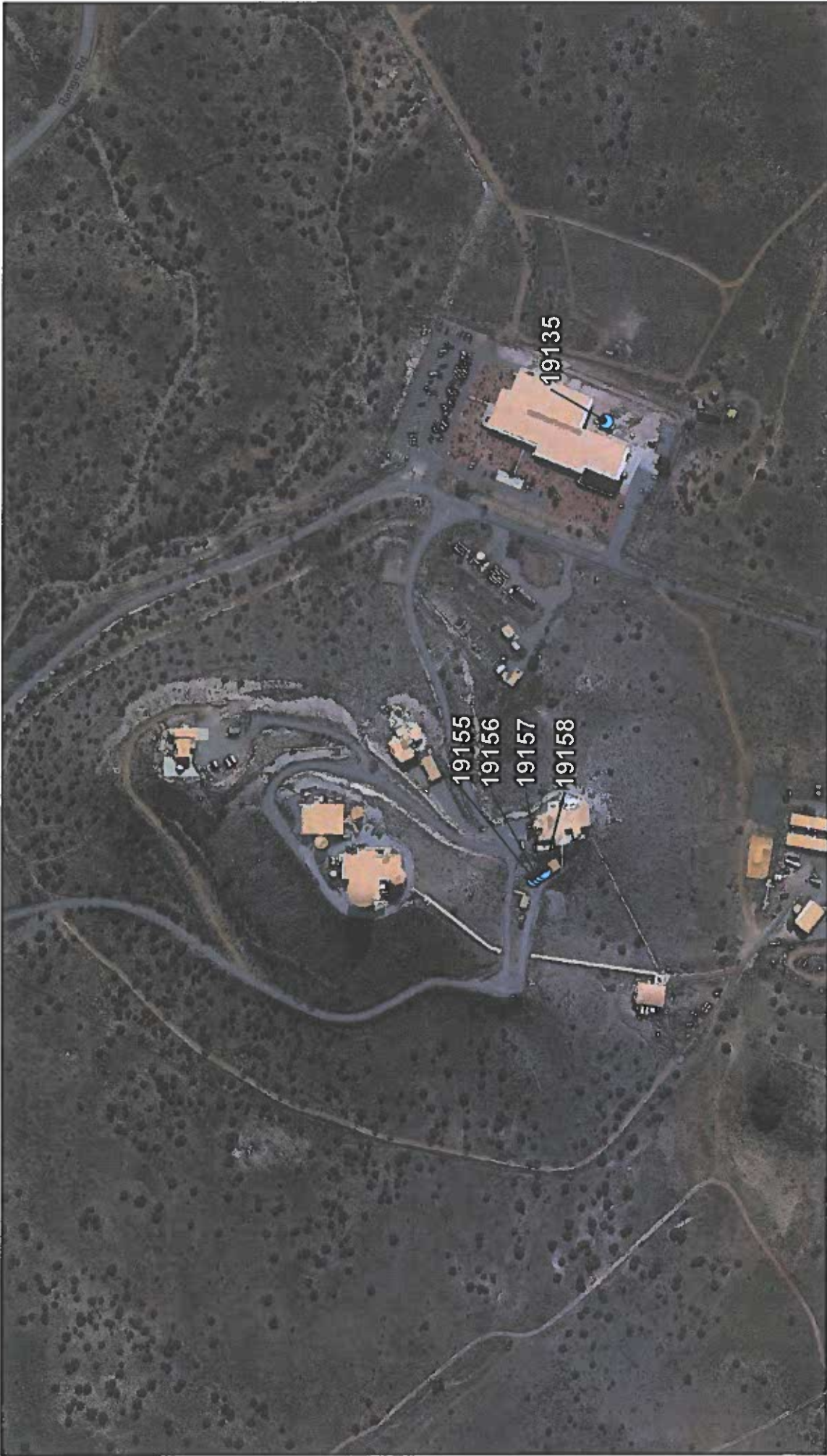
<sup>7,8</sup> Assumed Particulate Matter <2.5 $\mu$ m and Particulate Matter <10 $\mu$ m equal particulate matter.

**Attachment D**  
**Emergency Generator**  
**Location Map**



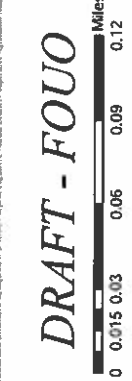


**Emergency Generator Location Map**  
**Kirtland Air Force Base, Albuquerque, New Mexico**  
**UTM-E (m): 366,725.4 UTM-N (m): 3,869,860.9**



# Kirtland AFB

## Air Emission Sources

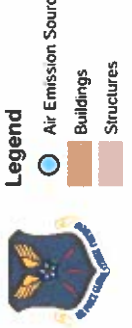


**Legend**

- Air Emission Source
- Buildings
- Structures
- Kirtland AFB Boundary

**Roads**

- PAVED
- UNPAVED



Project: 19155-19158 Air Emission Sources - Draft - FOUO. Date: 10/15/2013. Prepared by: Environmental Sciences Group, Inc. (ESG). Project: 19155-19158 Air Emission Sources - Draft - FOUO. Date: 10/15/2013. Prepared by: Environmental Sciences Group, Inc. (ESG).

**Attachment E**  
**Emergency Generator Process**  
**Flow Diagram**

**Process Flow Diagram for an Emergency Generator**

