Mail Application To:		For Department use only:
New Mexico Environment Department Air Quality Bureau Permits Section 525 Camino de los Marquez, Suite 1 Santa Fe, New Mexico, 87505 Phone: (505) 476-4300 Fax: (505) 476-4375 www.env.nm.gov/aqb		RECEIVED MAR 18 2021 Air Quality Bureau AIRS No.:

Universal Air Quality Permit Application

Use this application for NOI, NSR, or Title V sources.

Use this application for: the initial application, modifications, technical revisions, and renewals. For technical revisions, complete Sections, 1-A, 1-B, 2-E, 3, 9 and any other sections that are relevant to the requested action; coordination with the Air Quality Bureau permit staff prior to submittal is encouraged to clarify submittal requirements and to determine if more or less than these sections of the application are needed. Use this application for streamline permits as well. See Section 1-I for submittal instructions for other permits.

This application is submitted as (check all that apply): ☐ Request for a No Permit Required Determination (no fee)
☐ **Updating** an application currently under NMED review. Include this page and all pages that are being updated (no fee required).
Construction Status: ☐ Not Constructed ☑ **Existing Permitted** (or NOI) Facility ☐ Existing Non-permitted (or NOI) Facility
Minor Source: ☐ a NOI 20.2.73 NMAC ☐ 20.2.72 NMAC application or revision ☐ 20.2.72.300 NMAC Streamline application
Title V Source: ☐ Title V (new) ☑ **Title V renewal** ☐ TV minor mod. ☐ TV significant mod. TV Acid Rain: ☐ New ☐ Renewal
PSD Major Source: ☐ PSD major source (new) ☐ minor modification to a PSD source ☐ a PSD major modification

Acknowledgements:
☑ I acknowledge that a pre-application meeting is available to me upon request. ☐ Title V Operating, Title IV Acid Rain, and NPR applications have no fees.
☐ $500 NSR application Filing Fee enclosed OR ☐ The full permit fee associated with 10 fee points (required w/ streamline applications).
☐ Check No.: ____ in the amount of ____
☑ I acknowledge the required submittal format for the hard copy application is printed double sided 'head-to-toe', 2-hole punched (except the Sect. 2 landscape tables is printed 'head-to-head'), numbered tab separators. Incl. a copy of the check on a separate page.
☐ This facility qualifies to receive assistance from the Small Business Environmental Assistance program (SBEAP) and qualifies for 50% of the normal application and permit fees. Enclosed is a check for 50% of the normal application fee which will be verified with the Small Business Certification Form for your company.
☐ This facility qualifies to receive assistance from the Small Business Environmental Assistance Program (SBEAP) but does not qualify for 50% of the normal application and permit fees. To see if you qualify for SBEAP assistance and for the small business certification form go to https://www.env.nm.gov/aqb/sbap/small_business_criteria.html).

Citation: Please provide the **low level citation** under which this application is being submitted: **20.2.70.300.B.2 NMAC**
(e.g. application for a new minor source would be 20.2.72.200.A NMAC, one example for a Technical Permit Revision is 20.2.72.219.B.1.b NMAC, a Title V acid rain application would be: 20.2.70.200.C NMAC)

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known (see 1st 3 to 5 #s of permit IDEA ID No.): **942**	Updating Permit/NOI #: **P105-R3M1**
1	Facility Name: **Holloman Air Force Base (AFB)**	Plant primary SIC Code (4 digits): **9711**	
		Plant NAIC code (6 digits): **928110**	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): **From Alamogordo, take Highway 70 approximately 9 miles southwest to the main entrance of Holloman AFB.**		
2	Plant Operator Company Name: **U.S. Air Force 49th Wing**	Phone/Fax: **(575) 572-4901**	
a	Plant Operator Address: **49 WG/CC 490 First St. Suite 1700, Holloman AFB, NM 88330-8277**		

b	Plant Operator's New Mexico Corporate ID or Tax ID:	
3	Plant Owner(s) name(s): **U.S. Air Force 49th Wing**	Phone/Fax: **(575) 572-4901**
a	Plant Owner(s) Mailing Address(s): **49 WG/CC 490 First St. Suite 1700, Holloman AFB, NM 88330-8277**	
4	Bill To (Company): **U.S. Air Force – Holloman AFB**	Phone/Fax: **(575) 572-3931 / (575) 572-5080**
a	Mailing Address: **49 CES/CEIE, 550 Tabosa Ave, Holloman AFB, NM 88330-8458**	E-mail: **adam.kusmak@us.af.mil**
5	☑ Preparer: **Versar Inc.** ☐ Consultant:	Phone/Fax: **301-304-3124**
a	Mailing Address: : **20250 Century Blvd., Suite 150, Germantown MD, 20874**	E-mail: **tsletten@versar.com**
6	Plant Operator Contact: **Col Ryan P. Keeney**	Phone/Fax: **(575) 572-4901**
a	Address: **49 WG/CC 490 First St. Suite 1700, Holloman AFB, NM 88330-8277**	E-mail: **ryan.keeney@us.af.mil**
7	Air Permit Contact: **Jeniffer Montes**	Title: **Holloman AFB Air Program Manager**
a	E-mail: **jeniffer.montes@us.af.mil**	Phone/Fax: **(575) 572-3931 / (575) 572-5080**
b	Mailing Address: **49 CES/CEIE, 550 Tabosa Ave, Holloman AFB, NM 88330-8458**	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☑ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ☑ Yes ☐ No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☐ Yes ☑ No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? ☐ Yes ☐ No
3	Is the facility currently shut down? ☐ Yes ☑ No	If yes, give month and year of shut down (MM/YY): **N/A**
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☑ Yes ☐ No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☐Yes ☐No ☑N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☑ Yes ☐ No	If yes, the permit No. is**: P-105-R3-M1**
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ☑ No	If yes, the NPR No. is: **N/A**
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ☑ No	If yes, the NOI No. is: **N/A**
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☑ Yes ☐ No	If yes, the permit No. is: **1508C-M2R4 and 1508-M2R5**
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☑ No	If yes, the register No. is: **N/A**

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: **N/A**	Daily: **N/A**	Annually: **N/A**
b	Proposed	Hourly: **N/A**	Daily: **N/A**	Annually: **N/A**
2	What is the facility's maximum production rate, specify units (reference here and list capacities in Section 20, if more room is required)			

a	Current	Hourly: **N/A**	Daily: **N/A**	Annually: **N/A**
b	Proposed	Hourly: **N/A**	Daily: **N/A**	Annually: **N/A**

Section 1-D: Facility Location Information

1	Section: **13**	Range: **SE**	Township: **17S**	County: **Otero**	Elevation (ft): **4,070**
2	UTM Zone: ☐ 12 or ☑ 13			Datum: ☐ NAD 27 ☐ NAD 83 ☑ WGS 84	
a	UTM E (in meters, to nearest 10 meters): **397,350**			UTM N (in meters, to nearest 10 meters): **3,633,500**	
b	**AND** Latitude (deg., min., sec.): **32º 50' 21'' N**			Longitude (deg., min., sec.): **106º 04' 31'' W**	
3	Name and zip code of nearest New Mexico town: **Alamogordo 88310**				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): **From Alamogordo, take Highway 70 approximately 9 miles southwest to the main entrance of Holloman AFB.**				
5	The facility is **Nine** (distance) miles **Southwest** (direction) of **Alamogordo** (nearest town).				
6	Status of land at facility (check one): ☐ Private ☐ Indian/Pueblo ☐ Federal BLM ☐ Federal Forest Service ☑ Other (specify) **Government/Military**				
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: **Alamogordo, Tularosa, Otero County**				
8	**20.2.72** NMAC applications **only**: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/aqb/modeling/class1areas.html)? ☐ Yes ☐ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: **N/A; 20.2.70 NMAC application**				
9	Name nearest Class I area: **White Mountain Wilderness Area**				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): **45.26 km**				
11	Distance (meters) from the perimeter of the Area of Operations (AO is defined as the plant site inclusive of all disturbed lands, including mining overburden removal areas) to nearest residence, school or occupied structure: **1,000m – on-base housing and schools.**				
12	Method(s) used to delineate the Restricted Area: **Continuous fencing and manned security check points.** "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.				
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ☑ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.				
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☐ No ☒ Yes If yes, what is the name and permit number (if known) of the other facility? **Currently one (1) concrete batch plant operated by Mesa Verde is located within the Holloman AFB facility boundary, Permit No. GCP-5-3834.**				

Section 1-E: Proposed Operating Schedule (The 1-E.1 & 1-E.2 operating schedules may become conditions in the permit.)

1	Facility **maximum** operating ($\frac{hours}{day}$): **24**	($\frac{days}{week}$): **7**	($\frac{weeks}{year}$): **52**	($\frac{hours}{year}$): **8,760**		
2	Facility's maximum daily operating schedule (if less than 24 $\frac{hours}{day}$)?	Start: **N/A**	☐AM ☐PM	End: **N/A**	☐AM ☐PM	
3	Month and year of anticipated start of construction: : **Existing Source**					
4	Month and year of anticipated construction completion: : **Existing Source**					
5	Month and year of anticipated startup of new or modified facility: : **Existing Source**					

6	Will this facility operate at this site for more than one year? ☑ Yes ☐ No

Section 1-F: Other Facility Information

1	Are there any current Notice of Violations (NOV), compliance orders, or any other compliance or enforcement issues related to this facility? ☐ Yes ☑ No If yes, specify: **N/A**		
a	If yes, NOV date or description of issue: **N/A**		NOV Tracking No: **N/A**
b	Is this application in response to any issue listed in 1-F, 1 or 1a above? ☐ Yes ☑ No If Yes, provide the 1c & 1d info below:		
c	Document Title: **N/A**	Date: **N/A**	Requirement # (or page # and paragraph #): **N/A**
d	Provide the required text to be inserted in this permit: **N/A**		
2	Is air quality dispersion modeling or modeling waiver being submitted with this application? ☐ Yes ☑ No		
3	Does this facility require an "Air Toxics" permit under 20.2.72.400 NMAC & 20.2.72.502, Tables A and/or B? ☐ Yes ☑ No		
4	Will this facility be a source of federal Hazardous Air Pollutants (HAP)? ☑ Yes ☐ No		
a	If Yes, what type of source? ☐ **Major** (☐ ≥10 tpy of any single HAP **OR** ☐ ≥25 tpy of any combination of HAPS) **OR** ☑ **Minor** (☐ <10 tpy of any single HAP **AND** ☑ <25 tpy of any combination of HAPS)		
5	Is any unit exempt under 20.2.72.202.B.3 NMAC? ☑ Yes ☐ No		
a	If yes, include the name of company providing commercial electric power to the facility: **El Paso Electric** _ Commercial power is purchased from a commercial utility company, which specifically does not include power generated on site for the sole purpose of the user.		

Section 1-G: Streamline Application **(This section applies to 20.2.72.300 NMAC Streamline applications only)**

1	☐ I have filled out Section 18, "Addendum for Streamline Applications."	☑ N/A (This is not a Streamline application.)

Section 1-H: Current Title V Information - Required for all applications from TV Sources

(Title V-source required information for all applications submitted pursuant to 20.2.72 NMAC (Minor Construction Permits), or 20.2.74/20.2.79 NMAC (Major PSD/NNSR applications), and/or 20.2.70 NMAC (Title V))

1	Responsible Official (R.O.) (20.2.70.300.D.2 NMAC): **Colonel Ryan P. Keeney**	Phone: **(575) 572-4901**
a	R.O. Title: **Commander, 49th Wing**	R.O. e-mail: **ryan.keeney@us.af.mil**
b	R. O. Address: **49 WG/CC 490 First St. Suite 1700, Holloman AFB, NM 88330-8277**	
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): **N/A**	Phone: **N/A**
a	A. R.O. Title: **N/A**	A. R.O. e-mail: **N/A**
b	A. R. O. Address: **N/A**	
3	Company's Corporate or Partnership Relationship to any other Air Quality Permittee (List the names of any companies that have operating (20.2.70 NMAC) permits and with whom the applicant for this permit has a corporate or partnership relationship): **N/A**	
4	Name of Parent Company ("Parent Company" means the primary name of the organization that owns the company to be permitted wholly or in part.): **N/A**	
a	Address of Parent Company: **N/A**	
5	Names of Subsidiary Companies ("Subsidiary Companies" means organizations, branches, divisions or subsidiaries, which are owned, wholly or in part, by the company to be permitted.): **N/A**	
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations: **N/A**	

7	Affected Programs to include Other States, local air pollution control programs (i.e. Bernalillo) and Indian tribes: Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B)? If yes, state which ones and provide the distances in kilometers: **Mescalero Apache Indian Reservation, ~80 km.**

Section 1-I – Submittal Requirements

Each 20.2.73 NMAC (**NOI**), a 20.2.70 NMAC (**Title V**), a 20.2.72 NMAC (**NSR** minor source), or 20.2.74 NMAC (**PSD**) application package shall consist of the following:

Hard Copy Submittal Requirements:

1) One hard copy **original signed and notarized application package** **printed double sided** **'head-to-toe'** **2-hole punched** as we bind the document on top, not on the side; except Section 2 (landscape tables), which should be head-to-head. Please use **numbered tab separators** in the hard copy submittal(s) as this facilitates the review process. For NOI submittals only, hard copies of UA1, Tables 2A, 2D & 2F, Section 3 and the signed Certification Page are required. Please include a copy of the check on a separate page.
2) If the application is for a minor NSR, PSD, NNSR, or Title V application, include one working hard **copy** for Department use. This copy should be printed in book form, 3-hole punched, and **must be double sided**. Note that this is in addition to the head-to-to 2-hole punched copy required in 1) above. Minor NSR Technical Permit revisions (20.2.72.219.B NMAC) only need to fill out Sections 1-A, 1-B, 3, and should fill out those portions of other Section(s) relevant to the technical permit revision. TV Minor Modifications need only fill out Sections 1-A, 1-B, 1-H, 3, and those portions of other Section(s) relevant to the minor modification. NMED may require additional portions of the application to be submitted, as needed.
3) The entire NOI or Permit application package, including the full modeling study, should be submitted electronically. Electronic files for applications for NOIs, any type of General Construction Permit (GCP), or technical revisions to NSRs must be submitted with compact disk (CD) or digital versatile disc (DVD). For these permit application submittals, two CD copies are required (in sleeves, not crystal cases, please), with additional CD copies as specified below. NOI applications require only a single CD submittal. Electronic files for other New Source Review (construction) permits/permit modifications or Title V permits/permit modifications can be submitted on CD/DVD or sent through AQB's secure file transfer service.

Electronic files sent by (check one):

☐ CD/DVD attached to paper application

☐ secure electronic transfer. Air Permit Contact Name_____________________________

Email________________________________

Phone number _________________________

a. If the file transfer service is chosen by the applicant, after receipt of the application, the Bureau will email the applicant with instructions for submitting the electronic files through a secure file transfer service. Submission of the electronic files through the file transfer service needs to be completed within 3 business days after the invitation is received, so the applicant should ensure that the files are ready when sending the hard copy of the application. The applicant will not need a password to complete the transfer. **Do not use the file transfer service for NOIs, any type of GCP, or technical revisions to NSR permits.**

4) Optionally, the applicant may submit the files with the application on compact disk (CD) or digital versatile disc (DVD) following the instructions above and the instructions in 5 for applications subject to PSD review.
5) If **air dispersion modeling** is required by the application type, include the **NMED Modeling Waiver** and/or electronic air dispersion modeling report, input, and output files. The dispersion modeling ***summary report only*** should be submitted as hard copy(ies) unless otherwise indicated by the Bureau.
6) If the applicant submits the electronic files on CD and the application is subject to PSD review under 20.2.74 NMAC (PSD) or NNSR under 20.2.79 NMC include,
   a. one additional CD copy for US EPA,
   b. one additional CD copy for each federal land manager affected (NPS, USFS, FWS, USDI) and,
   c. one additional CD copy for each affected regulatory agency other than the Air Quality Bureau.

   If the application is submitted electronically through the secure file transfer service, these extra CDs do not need to be submitted.

Electronic Submittal Requirements [in addition to the required hard copy(ies)]:

1) All required electronic documents shall be submitted as 2 separate CDs or submitted through the AQB secure file transfer service. Submit a single PDF document of the entire application as submitted and the individual documents comprising the application.
2) The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text and formulas in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible

format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide Microsoft office compatible electronic files or internally generated PDF files of files (items that were not created electronically: i.e. brochures, maps, graphics, etc,), submit these items in hard copy format. We must be able to review the formulas and inputs that calculated the emissions.

3) It is preferred that this application form be submitted as 4 electronic files (3 MSWord docs: Universal Application section 1 [UA1], Universal Application section 3-19 [UA3], and Universal Application 4, the modeling report [UA4]) and 1 Excel file of the tables (Universal Application section 2 [UA2]). Please include as many of the 3-19 Sections as practical in a single MS Word electronic document. Create separate electronic file(s) if a single file becomes too large or if portions must be saved in a file format other than MS Word.

4) The electronic file names shall be a maximum of 25 characters long (including spaces, if any). The format of the electronic Universal Application shall be in the format: “A-3423-FacilityName”. The “A” distinguishes the file as an application submittal, as opposed to other documents the Department itself puts into the database. Thus, all electronic application submittals should begin with “A-”. Modifications to existing facilities should use the core permit number (i.e. ‘3423’) the Department assigned to the facility as the next 4 digits. Use ‘XXXX’ for new facility applications. The format of any separate electronic submittals (additional submittals such as non-Word attachments, re-submittals, application updates) and Section document shall be in the format: “A-3423-9-description”, where “9” stands for the section # (in this case Section 9-Public Notice). Please refrain, as much as possible, from submitting any scanned documents as this file format is extremely large, which uses up too much storage capacity in our database. Please take the time to fill out the header information throughout all submittals as this will identify any loose pages, including the Application Date (date submitted) & Revision number (0 for original, 1, 2, etc.; which will help keep track of subsequent partial update(s) to the original submittal. Do not use special symbols (#, @, etc.) in file names. The footer information should not be modified by the applicant.

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Table 2-A: Regulated Emission Sources

Unit and stack numbering must correspond throughout the application package. If applying for a NOI under 20.2.73 NMAC, equipment exemptions under 2.72.202 NMAC do not apply.

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] Date of Construction/ Reconstruction2	Controlled by Unit # Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
12010	Heater/Possible Thermal Oxidizer	To Be Determined	To Be Determined	To Be Determined	20 MM Btu/hr	-	TBD TBD	12010 TBD	50410542	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
12012	Remediation Activities - Landfarm	-	-	-	-	-	- -	N/A N/A	50410563	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
13002	Open Burning/Open Detonation	-	-	-	-	18,250 lbs of NEW/yr	- -	N/A N/A	2670001000, 2670002000[3]	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
14031	Boiler, Building 868	Rite	-	23402	8.4 MM Btu/hr	PTE, 8,760 hrs/yr	- -	N/A 050	10300603	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
14034	Boiler, Building 285	Rite	A700WG	25092	5.4 MM Btu/hr	PTE, 8,760 hrs/yr	1998 1998	N/A 285A	10300603	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
14035	Boiler, Building 21295	Rite	A700WGE	27347	5.06 MM Btu/hr	PTE, 8,760 hrs/yr	2000 2000	N/A 21295A	10300603	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
14036	Boiler, Building 21296	Rite	A700WGE	27348	5.06 MM Btu/hr	PTE, 8,760 hrs/yr	2000 2000	N/A 21296A	10300603	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
14037	Boiler, Building 21297	Rite	A700WGE	27346	5.06 MM Btu/hr	PTE, 8,760 hrs/yr	2000 2000	N/A 21297A	10300603	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
14038	Heater, Building 195	Bananza	Spray Cure B-3000	02103000.21	4.1 MM Btu/hr	PTE, 8,760 hrs/yr	2003 Oct-03	N/A 195A/B	10500206	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
15001	Fuel Dispensing for Tanks 22100 - 22102, Building 33 (AAFES)	-	-	-	-	5,000,000 gal/yr[4]	- -	N/A N/A	40600702	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
15004	Fuel Dispensing for Tank 22054, Building 136 (POL)	-	-	-	-		- -	N/A N/A	40600702	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
15011	Fuel Dispensing for Tank 22058, Building 525 (POL)	-	-	-	-		- -	N/A N/A	40600702	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
15013	Fuel Dispensing for Tank 22014R, Building 1166 (TG)	-	-	-	-		~May-03 May-03	N/A N/A	40600702	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
15014	Fuel Dispensing for Tank 22110, Building 906	-	-	-	-		- -	N/A N/A	40600702	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
15005	Fuel Dispensing for Tank 22103, Building 283 (Aeroclub)	-	-	-	-	40,000 gal/yr	- -	N/A N/A	40600702	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
15012	Fuel Dispensing for Tank 22105, Building 500 (AXMS)	-	-	-	-	60,000 gal/yr	- May-09	N/A N/A	40600702	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
16004	Fuel Loading Racks, Building 702 (POL)	-	-	-	-	150,000 gal/yr	- -	N/A N/A	40600302	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
16005	Fuel Loading for Tank 22105, Building 500 (AMXS)	-	-	-	-	60,000 gal/yr	- May-09	N/A N/A	40600302	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2]	Date of Construction/ Reconstruction2	Controlled by Unit #	Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
19210	ICE - Fire Pump, German Pump #1, Building 287	DETROIT	8064-7412	6FF-21647	265 hp	100 hrs/yr for maintenance; no limit for emergencies	Sept-06	Oct-06	N/A	N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19211 - 19224	ICE - Fire Pumps	TBD	TBD	TBD	TBD	100 hrs/yr for maintenance (each); no limit for emergencies	TBD	TBD	N/A	N/A	20200107	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19300	ICE - Emergency Generator, Building 577	CUMMINS	OS85-G3 NR3	73012399	145 hp	100 hrs/yr for maintenance; no limit for emergencies	2009	Aug-09	N/A	N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19302	ICE - Emergency Generator, Building 1272	CUMMINS	QSL9-G3 NR3	73012150	415 hp	100 hrs/yr for maintenance; no limit for emergencies	2009	Sept-09	N/A	N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19331	ICE - Emergency Generator, Building 288	ONAN	6BTAA5.9-G1	46633739	207 ~~250~~ hp	100 hrs/yr for maintenance; no limit for emergencies	2006	Oct-06	N/A	N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19332	ICE - Emergency Generator, Building 572	ONAN	4BTA3.9-G5	46643360	99 ~~145~~ hp	100 hrs/yr for maintenance; no limit for emergencies	2006	Oct-06	N/A	N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19333	ICE - Emergency Generator, Building 1097	ONAN	4BTA3.9-G5	46641364	99 hp	100 hrs/yr for maintenance; no limit for emergencies	2006	Oct-06	N/A	N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19334	ICE - Emergency Generator, Building 202	ONAN	QSL9-G2-NR3	21739943	364 ~~317~~ hp	100 hrs/yr for maintenance; no limit for emergencies	2006	July-07	N/A	N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19335	ICE - Emergency Generator, Building 525	CUMMINS	QSL9-G3	4665288	399 ~~415~~ hp	100 hrs/yr for maintenance; no limit for emergencies	2006	Feb-08	N/A	N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19336	ICE - Emergency Generator, Building 1053	CUMMINS	6BTA5.9-G3	46643964	207 ~~250~~ hp	100 hrs/yr for maintenance; no limit for emergencies	2006	Feb-08	N/A	N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19337	ICE - Emergency Generator, Building 35	CUMMINS	4BTA3.9-G5	21798698	99 ~~68~~ hp	100 hrs/yr for maintenance; no limit for emergencies	2007	Nov-07	N/A	N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19338	ICE - Emergency Generator, Building 317	CUMMINS	QSL9-G2-NR3	21762230	364 hp	100 hrs/yr for maintenance; no limit for emergencies	2007	Nov-07	N/A	N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19339	ICE - Emergency Generator, Building 702	CUMMINS	QSL9-G2 NR3	21773588	364 ~~250~~ hp	100 hrs/yr for maintenance; no limit for emergencies	2007	Mar-08	N/A	N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19340	ICE - Emergency Generator, Building 908	ONAN	QSL9-G2 NR3	46960856	364 hp	100 hrs/yr for maintenance; no limit for emergencies	2008	Dec-08	N/A	N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19341	ICE - Emergency Generator, Building 811	ONAN	D1703	8S0586	27.1 hp	100 hrs/yr for maintenance; no limit for emergencies	2008	May-09	N/A	N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] Date of Construction/ Reconstruction2	Controlled by Unit # Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
19342	ICE - Emergency Generator, Building 1062	CUMMINS	QSM11-GHNR3	35192297	470 hp	100 hrs/yr for maintenance; no limit for emergencies	2007 Mar-07	N/A N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19343	ICE - Emergency Generator, Building 864	CUMMINS	QSB7-G5 NR3	73329352	324 ~~250~~ hp	100 hrs/yr for maintenance; no limit for emergencies	2011 Jan-12	N/A N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19344	ICE - Emergency Generator, Building 302	ONAN	QSB7-G5 NR3	73053014	250 hp	100 hrs/yr for maintenance; no limit for emergencies	2010 Mar-10	N/A N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19345	ICE - Emergency Generator, Building 13102	ONAN	QSB5-G3 NR3	73051611	145 hp	100 hrs/yr for maintenance; no limit for emergencies	2010 .Mar-10	N/A N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19346	ICE - Emergency Generator, Building 51	ONAN	QSL9-G2 NR3	73113428	364 hp	100 hrs/yr for maintenance; no limit for emergencies	2010 Sept-10	N/A N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19347	ICE - Emergency Generator, Building 1093	ONAN	QSB5-G3 NR3	73267122	145 hp	100 hrs/yr for maintenance; no limit for emergencies	2011 Aug-11	N/A N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
~~19348~~	~~ICE - Emergency Generator, Building 871~~	~~ONAN~~	~~QSL9-G2 NR3~~	~~73274391~~	~~364 hp~~	~~100 hrs/yr for maintenance; no limit for emergencies~~	~~2011~~ ~~Aug-11~~	~~N/A~~ ~~N/A~~	~~20200107~~	☐Existing (unchanged) ☑ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19349	ICE - Emergency Generator (GCS#1), Building 302	ONAN	QSB7-G3 NR3	73126531	250 hp	100 hrs/yr for maintenance; no limit for emergencies	2010 Sept-10	N/A N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19350	ICE - Emergency Generator (GCS#2), Building 302	ONAN	QSB7-G3 NR3	73125859	250 hp	100 hrs/yr for maintenance; no limit for emergencies	2010 Sept-10	N/A N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19351	ICE - Emergency Generator (GCS#3), Building 302	ONAN	QSB7-G3 NR3	73125877	250 hp	100 hrs/yr for maintenance; no limit for emergencies	2010 Sept-10	N/A N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19352	ICE - Emergency Generator, Building 13662	KOHLER	404JHF285	PE4045L089467	178 hp	100 hrs/yr for maintenance; no limit for emergencies	2010 Apr-10	N/A N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19353	ICE - Emergency Generator, Building 826	ONAN	QSB5-G3 NR3	73327623	145 hp	100 hrs/yr for maintenance; no limit for emergencies	2011 May-12	N/A N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19354	ICE - Emergency Generator, Building 684	CUMMINS	D1703	CE1482	27.1 hp	100 hrs/yr for maintenance; no limit for emergencies	2012 July-12	N/A N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19355	ICE - Emergency Generator, Building 685	CUMMINS	D1703	CE1264	27.1 hp	100 hrs/yr for maintenance; no limit for emergencies	2012 July-12	N/A N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19356	ICE - Emergency Generator, Building 688	CUMMINS	D1703	CE1323	27.1 hp	100 hrs/yr for maintenance; no limit for emergencies	2012 July-12	N/A N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2]	Date of Construction/ Reconstruction2	Controlled by Unit #	Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
19357	ICE - Emergency Generator, Building 689	CUMMINS	D1703	CE1421	27.1 hp	100 hrs/yr for maintenance; no limit for emergencies	2012	July-12	N/A	N/A	20200107	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19358	ICE - Emergency Generator, Building 310	ONAN	D1703	8W1033	27.1 hp	100 hrs/yr for maintenance; no limit for emergencies	Jun-10	Sept-10	N/A	N/A	20200107	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19359	ICE - Emergency Generator, Building 1086	ONAN	D1703	8W0900	27.1 hp	100 hrs/yr for maintenance; no limit for emergencies	Jun-10	Sept-10	N/A	N/A	20200107	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19360	ICE - Emergency Generator, Building 878	ONAN	D1703	8G1143	27.1 hp	100 hrs/yr for maintenance; no limit for emergencies	July-08	Sept-08	N/A	N/A	20200107	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19361	ICE - Emergency Generator, Building 1081	ONAN	D1703	8L1117	27.1 hp	100 hrs/yr for maintenance; no limit for emergencies	July-08	Sept-08	N/A	N/A	20200107	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19362	ICE - Emergency Generator, Building 911	CUMMINS	4BT3.3G5	72011130	69 hp	100 hrs/yr for maintenance; no limit for emergencies	2013	May-13	N/A	N/A	20200107	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19363	ICE - Emergency Generator, Building 756	CUMMINS	KTA38-G1	33130788	1135 hp	100 hrs/yr for maintenance; no limit for emergencies	1996	6/8/95	N/A	N/A	20200107	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19364	ICE - Emergency Generator, Building 872	CATERPILLAR	C15	FTE02791	762 hp	100 hrs/yr for maintenance; no limit for emergencies	2016	10/1/16	N/A	N/A	20200107	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19365	ICE - Emergency Generator, Building 831	CUMMINS	QSB7-G5 NR3	74047471	325 hp	100 hrs/yr for maintenance; no limit for emergencies	2016	12/1/16	N/A	N/A	20200107	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19366	ICE - Emergency Generator, Building 302	CUMMINS	QSB7-G5 NR3	74110056	325 hp	100 hrs/yr for maintenance; no limit for emergencies	2017	5/16/17	N/A	N/A	20200107	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19367	ICE - Emergency Generator, Building 318	CUMMINS	QSB7-G5 NR3	74143021	325 hp	100 hrs/yr for maintenance; no limit for emergencies	2017	8/15/17	N/A	N/A	20200107	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19368	ICE - Emergency Generator, Building 302	CUMMINS	QSB7-G5 NR3	74214927	325 hp	100 hrs/yr for maintenance; no limit for emergencies	2017	12/27/17	N/A	N/A	20200107	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19369	ICE - Emergency Generator, Building 1258	CUMMINS	QSB7-G5 NR3	73974931	325 hp	100 hrs/yr for maintenance; no limit for emergencies	2016	5/5/17	N/A	N/A	20200107	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19370	ICE - Emergency Generator, Building 1020	CUMMINS	KTA38-G2	97365-1	1200 hp	100 hrs/yr for maintenance; no limit for emergencies	1990	8/1/90	N/A	N/A	20200107	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19371	ICE - Emergency Generator, Building 1108	CUMMINS	6BT5.9-G6	46042992	170 hp	100 hrs/yr for maintenance; no limit for emergencies	2000	10/19/00	N/A	N/A	20200107	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] Date of Construction/ Reconstruction2	Controlled by Unit # Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
19372	ICE - Emergency Generator, Building 1155	CUMMINS	4BT3.9-G4	46038158	102 hp	100 hrs/yr for maintenance; no limit for emergencies	2000 10/6/00	N/A N/A	20200107	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19373	ICE - Emergency Generator, Building 29039	CUMMINS	4BT3.3-G6	68090228	81 hp	100 hrs/yr for maintenance; no limit for emergencies	2007 11/28/07	N/A N/A	20200107	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19374	ICE - Emergency Generator, Building 29215	CATERPILLAR	C4.4	E3L01681	85.83 hp	100 hrs/yr for maintenance; no limit for emergencies	2018 TBD	N/A N/A	20200107	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19375	ICE - Emergency Generator, Building 81103	KUBOTA	D1703-M-BG-ET01	8W1116	27.1 hp	100 hrs/yr for maintenance; no limit for emergencies	2010 8/15/18	N/A N/A	20200107	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19376	ICE - Emergency Generator, Building 81209	KUBOTA	D1703-M-BG-ET01	8W1108	27.1 hp	100 hrs/yr for maintenance; no limit for emergencies	2010 8/15/18	N/A N/A	20200107	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19377	ICE - Emergency Generator, Building 508	CUMMINS	QSB5-G13	74509809	173 hp	100 hrs/yr for maintenance; no limit for emergencies	2019 7/15/19	N/A N/A	20200107	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19378	ICE - Emergency Generator, Building 1161	GENERAC	6.8GLPNGDQ T-150	3004925345	231 hp	100 hrs/yr for maintenance; no limit for emergencies	2019 TBD	N/A N/A	20200202	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	SI	N/A
19379	ICE - Emergency Generator, Building 1625	GENERAC	6.8GLPNGDQ T-150	3004925472	231 hp	100 hrs/yr for maintenance; no limit for emergencies	2019 TBD	N/A N/A	20200202	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	SI	N/A
19380	ICE - Emergency Generator, Building 319	CUMMINS	QSX15-G9	80270788	755 hp	100 hrs/yr for maintenance; no limit for emergencies	2020 Feb-21	N/A N/A	20200107	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	
19380 - 19405	ICE - Emergency Generators	TBD	TBD	TBD	TBD	100 hrs/yr for maintenance; no limit for emergencies	TBD TBD	N/A N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	Unknown	TBD
19406	ICE - Emergency Generator, Building 1103	ONAN	MEP007B	49503671	134 hp	100 hrs/yr for maintenance; no limit for emergencies	2005 May-13	N/A N/A	20200107	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19602	ICE - Barrier Rewind Engine	WISCONSIN	V-465 D	N/A	65 hp		Before 2006 Before 2006	N/A N/A	20200307	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19603	ICE - Barrier Rewind Engine	WISCONSIN	V-465 D	N/A	65 hp		Before 2006 Before 2006	N/A N/A	20200307	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction2	Controlled by Unit # / Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
~~19604~~	~~ICE - Barrier Rewind Engine~~	~~WISCONSIN~~	~~V-465 D~~	~~N/A~~	~~65 hp~~	1,100 hr/yr[5]	~~Before 2006~~ ~~Before 2006~~	~~N/A~~ ~~N/A~~	~~20200307~~	☐Existing (unchanged) ☑ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	~~CI~~	~~N/A~~
~~19605~~	~~ICE - Barrier Rewind Engine~~	~~WISCONSIN~~	~~V-465 D~~	~~N/A~~	~~65 hp~~		~~Before 2006~~ ~~Before 2006~~	~~N/A~~ ~~N/A~~	~~20200307~~	☐Existing (unchanged) ☑ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	~~CI~~	~~N/A~~
19608	ICE - Barrier Rewind Engine	WISCONSIN	V-465 D	N/A	65 hp		Before 2006 Before 2006	N/A N/A	20200307	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
19609	ICE - Barrier Rewind Engine	WISCONSIN	V-465 D	N/A	65 hp		Before 2006 Before 2006	N/A N/A	20200307	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
~~19610~~	~~ICE - Barrier Rewind Engine~~	~~WISCONSIN~~	~~V-465 D~~	~~N/A~~	~~65 hp~~		~~Before 2006~~ ~~Before 2006~~	~~N/A~~ ~~N/A~~	~~20200307~~	☐Existing (unchanged) ☑ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	~~CI~~	~~N/A~~
~~19611~~	~~ICE - Barrier Rewind Engine~~	~~WISCONSIN~~	~~V-465 D~~	~~N/A~~	~~65 hp~~		~~Before 2006~~ ~~Before 2006~~	~~N/A~~ ~~N/A~~	~~20200307~~	☐Existing (unchanged) ☑ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	~~CI~~	~~N/A~~
20001	Jet Engine Testing- Hush House	Assembled On-site	T-10	-	-	-	1990 1990	N/A 20001	20400101	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
20003	Jet Engine Testing- Sound Suppressors (2)	Assembled On-site	A/F32A-18	-	-	-	1971 1971	N/A 20003	20400101	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
20006	Jet Engine Testing- Hush House	Assembled On-site	T-10	-	-	-	1989 1989	N/A 20006	20400101	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
20007	Jet Engine Testing- Test Cells (2)	Assembled On-site	T-4	-	-	-	1971 1971	N/A 20007	20400101	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
20009	Jet Engine Testing- Hush House	Assembled On-site	T-10	-	-	-	1996 1996	N/A 20009	20400101	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
21006	Building 830 Paint Booth	Spray Systems, Inc.	Truck Booth Catalog #T34P5B	-	-	400 g/yr regular solvent, 500 gal/yr nonaerosol paint, 100 g/yr RAM Coating, C473 Mixture, EP-91 (each), 500 g/yr Deoxidine, Isopropyl Alcohol (each), 50 g/yr aerosol paint	~1986 ~1986	21006 830E	40200101	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction2	Controlled by Unit # / Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
21007	Building 282 Paint Booth	Vardo Pruden	-	-	-	Paint/Solvent 12 gal/hr; Aerosol Paint 1 gal/hr	~1971	21007	40200101	RExisting (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							~1971	282L1,2,3,4				
21008	Building 282 Paint Booth	De Vil Biss	DF642	-	-	Paint/Solvent 3 gal/hr; Aerosol Paint 1 gal/hr	~1971	21008	40200101	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							~1971	282S				
21009	Building 1178 46th Test Group Paint Booth	JBI, Inc.	IDB-4816-S	-	-	Paint/Solvent 2 gal/hr; Aerosol Paint 1 gal/hr	1957	21009	40200101	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1957	1178A				
21010	Building 856 Paint Booth	Miscellaneous Parts	-	-	-	Paint/Solvent 4 gal/hr; Aerosol Paint 1 gal/hr; Non-spray coatings 10 gal/hr; Transcoat Emulsion 20 gal/hr	~1956	21010	40200101	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							~1956	856A				
21011R	Building 195 Paint Booth	Future Cure	5000DDA	-	-	Paint/Solvent 2 gal/hr; Aerosol Paint 2 gal/hr	~1983	21011R	40200101	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							Oct-03	195A				
21018	Building 294 GAF Paint Booth	JBI, Inc.	IDD-21-5B-5	-	-	2.5 gal/hr	1999	21018	40200101	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1999	GAFA				
21019	Building 903 Paint Booth	JBI, Inc.	IDB-4816-S	-	-	3 gal/hr	2001	21019	40200101	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							2001	903A,B				
21020	Building 21295 GAF Teflon Coating Operation	-	-	-	-	0.5 gal/hr	-	N/A	40200101	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							-	N/A				
21021	Building 898 Paint Booth 1	Morehead Industrial Services, Inc.	-	-	-	High-Volume Paints 30 gal/hr; Paint/Solvent 10 gal/hr; Non-Spray Coatings 15 gal/hr	2011	21021	40200101	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							2011	898A-C				
21022	Building 898 Paint Booth 2	Morehead Industrial Services, Inc.	-	-	-		2011	21022	40200101	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							2011	898D-F				
21023	Building 898 Paint Booth 3	Morehead Industrial Services, Inc.	-	-	-		2011	21023	40200101	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							2011	898G-I				
21024	Hangarette Coating Operations - Buildings 21808, 21810 to 21819	-	-	-	-	0.25 gal/hr - all materials	2009	N/A	40200101	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							2009	N/A				

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] Date of Construction/ Reconstruction2	Controlled by Unit # Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
22002	Gasoline Storage Tank, Bldg. 702 (POL)	-	-	-	12,000 gal	5,000,000 gal/yr[5]	~ Jan-43 Jan-43	N/A N/A	2501050120	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
22014R	Gasoline Storage Tank, Building 1166 (TG)	Fireguard	-	-	1,000 gal		~May-03 May-03	N/A N/A	2501050120	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
22054	Gasoline Storage Tank, Building 136 (POL)	-	-	-	20,000 gal		~Jan-93 Jan-93	N/A N/A	2501050120	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
22058	Gasoline Storage Tank, Building 525 (POL)	O'DAY Equipment Inc.	-	-	1,661 gal		~Jan-95 Jan-95	N/A N/A	2501050120	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
22100	Gasoline Storage Tank, Building 33 (AAFES)	Modern Welding Co., STI Fireguard	-	-	12,000 gal		~Sept-01 Sept-01	N/A N/A	2501050120	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
22101	Gasoline Storage Tank, Building 33 (AAFES)	Modern Welding Co., STI Fireguard	-	-	12,000 gal		~Sept-01 Sept-01	N/A N/A	2501050120	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
22102	Gasoline Storage Tank, Building 33 (AAFES)	Modern Welding Co., STI Fireguard	-	-	12,000 gal		~Sept-01 Sept-01	N/A N/A	2501050120	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
22110	Gasoline Storage Tank, Bldg 906	Kohl Haas Corp.	-	-	750 gal		~1999 ~1999	N/A N/A	2501050120	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
22103	Aviation Gasoline Storage Tank, Bldg. 283 (Aeroclub)	Dunn Industries	-	-	3,000 gal	40,000 gal/yr	~2002 2002	N/A N/A	2501080050	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
22105	Aviation Gasoline Storage Tank, Building 500 (AMXS)	Containment Solutions	-	-	1,000 gal	60,000 gal/yr	Nov-06 May-09	N/A N/A	2501080050	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
29004	Woodworking Dust Collection	-	-	-	-	16.9 tons or 2600 cubic feet of dust collected/yr	- -	29004 N/A	30703099, 30702003	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
31999	Miscellaneous Chemical Use	-	-	-	-	-	- -	N/A N/A	2465000000	☑Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

[1] Unit numbers must correspond to unit numbers in the previous permit unless a complete cross reference table of all units in both permits is provided.

[2] Specify dates required to determine regulatory applicability.

[3] To properly account for power conversion efficiencies, generator set rated capacity shall be reported as the rated capacity of the engine in horsepower, not the kilowatt capacity of the generator set.

[4] "4SLB" means four stroke lean burn engine, "4SRB" means four stroke rich burn engine, "2SLB" means two stroke lean burn engine, "CI" means compression ignition, and "SI" means spark ignition

Table 2-B: Insignificant Activities[1] (20.2.70 NMAC) OR Exempted Equipment (20.2.72 NMAC)

All 20.2.70 NMAC (Title V) applications must list all Insignificant Activities in this table. All 20.2.72 NMAC applications must list Exempted Equipment in this table. If equipment listed on this table is exempt under 20.2.72.202.B.5, include emissions calculations and emissions totals for 202.B.5 "similar functions" units, operations, and activities in Section 6, Calculations. Equipment and activities exempted under 20.2.72.202 NMAC may not necessarily be Insignificant under 20.2.70 NMAC (and vice versa). Unit & stack numbering must be consistent throughout the application package. Per Exemptions Policy 02-012.00 (see http://www.env.nm.gov/aqb/permit/aqb_pol.html), 20.2.72.202.B NMAC Exemptions do not apply, but 20.2.72.202.A NMAC exemptions do apply to NOI facilities under 20.2.73 NMAC. List 20.2.72.301.D.4 NMAC Auxiliary Equipment for Streamline applications in Table 2-A. The List of Insignificant Activities (for TV) can be found online at https://www.env.nm.gov/air-quality/air-quality-title-v-operating-permits-guidance-page/. TV sources may elect to enter both TV Insignificant Activities and Part 72 Exemptions on this form.

Unit Number	Source Description	Manufacturer	Model No.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction[2]	For Each Piece of Equipment, Check One
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction[2]	
N/A	Aluminum and Steel Grinding at building 1174	N/A	N/A	N/A	N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #1.a	N/A	
N/A	Grinding and Welding for equipment maintenance at building 918	N/A	N/A	N/A	N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #1.a	N/A	
N/A	Enclosed Abrasive Blasting	N/A	N/A	N/A	N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #1.a	N/A	
N/A	Non-Destructive Inspection	N/A	N/A	N/A	N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #1.a	N/A	
N/A	Remediation- Bioventing	N/A	N/A	N/A	N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #1.a	N/A	
N/A	Woodworking - select units	N/A	N/A	N/A	N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #1.a	N/A	
N/A	Welding	N/A	N/A	N/A	N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #1.a	N/A	
N/A	Surface Coating-Building 231 (Auto Skills) Paint Booth	N/A	N/A	N/A	N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #1.a	N/A	
N/A	Research and Development Flame Spray Operation	N/A	N/A	N/A	N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #1.a	N/A	
N/A	Paint Gun Cleaners	N/A	N/A	N/A	N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #1.a	N/A	
N/A	External Combustion - Select natural gas, propane, and distillate fueled units	N/A	N/A	N/A	N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #3 and 4	N/A	
N/A	Degreasers	N/A	N/A	N/A	N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #1.a and 5	N/A	
N/A	Fuel Cell Maintenance	N/A	N/A	N/A	N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #5	N/A	
N/A	Fuel Dispensing-Diesel and Jet Fuel	N/A	N/A	N/A	N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #5	N/A	

Unit Number	Source Description	Manufacturer	Model No. / Serial No.	Max Capacity / Capacity Units	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5) / Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Manufacture /Reconstruction[2] / Date of Installation /Construction[2]	For Each Piece of Equipment, Check One
N/A	Fuel Loading-Diesel and Jet Fuel	N/A	N/A N/A	N/A N/A	N/A IA List Item #5	N/A N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
N/A	Fuel Storage Tanks-Diesel and Jet Fuel	N/A	N/A N/A	N/A N/A	N/A IA List Item #5	N/A N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
N/A	Fuel Storage Tanks-Gasoline	N/A	N/A N/A	N/A N/A	N/A IA List Item #5	N/A N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
N/A	Heat Treating Operation	N/A	N/A N/A	N/A N/A	N/A IA List Item #5	N/A N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
N/A	Aerospace Ground Equipment	N/A	N/A N/A	N/A N/A	N/A IA List Item #6	N/A N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
N/A	Portable Generators	N/A	N/A N/A	N/A N/A	N/A IA List Item #6	N/A N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
N/A	Emergency Internal Combustion Engines Not Subject to a NSPS or NESHAP	N/A	N/A N/A	N/A N/A	N/A IA List Item #7	N/A N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

[1] Insignificant activities exempted due to size or production rate are defined in 20.2.70.300.D.6, 20.2.70.7.Q NMAC, and the NMED/AQB List of Insignificant Activities, dated September 15, 2008. Emissions from these insignificant activities do not need to be reported, unless specifically requested.

[2] Specify date(s) required to determine regulatory applicability.

Table 2-C: Emissions Control Equipment

Unit and stack numbering must correspond throughout the application package. Only list control equipment for TAPs if the TAP's maximum uncontrolled emissions rate is over its respective threshold as listed in 20.2.72 NMAC, Subpart V, Tables A and B. In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device regardless if the applicant takes credit for the reduction in emissions.

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
12010	To Be Determined - *Not Yet Installed as of March 2021*	TBD	To Be Determined	12010	To Be Determined	To Be Determined
21006	Paint Filter System, or other equipment meeting or exceeding the specified control efficiency.	~1986	PM, including some HAP species.	21006	99%	Independent Lab Test Data
21007	Paint Filter System, Research Products Corps 3000RP, or other equipment meeting or exceeding the specified control efficiency.	~1971	PM, including some HAP species.	21007	90%	Independent Lab Test Data
21008	Paint Filter System, Research Products Corps 3000RP, or other equipment meeting or exceeding the specified control efficiency.	~1971	PM, including some HAP species.	21008	90%	Independent Lab Test Data
21009	Paint Filter System, Duo Pad, or other equipment meeting or exceeding the specified control efficiency.	1957	PM, including some HAP species.	21009	90%	Independent Lab Test Data
21010	Paint Filter System, Duo Pad, or other equipment meeting or exceeding the specified control efficiency.	~1956	PM, including some HAP species.	21010	90%	Independent Lab Test Data
21011R	Paint Filter System, PreBond Pad 2020B, or other equipment meeting or exceeding the specified control efficiency.	Oct-03	PM, including some HAP species.	21011R	90%	Independent Lab Test Data
21018	Paint Filter System, Duo Pad, or other equipment meeting or exceeding the specified control efficiency.	1999	PM, including some HAP species.	21018	90%	Independent Lab Test Data
21019	Paint Filter System, Frontline "Gold,"or other equipment meeting or exceeding the specified control efficiency.	2001	PM, including some HAP species.	21019	90%	Independent Lab Test Data
21021	TBD - Paint Filter System with particulate matter control efficiency of at least 99%	2009	PM, including some HAP species.	21021	99%	TBD
21022	TBD - Paint Filter System with particulate matter control efficiency of at least 99%	2009	PM, including some HAP species.	21022	99%	TBD
21023	TBD - Paint Filter System with particulate matter control efficiency of at least 99%	2009	PM, including some HAP species.	21023	99%	TBD
29004	Fabric Filter	-	PM	29004	99%	AP-42

[1] List each control device on a separate line. For each control device, list all emission units controlled by the control device.

Table 2-D: Maximum Emissions (under normal operating conditions)

☐ **This Table was intentionally left blank because it would be identical to Table 2-E.**

Maximum Emissions are the emissions at maximum capacity and prior to (in the absence of) pollution control, emission-reducing process equipment, or any other emission reduction. Calculate the hourly emissions using the worst case hourly emissions for each pollutant. For each pollutant, calculate the annual emissions as if the facility were operating at maximum plant capacity without pollution controls for 8760 hours per year, unless otherwise approved by the Department. List Hazardous Air Pollutants (HAP) & Toxic Air Pollutants (TAPs) in Table 2-I. Unit & stack numbering must be consistent throughout the application package. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

Unit No.	NOx		CO		VOC[2]		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
12010	1.96	8.59	1.65	7.21	0.11	0.47	0.04	0.18	0.15	0.65	0.15	0.65	0.15	0.65	-	-	-	-
12012	-	-	-	-	N/A[4]	N/A[4]	-	-	-	-	-	-	-	-	-	-	-	-
13002	2.98	0.54	23.60	4.31	0.11	0.02	0.40	0.07	30.00	5.48	30.00	5.48	30.00	5.48	-	-	-	-
14031	0.82	3.61	0.69	3.03	0.05	0.20	0.02	0.08	0.06	0.27	0.06	0.27	0.06	0.27	-	-	-	-
14034	0.53	2.32	0.44	1.95	0.03	0.13	0.01	0.05	0.04	0.18	0.04	0.18	0.04	0.18	-	-	-	-
14035	0.50	2.17	0.42	1.83	0.03	0.12	0.01	0.05	0.04	0.17	0.04	0.17	0.04	0.17	-	-	-	-
14036	0.50	2.17	0.42	1.83	0.03	0.12	0.01	0.05	0.04	0.17	0.04	0.17	0.04	0.17	-	-	-	-
14037	0.50	2.17	0.42	1.83	0.03	0.12	0.01	0.05	0.04	0.17	0.04	0.17	0.04	0.17	-	-	-	-
14038	0.40	1.76	0.34	1.48	0.02	0.10	0.01	0.04	0.03	0.13	0.03	0.13	0.03	0.13	-	-	-	-
15001, 4, 11, 13, & 14	-	-	-	-	6.68	29.25	-	-	-	-	-	-	-	-	-	-	-	-
15005 & 12	-	-	-	-	0.13	0.59	-	-	-	-	-	-	-	-	-	-	-	-
16004	-	-	-	-	0.08	0.37	-	-	-	-	-	-	-	-	-	-	-	-
16005	-	-	-	-	0.03	0.15	-	-	-	-	-	-	-	-	-	-	-	-
19210-224, 19300, 19302, 19331-19406	204.76	10.24	148.16	7.41	44.31	2.22	34.51	1.73	10.42	0.52	10.42	0.52	10.42	0.52	-	-	-	-
19602, 19603, 19607, 19608	2.86	1.57	1.81	1.00	5.17	2.85	0.15	0.08	0.19	0.10	0.19	0.10	0.19	0.10	-	-	-	-
20001	156.19	4.68	172.98	8.66	15.62	1.09	51.49	1.70	14.78	0.66	14.78	0.66	14.78	0.66	-	-	-	-
20003	14.02	1.44	89.93	11.89	10.48	0.82	11.87	1.54	2.93	0.39	2.93	0.39	2.93	0.39	-	-	-	-
20006	156.19	4.68	172.98	8.66	15.62	1.09	51.49	1.70	14.78	0.66	14.78	0.66	14.78	0.66	-	-	-	-
20007	14.42	3.91	92.88	29.66	11.39	1.82	13.58	3.90	3.06	1.00	3.06	1.00	3.06	1.00	-	-	-	-
20009	121.55	17.10	155.64	15.80	45.53	3.82	70.06	7.27	4.23	0.68	4.23	0.68	4.23	0.68	-	-	-	-
21006	-	-	-	-	187.12	3.64	-	-	102.56	1.79	102.56	1.79	102.56	1.79	-	-	-	-
21007	-	-	-	-	110.14	1.54	-	-	41.22	0.59	41.22	0.59	41.22	0.59	-	-	-	-
21008	-	-	-	-	40.08	0.77	-	-	16.26	0.29	16.26	0.29	16.26	0.29	-	-	-	-
21009	-	-	-	-	18.91	1.18	-	-	7.12	0.44	7.12	0.44	7.12	0.44	-	-	-	-
21010	-	-	-	-	87.25	1.06	-	-	9.37	0.28	9.37	0.28	9.37	0.28	-	-	-	-
21011R	-	-	-	-	29.80	1.12	-	-	14.35	0.58	14.35	0.58	14.35	0.58	-	-	-	-
21018	-	-	-	-	65.37	3.27	-	-	13.21	0.66	13.21	0.66	13.21	0.66	-	-	-	-
21019	-	-	-	-	29.55	1.97	-	-	8.88	0.59	8.88	0.59	8.88	0.59	-	-	-	-
21020	-	-	-	-	2.57	0.26	-	-	0.67	0.07	0.67	0.07	0.67	0.07	-	-	-	-
21021, 22, 23	-	-	-	-	284.75	11.73	-	-	55.31	3.91	55.31	3.91	55.31	3.91	-	-	-	-
21024	-	-	-	-	3.27	0.74	-	-	1.30	0.26	1.30	0.26	1.30	0.26	-	-	-	-
22002	-	-	-	-	0.81	3.55	-	-	-	-	-	-	-	-	-	-	-	-

Unit No.	NOx		CO		VOC[2]		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
22014R	-	-	-	-	0.17	0.73	-	-	-	-	-	-	-	-	-	-	-	-
22054	-	-	-	-	1.27	5.57	-	-	-	-	-	-	-	-	-	-	-	-
22058	-	-	-	-	0.20	0.87	-	-	-	-	-	-	-	-	-	-	-	-
22100	-	-	-	-	1.11	4.88	-	-	-	-	-	-	-	-	-	-	-	-
22101	-	-	-	-	0.85	3.72	-	-	-	-	-	-	-	-	-	-	-	-
22102	-	-	-	-	0.83	3.62	-	-	-	-	-	-	-	-	-	-	-	-
22103	-	-	-	-	0.30	1.33	-	-	-	-	-	-	-	-	-	-	-	-
22105	-	-	-	-	0.12	0.51	-	-	-	-	-	-	-	-	-	-	-	-
22110	-	-	-	-	0.07	0.32	-	-	-	-	-	-	-	-	-	-	-	-
29004	-	-	-	-	-	-	-	-	0.039	0.17	0.039	0.17	0.039	0.17	-	-	-	-
31999	-	-	-	-	N/A[3]	N/A[3]	-	-	-	-	-	-	-	-	-	-	-	-
Totals	678.16	66.96	862.36	106.52	1019.99	97.70	233.65	18.48	351.08	20.84	351.08	20.84	351.08	20.84	-	-	-	-

[1] **Condensables:** Include condensable particulate matter emissions in particulate matter calculations.

[2] Note that Holloman AFB is currently permitted with a basewide VOC emission limit of 250 tpy and will continue to limit itself to meet this requirement.

[3] VOC emissions from these sources have not been estimated as they will vary over time; example calculations are provided in Section 6. These emissions are included in the basewide VOC emission limit of 250 tpy.

Table 2-E: Requested Allowable Emissions

Unit & stack numbering must be consistent throughout the application package. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
12010, 12012	1.96	8.59	1.65	7.21	0.11	See Basewide Limit	0.04	0.18	0.15	0.65	0.15	0.65	0.15	0.65	-	-	-	-
13002	2.98	0.54	23.60	4.31	0.11	See Basewide Limit	0.40	0.07	30.00	5.48	30.00	5.48	30.00	5.48	-	-	-	-
14031, 14034 - 14038	3.24	14.20	2.72	11.93	0.18	See Basewide Limit	0.07	0.31	0.25	1.08	0.25	1.08	0.25	1.08	-	-	-	-
15001, 15004, 15005, 15011, 15012, 15013, 15014	-	-	-	-	6.81	See Basewide Limit	-	-	-	-	-	-	-	-	-	-	-	-
16004, 16005	-	-	-	-	0.12	See Basewide Limit	-	-	-	-	-	-	-	-	-	-	-	-
19210 - 19224, 19300, 19302, 19331 - 19406, 19602, 19603, 19607, 19608	207.62	11.81	149.97	8.40	49.49	See Basewide Limit	34.66	1.81	10.61	0.62	10.61	0.62	10.61	0.62	-	-	-	-
20001, 20003, 20006, 20007,20009	462.36	31.82	684.42	74.67	98.64	8.70	198.48	16.11	39.79	3.38	39.79	3.38	39.79	3.38	-	-	-	-
21006-11, 21018-24.	-	-	-	-	6.23	See Basewide Limit	-	-	0.17	0.73	0.17	0.73	0.17	0.73	-	-	-	-
22002, 22014R, 22054, 22058, 22100 - 22102, 22103, 22105, 22110	-	-	-	-	5.73	See Basewide Limit	-	-	-	-	-	-	-	-	-	-	-	-
29004	-	-	-	-	-	-	-	-	0.04	0.17	0.04	0.17	0.04	0.17	-	-	-	-
31999	-	-	-	-	-	See Basewide Limit	-	-	-	-	-	-	-	-	-	-	-	-
Totals (tpy)	**N/A[2]**	**66.96**	**N/A[2]**	**106.52**	**N/A[2]**	**249.99**	**N/A[2]**	**18.48**	**N/A[2]**	**12.11**	**N/A[2]**	**12.11**	**N/A[2]**	**12.11**	-	-	-	-

1 **Condensables:** Include condensable particulate matter emissions in particulate matter calculations.

2 Total Hourly emission limits are not listed in Operating Permit No. P105R3.

Table 2-F: Additional Emissions during Startup, Shutdown, and Routine Maintenance (SSM)

☑ This table is intentionally left blank since all emissions at this facility due to routine or predictable startup, shutdown, or scheduled maintenance are no higher than those listed in Table 2-E and a malfunction emission limit is not already permitted or requested. If you are required to report GHG emissions as described in Section 6a, include any GHG emissions during Startup, Shutdown, and/or Scheduled Maintenance (SSM) in Table 2-P. Provide an explanations of SSM emissions in Section 6 and 6a.

All applications for facilities that have emissions during routine our predictable startup, shutdown or scheduled maintenance (SSM)[1], including NOI applications, must include in this table the Maximum Emissions during routine or predictable startup, shutdown and scheduled maintenance (20.2.7 NMAC, 20.2.72.203.A.3 NMAC, 20.2.73.200.D.2 NMAC). In Section 6 and 6a, provide emissions calculations for all SSM emissions reported in this table. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (https://www.env.nm.gov/aqb/permit/aqb_pol.html) for more detailed instructions. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

Unit No.	NOx		CO		VOC		SOx		PM[2]		PM10[2]		PM2.5[2]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Totals																		

[1] **For instance**, if the short term steady-state Table 2-E emissions are 5 lb/hr and the SSM rate is 12 lb/hr, enter 7 lb/hr in the table below. If the annual steady-state Table 2-E emissions are 21.9 TPY, and the number of scheduled SSM events result in annual emissions of 31.9 TPY, enter 10.0 TPY in the table below.

[2] **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source. Do not include condensable particulate matter for PM unless PM is set equal to PM10 and PM2.5. Particulate matter (PM) is not subject to an ambient air quality standard, but it is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

Table 2-G: Stack Exit and Fugitive Emission Rates for Special Stacks

☐ I have elected to leave this table blank because this facility does not have any stacks/vents that split emissions from a single source or combine emissions from more than one source listed in table 2-A. Additionally, the emission rates of all stacks match the Requested allowable emission rates stated in Table 2-E.

Use this table to list stack emissions (requested allowable) from split and combined stacks. List Toxic Air Pollutants (TAPs) and Hazardous Air Pollutants (HAPs) in Table 2-I. List all fugitives that are associated with the normal, routine, and non-emergency operation of the facility. Unit and stack numbering must correspond throughout the application package. Refer to Table 2-E for instructions on use of the "-" symbol and on significant figures.

<table>
<tr><th rowspan="2">Stack No.</th><th rowspan="2">Serving Unit Number(s) from Table 2-A</th><th colspan="2">NOx</th><th colspan="2">CO</th><th colspan="2">VOC</th><th colspan="2">SOx</th><th colspan="2">PM</th><th colspan="2">PM10</th><th colspan="2">PM2.5</th><th colspan="2">☐ H_2S or ☐ Lead</th></tr>
<tr><th>lb/hr</th><th>ton/yr</th><th>lb/hr</th><th>ton/yr</th><th>lb/hr</th><th>ton/yr</th><th>lb/hr</th><th>ton/yr</th><th>lb/hr</th><th>ton/yr</th><th>lb/hr</th><th>ton/yr</th><th>lb/hr</th><th>ton/yr</th><th>lb/hr</th><th>ton/yr</th></tr>
<tr><td>195A/B</td><td>14038, 21011R</td><td>0.40</td><td>1.76</td><td>0.34</td><td>1.48</td><td>29.82</td><td>1.22</td><td>0.01</td><td>0.04</td><td>0.03</td><td>0.13</td><td>0.03</td><td>0.13</td><td>0.03</td><td>0.13</td><td>-</td><td>-</td></tr>
<tr><td>282L1-4</td><td>21007</td><td>-</td><td>-</td><td>-</td><td>-</td><td>110.14</td><td>1.54</td><td>-</td><td>-</td><td>4.12</td><td>0.06</td><td>4.12</td><td>0.06</td><td>4.12</td><td>0.06</td><td>-</td><td>-</td></tr>
<tr><td>903A/B/C</td><td>21019</td><td>-</td><td>-</td><td>-</td><td>-</td><td>29.55</td><td>1.97</td><td>-</td><td>-</td><td>0.89</td><td>0.06</td><td>0.89</td><td>0.06</td><td>0.89</td><td>0.06</td><td>-</td><td>-</td></tr>
<tr><td>898A-C</td><td>21021</td><td rowspan="3">-</td><td rowspan="3">-</td><td rowspan="3">-</td><td rowspan="3">-</td><td rowspan="3">284.75</td><td rowspan="3">11.73</td><td rowspan="3">-</td><td rowspan="3">-</td><td rowspan="3">0.55</td><td rowspan="3">0.04</td><td rowspan="3">0.55</td><td rowspan="3">0.04</td><td rowspan="3">0.55</td><td rowspan="3">0.04</td><td rowspan="3">-</td><td rowspan="3">-</td></tr>
<tr><td>898D-F</td><td>21022</td></tr>
<tr><td>898G-I</td><td>21023</td></tr>
<tr><td colspan="2">Totals:</td><td>0.40</td><td>1.76</td><td>0.34</td><td>1.48</td><td>454.26</td><td>16.46</td><td>0.01</td><td>0.04</td><td>11.25</td><td>0.71</td><td>11.25</td><td>0.68</td><td>11.25</td><td>0.71</td><td>-</td><td>-</td></tr>
</table>

Table 2-H: Stack Exit Conditions

Unit and stack numbering must correspond throughout the application package. Include the stack exit conditions for each unit that emits from a stack, including blowdown venting parameters and tank emissions. If the facility has multiple operating scenarios, complete a separate Table 2-H for each scenario and, for each, type scenario name here:

Stack Number	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Temp. (F)	Flow Rate		Moisture by Volume (%)	Velocity (ft/sec)	Inside Diameter or L x W (ft)
						(acfs)	(dscfs)			
050	14031	V	Yes	30.0	350.0	46.7	26.5	15.00	59.4	1.0
285A	14034	V	Yes	25.0	350.0	29.7	16.5	15.00	4.2	3.0
21295A	14035	V	Yes	25.0	350.0	28.3	15.8	15.00	5.8	2.5
21296A	14036	V	Yes	25.0	350.0	28.3	15.8	15.00	5.8	2.5
21297A	14037	V	Yes	25.0	350.0	28.3	15.8	15.00	5.8	2.5
195A/B	14038, 21011R	V	Yes, straight through flow	28.0	70.0	263.0	263.0	Ambient	53.6	2.5
830E	21006	V	Yes	28.0	70.0	427.0	367.4	Ambient	44.4	3.5
282L1-4	21007	V	Yes	22.0	70.0	467.0	401.8	Ambient	37.1	4.0
282S	21008	H	Yes	25.0	70.0	250.0	215.1	Ambient	19.9	2 x 4
1178A	21009	V	Yes	25.0	70.0	200.0	200.0	Ambient	16.0	4.0
856A	21010	H	Yes	16.5	70.0	100.0	100.0	Ambient	10.4	3.5
GAFA	21018	V	Yes	33.7	70.0	280.0	280.0	Ambient	29.1	3.5
903A/B	21019	V	Yes	27.2	70.0	460.0	460.0	Ambient	36.6	4.0
903C	21019	V	Yes	27.2	70.0	460.0	460.0	Ambient	47.8	3.5
898A-C	21021	V	Yes	56.0	70.0	625.0	625.0	Ambient	49.7	4.0
898D-F	21022	V	Yes	56.0	70.0	625.0	625.0	Ambient	49.7	4.0
898G-I	21023	V	Yes	56.0	70.0	625.0	625.0	Ambient	49.7	4.0
20001	20001	V	No	20.0	575.0	16170.5	8280.6	3.20	40.4	20 x 20
20003	20003	V	No	30.0	575.0	4458.3	2283.0	3.20	157.7	6.0
20006	20006	V	No	20.0	575.0	16170.5	8280.6	3.20	40.4	20 x 20
20007	20007	V	No	16.0	575.0	2866.7	1468.0	3.20	31.1	9.6 x 9.6
20009	20009	V	No	20.0	575.0	8163.7	4180.4	3.20	20.4	20 x 20
29004	29004	V	No	8.0	Ambient	57.5	57.5	Ambient	5.3	0.4

[1] **Stacks** for sources that have not required air dispersion modeling are not listed in this application.

Table 2-I: Stack Exit Emission Rates for HAPs and TAPs

In the table below, report the Potential to Emit for each HAP from each regulated emission unit listed in Table 2-A, only if the entire facility emits the HAP at a rate greater than or equal to one (1) ton per year For each such emission unit, HAPs shall be reported to the nearest 0.1 tpy. Each facility-wide Individual HAP total and the facility-wide Total HAPs shall be the sum of all HAP sources calculated to the nearest 0.1 ton per year. Per 20.2.72.403.A.1 NMAC, facilities not exempt [see 20.2.72.402.C NMAC] from TAP permitting shall report each TAP that has an uncontrolled emission rate in excess of its pounds per hour screening level specified in 20.2.72.502 NMAC. TAPs shall be reported using one more significant figure than the number of significant figures shown in the pound per hour threshold corresponding to the substance. Use the HAP nomenclature as it appears in Section 112 (b) of the 1990 CAAA and the TAP nomenclature as it listed in 20.2.72.502 NMAC. Include tank-flashing emissions estimates of HAPs in this table. For each HAP or TAP listed, fill all cells in this table with the emission numbers or a "-" symbol. A “-” symbol indicates that emissions of this pollutant are not expected or the pollutant is emitted in a quantity less than the threshold amounts described above.

Stack No.	Unit No.(s)	Total HAPs		Benzene ☑ HAP or ☐ TAP		Cabon Tetrachloride ☑ HAP or ☐ TAP		Ethylbenzene ☑ HAP or ☐ TAP		Propylene Glycol Monomethyl Ether ☑ HAP or ☐ TAP		Methyl Isobutyl Ketone ☑ HAP or ☐ TAP		Formaldehyde ☑ HAP or ☐ TAP		Methanol ☑ HAP or ☐ TAP		Methylene Chloride ☑ HAP or ☐ TAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
195A/B	**14038, 21011R**	48.31	2.48	-	-	-	-	1.19	0.08	20.68	1.29	7.49	0.44	-	-	-	-	2.17	0.02
830E	**21006**	198.26	2.76	-	-	-	-	6.04	0.13	-	-	36.53	0.52	-	-	4.13	0.06	47.78	0.1
282L1-4	**21007**	187.16	2.71	-	-	-	-	12.61	0.18	-	-	19.09	0.27	0.22	0.00	1.07	0.01	44.04	0.61
282S	**21008**	64.09	1.31	-	-	-	-	4.2	0.09	-	-	6.58	0.13	0.08	0.00	0.36	0.01	14.68	0.31
1178A	**21009**	38.03	2.03	2.67	0.17	-	-	1.52	0.08	1.08	0.07	6.91	0.43	-	-	0.4	0.02	2.34	0.06
856A	**21010**	123.90	2.07	0.02	0	-	-	4.91	0.12	-	-	1.64	0.05	-	-	0.69	0.22	2.63	0.08
GAFA	**21018**	64.81	2.71	-	-	0.02	0.001	10.09	0.3	2.61	0.13	12.77	0.64	-	-	-	-	7.3	0.04
903A-C	**21019**	22.60	1.46	-	-	-	-	1.32	0.09	-	-	4.02	0.27	-	-	1.19	0.03	-	-
898A-C	**21021**	443.9	20.2	-	-	-	-	11.42	0.61	13.22	0.30	105.9	4.06	-	-	98.14	4.92	43.80	2.19
898D-F	**21022**																		
898G-I	**21023**																		
20001	**20001**	8.4	7.47	0.43	0.39	1.23	1.11	0.07	0.06	-	-	-	-	4.22	3.72	-	-	1.88	1.69
20003	**20003**	0.28	0.2	0.06	0.04	-	-	0.01	0.01	-	-	-	-	0.1	0.07	-	-	-	-
20006	**20006**	8.4	7.47	0.43	0.39	1.23	1.11	0.07	0.06	-	-	-	-	4.22	3.72	-	-	1.88	1.69
20007	**20007**	0.41	0.29	0.07	0.05	-	-	0.01	0.00	-	-	-	-	0.26	0.19	-	-	-	-
Totals (tons/yr):		**1208.6**	**53.1** [1]	**3.7**	**1.0**	**2.5**	**2.2**	**53.5**	**1.8**	**37.6**	**1.8**	**200.9**	**6.8**	**9.1**	**7.7**	**106.0**	**5.3**	**168.5**	**6.8**

[1] Holloman AFB has is limited to basewide HAP emissions of 9.9 tpy each for any individual HAP and 24.9 tpy for all HAPs combined.

Table 2-I continued: Stack Exit Emission Rates for HAPs and TAPs

In the table below, report the Potential to Emit for each HAP from each regulated emission unit listed in Table 2-A, only if the entire facility emits the HAP at a rate greater than or equal to one (1) ton per year For each such emission unit, HAPs shall be reported to the nearest 0.1 tpy. Each facility-wide Individual HAP total and the facility-wide Total HAPs shall be the sum of all HAP sources calculated to the nearest 0.1 ton per year. Per 20.2.72.403.A.1 NMAC, facilities not exempt [see 20.2.72.402.C NMAC] from TAP permitting shall report each TAP that has an uncontrolled emission rate in excess of its pounds per hour screening level specified in 20.2.72.502 NMAC. TAPs shall be reported using one more significant figure than the number of significant figures shown in the pound per hour threshold corresponding to the substance. Use the HAP nomenclature as it appears in Section 112 (b) of the 1990 CAAA and the TAP nomenclature as it listed in 20.2.72.502 NMAC. Include tank-flashing emissions estimates of HAPs in this table. For each HAP or TAP listed, fill all cells in this table with the emission numbers or a "-" symbol. A “-” symbol indicates that emissions of this pollutant are not expected or the pollutant is emitted in a quantity less than the threshold amounts described above.

Stack No.	Unit No.(s)	Xylene ☑ HAP or ☐ TAP		Toluene ☑ HAP or ☐ TAP		Phenol ☑ HAP or ☐ TAP		Chromium VI Compounds ☑ HAP or ☐ TAP											
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr										
195A/B	14038, 21011R	8.26	0.32	8.52	0.33	-	-	-	-										
830E	21006	60.17	1.19	24.01	0.46	19.6	0.3	-	-										
282L1-4	21007	55.21	0.77	28.65	0.4	18.07	0.25	8.20	0.11										
282S	21008	18.62	0.38	10.82	0.2	6.02	0.13	2.73	0.06										
1178A	21009	12.18	0.65	10.52	0.55	-	-	0.41	0.00										
856A	21010	52.53	0.91	48.75	0.53	12.61	0.16	0.12	0.00										
GAFA	21018	17.46	0.87	10.57	0.53	3.77	0.19	0.22	0.01										
903A-C	21019	7.49	0.5	6.37	0.42	-	-	2.21	0.15										
898A-C	21021	87.45	3.35	42.33	2.16	26.74	1.44	14.95	1.12										
898D-F	21022																		
898G-I	21023																		
20001	20001	0.31	0.27	0.26	0.23	-	-	-	-										
20003	20003	0.05	0.04	0.06	0.04	-	-	-	-										
20006	20006	0.31	0.27	0.26	0.23	-	-	-	-										
20007	20007	0.04	0.03	0.03	0.02	-	-	-	-										
Totals (tons/yr):		**320.08**	**9.55**	**191.15**	**6.10**	**86.81**	**2.47**	**28.83**	**1.46**										

Table 2-J: Fuel

Specify fuel characteristics and usage. Unit and stack numbering must correspond throughout the application package.

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
12010	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1,020 Btu/ft3	N/A	171.8 MMscf/yr	Negligible	Negligible
14031	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1,020 Btu/ft3	8235 scf/hr	72.1 MMscf/yr	Negligible	Negligible
14034	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1,020 Btu/ft3	5294 scf/hr	46.4 MMscf/yr	Negligible	Negligible
14035	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1,020 Btu/ft3	4961 scf/hr	43.5 MMscf/yr	Negligible	Negligible
14036	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1,020 Btu/ft3	4961 scf/hr	43.5 MMscf/yr	Negligible	Negligible
14037	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1,020 Btu/ft3	4961 scf/hr	43.5 MMscf/yr	Negligible	Negligible
14038	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1,020 Btu/ft3	4020 scf/hr	35.2 MMscf/yr	Negligible	Negligible
19210	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	13.5 gal/hr	1,354 gal/yr	< 0.0015	Negligible
19211 - 19224	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	TBD	TBD	< 0.0015	Negligible
19300	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	7.4 gal/hr	741 gal/yr	< 0.0015	Negligible
19302	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	21.2 gal/hr	2,120 gal/yr	< 0.0015	Negligible
19331	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	10.6 gal/hr	1,058 gal/yr	< 0.0015	Negligible
19332	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	5.1 gal/hr	506 gal/yr	< 0.0015	Negligible
19333	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	5.1 gal/hr	506 gal/yr	< 0.0015	Negligible
19334	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	18.6 gal/hr	1,860 gal/yr	< 0.0015	Negligible
19335	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	20.4 gal/hr	2,039 gal/yr	< 0.0015	Negligible
19336	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	10.6 gal/hr	1,058 gal/yr	< 0.0015	Negligible
19337	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	5.1 gal/hr	506 gal/yr	< 0.0015	Negligible
19338	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	18.6 gal/hr	1,860 gal/yr	< 0.0015	Negligible
19339	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	18.6 gal/hr	1,860 gal/yr	< 0.0015	Negligible
19340	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	18.6 gal/hr	1,860 gal/yr	< 0.0015	Negligible
19341	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	1.4 gal/hr	138 gal/yr	< 0.0015	Negligible
19342	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	24.0 gal/hr	2401 gal/yr	< 0.0015	Negligible
19343	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	16.6 gal/hr	1655 gal/yr	< 0.0015	Negligible
19344	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	12.8 gal/hr	1277 gal/yr	< 0.0015	Negligible
19345	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	7.4 gal/hr	741 gal/yr	< 0.0015	Negligible
19346	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	18.6 gal/hr	1860 gal/yr	< 0.0015	Negligible
19347	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	7.4 gal/hr	741 gal/yr	< 0.0015	Negligible

0

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
19349	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	12.8 gal/hr	1277 gal/yr	< 0.0015	Negligible
19350	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	12.8 gal/hr	1,277 gal/yr	< 0.0015	Negligible
19351	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	12.8 gal/hr	1,277 gal/yr	< 0.0015	Negligible
19352	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	9.1 gal/hr	909 gal/yr	< 0.0015	Negligible
19353	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	7.4 gal/hr	741 gal/yr	< 0.0015	Negligible
19354	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	1.4 gal/hr	138 gal/yr	< 0.0015	Negligible
19355	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	1.4 gal/hr	138 gal/yr	< 0.0015	Negligible
19356	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	1.4 gal/hr	138 gal/yr	< 0.0015	Negligible
19357	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	1.4 gal/hr	138 gal/yr	< 0.0015	Negligible
19358	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	1.4 gal/hr	138 gal/yr	< 0.0015	Negligible
19359	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	1.4 gal/hr	138 gal/yr	< 0.0015	Negligible
19360	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	1.4 gal/hr	138 gal/yr	< 0.0015	Negligible
19361	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	1.4 gal/hr	138 gal/yr	< 0.0015	Negligible
19362	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	3.5 gal/hr	353 gal/yr	< 0.0015	Negligible
19363	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	58.0 gal/hr	5,799 gal/yr	< 0.0015	Negligible
19364	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	38.9 gal/hr	3,893 gal/yr	< 0.0015	Negligible
19365	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	1.4 gal/hr	138 gal/yr	< 0.0015	Negligible
19366	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	3.5 gal/hr	353 gal/yr	< 0.0015	Negligible
19367	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	16.6 gal/hr	1,661 gal/yr	< 0.0015	Negligible
19368	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	16.6 gal/hr	1,661 gal/yr	< 0.0015	Negligible
19369	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	16.6 gal/hr	1,661 gal/yr	< 0.0015	Negligible
19370	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	61.3 gal/hr	6,131 gal/yr	< 0.0015	Negligible
19371	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	8.7 gal/hr	869 gal/yr	< 0.0015	Negligible
19372	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	5.2 gal/hr	521 gal/yr	< 0.0015	Negligible
19373	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	4.1 gal/hr	414 gal/yr	< 0.0015	Negligible
19374	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	4.4 gal/hr	439 gal/yr	< 0.0015	Negligible
19375	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	1.4 gal/hr	138 gal/yr	< 0.0015	Negligible
19376	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	1.4 gal/hr	138 gal/yr	< 0.0015	Negligible
19377	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	8.8 gal/hr	884 gal/yr	< 0.0015	Negligible
19378	Propane	Purchased Commercial	91,300 Btu/gal	22.6 gal/hr	2,257 gal/yr	Negligible	Negligible

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
19379	Propane	Purchased Commercial	91,300 Btu/gal	22.6 gal/hr	2,257 gal/yr	Negligible	Negligible
19380	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	38.6 gal/hr	3,858 gal/yr	< 0.0015	Negligible
19381 -19405	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	TBD	TBD	< 0.0015	Negligible
19406	Diesel Fuel	Purchased Commercial	137,000 Btu/gal	6.8 gal/hr	685 gal/yr	< 0.0015	Negligible
19602	Gasoline fuel	Purchased Commercial	130, 000 Btu/gal	3.5 gal/hr	322 gal/yr	0.03-0.04	Negligible
19603	Gasoline fuel	Purchased Commercial	130, 000 Btu/gal	3.5 gal/hr	322 gal/yr	0.03-0.04	Negligible
19608	Gasoline fuel	Purchased Commercial	130, 000 Btu/gal	3.5 gal/hr	322 gal/yr	0.03-0.04	Negligible
19609	Gasoline fuel	Purchased Commercial	130, 000 Btu/gal	3.5 gal/hr	322 gal/yr	0.03-0.04	Negligible
20001	JP-8 or Jet A (Jet Kerosene)	Purchased Commercial	135,000 Btu/gal	1839.0 gal/hr	1,647,800 gal/yr	0.2	0.1
20003	JP-8 or Jet A (Jet Kerosene)	Purchased Commercial	135,000 Btu/gal	584.0 gal/hr	109,700 gal/yr	0.2	0.1
20006	JP-8 or Jet A (Jet Kerosene)	Purchased Commercial	135,000 Btu/gal	1839.0 gal/hr	220,600 gal/yr	0.2	0.1
20007	JP-8 or Jet A (Jet Kerosene)	Purchased Commercial	135,000 Btu/gal	656.0 gal/hr	278,600 gal/yr	0.2	0.1
20009	JP-8 or Jet A (Jet Kerosene)	Purchased Commercial	135,000 Btu/gal	2502.0 gal/hr	519,000 gal/yr	0.2	0.1

Table 2-K: Liquid Data for Tanks Listed in Table 2-L

For each tank, list the liquid(s) to be stored in each tank. If it is expected that a tank may store a variety of hydrocarbon liquids, enter "mixed hydrocarbons" in the Composition column for that tank and enter the corresponding data of the most volatile liquid to be stored in the tank. If tank is to be used for storage of different materials, list all the materials in the "All Calculations" attachment, run the newest version of TANKS on each, and use the material with the highest emission rate to determine maximum uncontrolled and requested allowable emissions rate. The permit will specify the most volatile category of liquids that may be stored in each tank. Include appropriate tank-flashing modeling input data. Use additional sheets if necessary. Unit and stack numbering must correspond throughout the application package.

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)
22002	2501050120	Gasoline	Gasoline	5.6	66	63.06	6.25	82.00	7.81
22014R	2501050120	Gasoline	Gasoline	5.6	66	63.06	6.25	82.00	7.81
22054	2501050120	Gasoline	Gasoline	5.6	66	63.06	6.25	82.00	7.81
22058	2501050120	Gasoline	Gasoline	5.6	66	63.06	6.25	82.00	7.81
22100	2501050120	Gasoline	Gasoline	5.6	66	60.84	5.52	70.78	6.36
22101	2501050120	Gasoline	Gasoline	5.6	66	60.84	5.52	70.78	6.36
22102	2501050120	Gasoline	Gasoline	5.6	66	60.84	5.52	70.78	6.36
22103	2501080050	Aviation Gasoline	Aviation Gasoline	5.6	66	63.06	6.25	82.00	7.81
22105	2501080050	Aviation Gasoline	Aviation Gasoline	5.6	66	60.84	5.52	70.78	6.36
22110	2501080050	Gasoline	Gasoline	5.6	66	60.84	5.52	70.78	6.36

Note: Tanks that store Jet Fuel are exempt from permitting under both 20.2.70 NMAC and 20.2.72 NMAC because of the low vapor pressure of this fuel and, therefore, are not specifically listed in this form.

Table 2-L: Tank Data

Include appropriate tank-flashing modeling input data. Use an addendum to this table for unlisted data categories. Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary. See reference Table 2-L2. Note: 1.00 bbl = 10.159 M3 = 42.0 gal

Tank No.	Date Installed	Materials Stored	Seal Type (refer to Table 2-LR below)	Roof Type (refer to Table 2-LR below)	Capacity		Diameter (M)	Vapor Space (M)	Color (from Table VI-C)		Paint Condition (from Table VI-C)	Annual Throughput (gal/yr)	Turn-overs (per year)
					(bbl)	(M^3)			Roof	Shell			
22002	Jan-43	Gasoline	N/A	FX	286	2,903	884.7	29.0	LG	LG	Good	100,000	8
22014R	May-02	Gasoline	N/A	FX	24	242	73.7	4.0	LG	LG	Good	50,000	50
22054	Jan-93	Gasoline	N/A	FX	476	4,838	1474.5	48.0	LG	LG	Good	500,000	25
22058	Jan-95	Gasoline	N/A	FX	40	402	122.5	5.1	LG	LG	Good	50,000	30
22100	Sep-01	Gasoline	N/A	FX	286	2,903	884.7	29.0	WH	WH	Good	2,500,000	208
22101	Sep-01	Gasoline	N/A	FX	286	2,903	884.7	29.0	WH	WH	Good	900,000	75
22102	Sep-01	Gasoline	N/A	FX	286	2,903	884.7	29.0	WH	WH	Good	750,000	63
22103	2002	Aviation Gasoline	N/A	FX	71	726	221.2	7.7	LG	LG	Good	40,000	14
22105	2009	Aviation Gasoline	N/A	FX	24	242	73.7	3.9	WH	WH	Good	60,000	60
22110	1999	Gasoline	N/A	FX	18	181	55.3	23.9	WH	WH	Good	50,000	67

Note: Tanks that store Jet Fuel are exempt from permitting under both 20.2.70 NMAC and 20.2.72 NMAC because of the low vapor pressure of this fuel and, therefore, are not specifically listed in this form.

Table 2-L2: Liquid Storage Tank Data Codes Reference Table

Roof Type	Seal Type, Welded Tank Seal Type		Seal Type, Riveted Tank Seal Type		Roof, Shell Color	Paint Condition
FX: Fixed Roof	**Mechanical Shoe Seal**	**Liquid-mounted resilient seal**	**Vapor-mounted resilient seal**	**Seal Type**	**WH**: White	Good
IF: Internal Floating Roof	**A**: Primary only	**A**: Primary only	**A**: Primary only	**A**: Mechanical shoe, primary only	**AS**: Aluminum (specular)	Poor
EF: External Floating Roof	**B**: Shoe-mounted secondary	**B**: Weather shield	**B**: Weather shield	**B**: Shoe-mounted secondary	**AD**: Aluminum (diffuse)	
P: Pressure	**C**: Rim-mounted secondary	**C**: Rim-mounted secondary	**C**: Rim-mounted secondary	**C**: Rim-mounted secondary	**LG**: Light Gray	
					MG: Medium Gray	
					BL: Black	
					OT: Other (specify)	

Note: 1.00 bbl = 0.159 M^3 = 42.0 gal

Table 2-M: Materials Processed and Produced (Use additional sheets as necessary.)

Material Processed				Material Produced			
Description	**Chemical Composition**	**Phase (Gas, Liquid, or Solid)**	**Quantity (specify units)**	**Description**	**Chemical Composition**	**Phase**	**Quantity (specify units)**
N/A				**N/A**			

Table 2-N: CEM Equipment

Enter Continuous Emissions Measurement (CEM) Data in this table. If CEM data will be used as part of a federally enforceable permit condition, or used to satisfy the requirements of a state or federal regulation, include a copy of the CEM's manufacturer specification sheet in the Information Used to Determine Emissions attachment. Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary.

Stack No.	Pollutant(s)	Manufacturer	Model No.	Serial No.	Sample Frequency	Averaging Time	Range	Sensitivity	Accuracy
N/A									

Table 2-O: Parametric Emissions Measurement Equipment

Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary.

Unit No.	Parameter/Pollutant Measured	Location of Measurement	Unit of Measure	Acceptable Range	Frequency of Maintenance	Nature of Maintenance	Method of Recording	Averaging Time
None								

Table 2-P: Green House Gas Emissions

Applications submitted under 20.2.70, 20.2.72, & 20.2.74 NMAC are required to complete this Table. Power plants, Title V major sources, and PSD major sources must report and calculate all GHG emissions for each unit. Applicants must report potential emission rates in short tons per year (see Section 6.a for assistance). Include GHG emissions during Startup, Shutdown, and Scheduled Maintenance in this table. For minor source facilities that are not power plants, are not Title V, or are not PSD, there are three options for reporting GHGs 1) report GHGs for each individual piece of equipment; 2) report all GHGs from a group of unit types, for example report all combustion source GHGs as a single unit and all venting GHG as a second separate unit; OR 3) check the following box ☐ By checking this box, the applicant acknowledges the total CO2e emissions are less than 75,000 tons per year.

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]								**Total GHG** Mass Basis ton/yr[4]	**Total CO_2e** ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**23,900**	**footnote 3**									
12010	mass GHG	10309.6	0.019	0.19	-	-								10309.8	
	CO_2e	10309.6	5.8	4.9	-	-									10320.2
13002	mass GHG	45.6	-	140.5	-	-								186.2	
	CO_2e	45.6	-	3513.1	-	-									3558.8
14031	mass GHG	4329.0	0.0082	0.082	-	-								4329.1	
	CO_2e	4329.0	2.4	2.0	-	-									4333.5
14034	mass GHG	2783.0	0.0052	0.052	-	-								2783.0	
	CO_2e	2783.0	1.6	1.3	-	-									2785.8
14035	mass GHG	2607.8	0.0049	0.049	-	-								2607.8	
	CO_2e	2607.8	1.5	1.2	-	-									2610.5
14036	mass GHG	2607.8	0.0049	0.049	-	-								2607.8	
	CO_2e	2607.8	1.5	1.2	-	-									2610.5
14037	mass GHG	2607.8	0.0049	0.049	-	-								2607.8	
	CO_2e	2607.8	1.5	1.2	-	-									2610.5
14038	mass GHG	1916.9	0.0036	0.036	-	-								1917.0	
	CO_2e	1916.9	1.1	0.90	-	-									1918.9
19210	mass GHG	15.2	0.00012	0.00062	-	-								15.2	
	CO_2e	15.2	0.04	0.02	-	-									15.3
19211 - 19224	mass GHG	111.1	0.0009	0.0045	-	-								111.1	
	CO_2e	111.1	0.27	0.11	-	-									111.4
19300	mass GHG	8.3	0.000068	0.00034	-	-								8.3	
	CO_2e	8.3	0.02	0.0085	-	-									8.4
19302	mass GHG	23.9	0.00019	0.0010	-	-								23.9	
	CO_2e	23.9	0.06	0.02	-	-									23.9
19331	mass GHG	11.9	0.00010	0.00048	-	-								11.9	
	CO_2e	11.9	0.029	0.012	-	-									11.9
19332	mass GHG	5.7	0.000046	0.00023	-	-								5.7	
	CO_2e	5.7	0.014	0.0058	-	-									5.7
19333	mass GHG	5.7	0.000046	0.00023	-	-								5.7	
	CO_2e	5.7	0.014	0.0058	-	-									5.7
19334	mass GHG	20.9	0.00017	0.00085	-	-								20.9	
	CO_2e	20.9	0.051	0.021	-	-									21.0
19335	mass GHG	22.9	0.00019	0.0009	-	-								22.9	
	CO_2e	22.9	0.055	0.023	-	-									23.0

Table 2-P: Green House Gas Emissions

Applications submitted under 20.2.70, 20.2.72, & 20.2.74 NMAC are required to complete this Table. Power plants, Title V major sources, and PSD major sources must report and calculate all GHG emissions for each unit. Applicants must report potential emission rates in short tons per year (see Section 6.a for assistance). Include GHG emissions during Startup, Shutdown, and Scheduled Maintenance in this table. For minor source facilities that are not power plants, are not Title V, or are not PSD, there are three options for reporting GHGs 1) report GHGs for each individual piece of equipment; 2) report all GHGs from a group of unit types, for example report all combustion source GHGs as a single unit and all venting GHG as a second separate unit; OR 3) check the following box □ By checking this box, the applicant acknowledges the total CO2e emissions are less than 75,000 tons per year.

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]								Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**23,900**	**footnote 3**									
19336	mass GHG	11.9	0.00010	0.00048	-	-								11.9	
	CO_2e	11.9	0.029	0.012	-	-									11.9
19337	mass GHG	5.7	0.000046	0.00023	-	-								5.7	
	CO_2e	5.7	0.014	0.0058	-	-									5.7
19338	mass GHG	20.9	0.00017	0.00085	-	-								20.9	
	CO_2e	20.9	0.051	0.021	-	-									21.0
19339	mass GHG	20.9	0.00017	0.00085	-	-								20.9	
	CO_2e	20.9	0.051	0.021	-	-									21.0
19340	mass GHG	20.9	0.00017	0.00085	-	-								20.9	
	CO_2e	20.9	0.051	0.021	-	-									21.0
19341	mass GHG	1.6	0.000013	0.000063	-	-								1.6	
	CO_2e	1.6	0.0038	0.0016	-	-									1.6
19342	mass GHG	27.0	0.00022	0.0011	-	-								27.0	
	CO_2e	27.0	0.065	0.027	-	-									27.1
19343	mass GHG	18.6	0.00015	0.00076	-	-								18.6	
	CO_2e	18.6	0.045	0.019	-	-									18.7
19344	mass GHG	14.4	0.00012	0.00058	-	-								14.4	
	CO_2e	14.4	0.035	0.015	-	-									14.4
19345	mass GHG	8.3	0.000068	0.00034	-	-								8.3	
	CO_2e	8.3	0.020	0.0085	-	-									8.4
19346	mass GHG	20.9	0.00017	0.00085	-	-								20.9	
	CO_2e	20.9	0.051	0.021	-	-									21.0
19347	mass GHG	8.3	0.000068	0.00034	-	-								8.3	
	CO_2e	8.3	0.020	0.0085	-	-									8.4
19349	mass GHG	14.4	0.00012	0.00058	-	-								14.4	
	CO_2e	14.4	0.035	0.015	-	-									14.4
19350	mass GHG	14.4	0.00012	0.00058	-	-								14.4	
	CO_2e	14.4	0.035	0.015	-	-									14.4
19351	mass GHG	10.2	0.00008	0.00042	-	-								10.2	
	CO_2e	10.2	0.025	0.010	-	-									10.3
19352	mass GHG	10.2	0.000083	0.000415	-	-								10.2	
	CO_2e	10.2	0.0247	0.0104	-	-									10.3

Table 2-P: Green House Gas Emissions

Applications submitted under 20.2.70, 20.2.72, & 20.2.74 NMAC are required to complete this Table. Power plants, Title V major sources, and PSD major sources must report and calculate all GHG emissions for each unit. Applicants must report potential emission rates in short tons per year (see Section 6.a for assistance). Include GHG emissions during Startup, Shutdown, and Scheduled Maintenance in this table. For minor source facilities that are not power plants, are not Title V, or are not PSD, there are three options for reporting GHGs 1) report GHGs for each individual piece of equipment; 2) report all GHGs from a group of unit types, for example report all combustion source GHGs as a single unit and all venting GHG as a second separate unit; OR 3) check the following box ☐ By checking this box, the applicant acknowledges the total CO2e emissions are less than 75,000 tons per year.

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]								Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	1	298	25	23,900	footnote 3									
19353	mass GHG	8.3	0.00007	0.0003	-	-								8.3	
	CO_2e	8.3	0.020	0.008	-	-									8.4
19354	mass GHG	1.6	0.00001	0.00006	-	-								1.6	
	CO_2e	1.6	0.004	0.002	-	-									1.6
19355	mass GHG	1.6	0.00001	0.00006	-	-								1.6	
	CO_2e	1.6	0.004	0.002	-	-									1.6
19356	mass GHG	1.6	0.00001	0.00006	-	-								1.6	
	CO_2e	1.6	0.004	0.002	-	-									1.6
19357	mass GHG	1.6	0.00001	0.00006	-	-								1.6	
	CO_2e	1.6	0.004	0.002	-	-									1.6
19358	mass GHG	1.6	0.000013	0.000063	-	-								1.6	
	CO_2e	1.6	0.0038	0.0016	-	-									1.6
19359	mass GHG	1.6	0.00001	0.0001	-	-								1.6	
	CO_2e	1.6	0.004	0.002	-	-									1.6
19360	mass GHG	1.6	0.00001	0.00006	-	-								1.6	
	CO_2e	1.6	0.004	0.002	-	-									1.6
19361	mass GHG	1.6	0.00001	0.00006	-	-								1.6	
	CO_2e	1.6	0.004	0.002	-	-									1.6
19362	mass GHG	4.0	0.00003	0.00016	-	-								4.0	
	CO_2e	4.0	0.010	0.004	-	-									4.0
19363	mass GHG	65.2	0.00053	0.00265	-	-								65.2	
	CO_2e	65.2	0.158	0.066	-	-									65.5
19364	mass GHG	43.8	0.000355	0.001777	-	-								43.8	
	CO_2e	43.8	0.1059	0.0444	-	-									44.0
19365	mass GHG	1.6	0.00001	0.0001	-	-								1.6	
	CO_2e	1.6	0.004	0.002	-	-									1.6
19366	mass GHG	4.0	0.00003	0.00016	-	-								4.0	
	CO_2e	4.0	0.010	0.004	-	-									4.0
19367	mass GHG	18.7	0.00015	0.00076	-	-								18.7	
	CO_2e	18.7	0.045	0.019	-	-									18.7
19368	mass GHG	18.7	0.00015	0.00076	-	-								18.7	
	CO_2e	18.7	0.045	0.019	-	-									18.7

Table 2-P: Green House Gas Emissions

Applications submitted under 20.2.70, 20.2.72, & 20.2.74 NMAC are required to complete this Table. Power plants, Title V major sources, and PSD major sources must report and calculate all GHG emissions for each unit. Applicants must report potential emission rates in short tons per year (see Section 6.a for assistance). Include GHG emissions during Startup, Shutdown, and Scheduled Maintenance in this table. For minor source facilities that are not power plants, are not Title V, or are not PSD, there are three options for reporting GHGs 1) report GHGs for each individual piece of equipment; 2) report all GHGs from a group of unit types, for example report all combustion source GHGs as a single unit and all venting GHG as a second separate unit; OR 3) check the following box ☐ By checking this box, the applicant acknowledges the total CO2e emissions are less than 75,000 tons per year.

		CO_2 ton/yr	**N_2O** ton/yr	**CH_4** ton/yr	**SF_6** ton/yr	**PFC/HFC** ton/yr[2]								**Total GHG** Mass Basis ton/yr[4]	**Total CO_2e** ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**23,900**	**footnote 3**									
19369	mass GHG	18.7	0.00015	0.00076	-	-								18.7	
	CO_2e	18.7	0.045	0.019	-	-									18.7
19370	mass GHG	69.0	0.000560	0.002798	-	-								69.0	
	CO_2e	69.0	0.1668	0.0700	-	-									69.2
19371	mass GHG	9.8	0.00008	0.0004	-	-								9.8	
	CO_2e	9.8	0.024	0.010	-	-									9.8
19372	mass GHG	5.9	0.00005	0.00024	-	-								5.9	
	CO_2e	5.9	0.014	0.006	-	-									5.9
19373	mass GHG	4.7	0.00004	0.00019	-	-								4.7	
	CO_2e	4.7	0.011	0.005	-	-									4.7
19374	mass GHG	4.9	0.00004	0.00020	-	-								4.9	
	CO_2e	4.9	0.012	0.005	-	-									5.0
19375	mass GHG	1.6	0.00001	0.00006	-	-								1.6	
	CO_2e	1.6	0.004	0.002	-	-									1.6
19376	mass GHG	1.6	0.000013	0.000063	-	-								1.6	
	CO_2e	1.6	0.0038	0.0016	-	-									1.6
19377	mass GHG	9.9	0.00008	0.0004	-	-								9.9	
	CO_2e	9.9	0.024	0.010	-	-									10.0
19378	mass GHG	12.8	0.00014	0.00069	-	-								12.8	
	CO_2e	12.8	0.041	0.017	-	-									12.9
19379	mass GHG	12.8	0.00014	0.00069	-	-								12.8	
	CO_2e	12.8	0.041	0.017	-	-									12.9
19380	mass GHG	43.4	0.00035	0.00176										43.4	
	CO_2e	43.4	0.105	0.044											43.6
19381 - 19405	mass GHG	198.3	0.00161	0.00804	-	-								198.3	
	CO_2e	198.3	0.479	0.201	-	-									199.0
19406	mass GHG	7.7	0.000062	0.000312	-	-								7.7	
	CO_2e	7.7	0.0186	0.0078	-	-									7.7
19602	mass GHG	2.8	0.00003	0.0001	-	-								2.8	
	CO_2e	2.8	0.008	0.003	-	-									2.8
19603	mass GHG	2.8	0.00003	0.00013	-	-								2.8	
	CO_2e	2.8	0.008	0.003	-	-									2.8

Table 2-P: Green House Gas Emissions

Applications submitted under 20.2.70, 20.2.72, & 20.2.74 NMAC are required to complete this Table. Power plants, Title V major sources, and PSD major sources must report and calculate all GHG emissions for each unit. Applicants must report potential emission rates in short tons per year (see Section 6.a for assistance). Include GHG emissions during Startup, Shutdown, and Scheduled Maintenance in this table. For minor source facilities that are not power plants, are not Title V, or are not PSD, there are three options for reporting GHGs 1) report GHGs for each individual piece of equipment; 2) report all GHGs from a group of unit types, for example report all combustion source GHGs as a single unit and all venting GHG as a second separate unit; OR 3) check the following box ☐ By checking this box, the applicant acknowledges the total CO2e emissions are less than 75,000 tons per year.

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]								Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**23,900**	**footnote 3**									
19608	mass GHG	2.8	0.00003	0.00013	-	-								2.8	
	CO_2e	2.8	0.008	0.003	-	-									2.8
19609	mass GHG	2.8	0.00003	0.00013	-	-								2.8	
	CO_2e	2.8	0.008	0.003	-	-									2.8
20001	mass GHG	17709.2	0.14713	0.73564	-	-								17710.1	
	CO_2e	17709.2	43.844	18.391	-	-									17771.5
20003	mass GHG	1179.0	0.009795	0.048974	-	-								1179.0	
	CO_2e	1179.0	2.9188	1.2243	-	-									1183.1
20006	mass GHG	2370.8	0.01970	0.0985	-	-								2370.9	
	CO2e	2370.8	5.870	2.462	-	-									2379.2
20007	mass GHG	2994.2	0.02488	0.12438	-	-								2994.3	
	CO_2e	2994.2	7.413	3.109	-	-									3004.7
20009	mass GHG	5577.8	0.04634	0.2317	-	-								5578.1	
	CO_2e	5577.8	13.809	5.793	-	-									5597.4
Totals	**mass GHG**	**58081.8**	**0.31**	**142.3**	**-**	**-**								**58,224.4**	
	CO_2e	**58081.8**	**91.6**	**3558.0**	**-**	**-**									**61,731.3**

[1] **GWP** (Global Warming Potential): Applicants must use the most current GWPs codified in Table A-1 of 40 CFR part 98. GWPs are subject to change, therefore, applicants need to check 40 CFR 98 to confirm GWP values.

[2] For **HFCs** or **PFCs** describe the specific HFC or PFC compound and use a separate column for each individual compound.

[3] For each new compound, enter the appropriate GWP for each HFC or PFC compound from Table A-1 in 40 CFR 98.

[4] Green house gas emissions on a **mass basis** is the ton per year green house gas emission before adjustment with its GWP.

[5] **CO_2e** means Carbon Dioxide Equivalent and is calculated by multiplying the TPY mass emissions of the green house gas by its GWP.

Section 3

Application Summary

The **Application Summary** shall include a brief description of the facility and its process, the type of permit application, the applicable regulation (i.e. 20.2.72.200.A.X, or 20.2.73 NMAC) under which the application is being submitted, and any air quality permit numbers associated with this site. If this facility is to be collocated with another facility, provide details of the other facility including permit number(s). In case of a revision or modification to a facility, provide the lowest level regulatory citation (i.e. 20.2.72.219.B.1.d NMAC) under which the revision or modification is being requested. Also describe the proposed changes from the original permit, how the proposed modification will affect the facility's operations and emissions, de-bottlenecking impacts, and changes to the facility's major/minor status (both PSD & Title V).

The **Process Summary** shall include a brief description of the facility and its processes.

Startup, Shutdown, and Maintenance (SSM) routine or predictable emissions: Provide an overview of how SSM emissions are accounted for in this application. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on SSM emissions.

3.1 Facility Description and Process

Holloman Air Force Base (AFB) is owned and operated by the United States Air Force (USAF), Air Education and Training Command. Holloman AFB is located in south-central New Mexico in Otero County, near the city of Alamogordo. It is the home of the 49th Wing, whose primary mission is to support national security objectives by deploying combat ready airpower in support of global operations and developing the world's best professional remotely piloted aircraft enterprise in addition to supporting Team Holloman Airman and their families. The wing provides combat-ready Airmen, F-16 Fighting Falcons, and trains and MQ-9 Reaper pilots and sensor operators. Additionally, the wing delivers Air Transportable Clinics and Basic Expeditionary Airfield Resources (BEAR) while providing support to more than 17,000 military and civilian personnel. The 49th Wing comprises five major groups:

- The 49th Operations Group is responsible for training and readiness of the F-16 Fighter Squadrons. Hush houses and paint booths are some of the air emissions sources included within the Operations Group.
- The 49th Maintenance Support Group provides maintenance and repair support to the F-16 fighter and MQ-9 Squadrons. Their emission sources include paint booths and jet engine test facilities.
- The 49th Mission Support Group is responsible for general support activity operations throughout Holloman AFB. Their duties include civil engineering, security, communications, and maintaining fuel services, such as tanks, fuel dispensers, and loading racks. Their primary emission sources are emergency generators and fueling activities.
- The 49th Medical Group provides medical and dental services to Holloman AFB and maintains an air-transportable hospital and three clinics in combat-ready status. Their only permitted emissions source is miscellaneous chemical usage.

- The 635th Materiel Maintenance Group, also known as BEAR Base, is primarily responsible for maintaining equipment that can be mobilized in time of war or field training exercises. Their primary emission sources are mobile generators, the support equipment necessary to maintain these generators (paint booth), and a shipping operation where pieces of equipment are packed and unpacked for field operations.
- The 704th Test Group operates a rocket sled testing operation at its High-Speed Test Track on the northwest portion of the base. The Test Group tests and evaluates systems for aircraft, missiles, and space vehicles. To support its mission, the Test Group maintains a group of portable generators mounted on trucks that can be transported to remote testing areas. In addition, two permanent standby generators are being installed at the test track. The Test Group uses three T-38 aircraft for its mission.
- The 54th Fighter Group conducts formal graduate-level F-16 initial, re-qualification, senior officer, and instructor training. The 54th Fighter Group is comprised of five squadrons, including the 311th Fighter Squadron, 314th Fighter Squadron, 8th Fighter Squadron, 54th Training Squadron and 54th Operations Support Squadron.

A wing of the German Air Force that flew the Panavia Tornado aircraft was stationed at Holloman AFB. However, the memorandum of understanding (MOU) between the US and German governments was not renewed, and the German Air Force ceased all operations at Holloman AFB in November 2019. The fixed equipment and facilities they were leasing from Holloman AFB were taken over by the 49th Maintenance Support Group.

Holloman AFB has numerous tenant agreements as well. Tenants at Holloman AFB include the U.S. Army, various contractors, and NewTec, a contractor whose primary responsibility is to support operations on remote areas of White Sands Missile Range. Tenant operations that occur primarily on Holloman AFB property are included in this Title V permit application. Conversely, Holloman AFB operates some equipment in remote locations, such as White Sands Missile Range and Kirtland AFB in Albuquerque, New Mexico. These operations are included in the operating permits for those facilities, as applicable, and are not included in Holloman AFB’s operating permit.

3.2 Description of Permitting Action

Holloman AFB is applying to renew Air Quality Operating Permit No. P105-R3-M1. This renewal is being requested pursuant to Title 20, New Mexico Administrative Code, Chapter 2, Part 70, Section 300, Subsection B (20.2.70.300.B .2 NMAC). This renewal includes equipment removal and additions, and the update of process information data. The updates to the permit will result in minor changes to the current allowable emissions table.

Holloman AFB is a non-major source for hazardous air pollutants (HAPs) under Title III of the Clean Air Act. The Holloman AFB Title V operating permit limits allowable HAP emissions to 9.9 tons per year (tpy) of any individual HAP and 24.9 tpy of all HAPs combined. The proposed renewal application will not affect the facility's non-major status or existing HAP limits as no changes are requested to the HAP limits of 9.9 or 24.9 tpy.

Holloman AFB is a major source, as defined in 20.2.70 NMAC – Operating Permits, and in Title V of the federal Clean Air Act. A major source is one that has potential to emit (PTE) in excess of 100 tpy of any regulated pollutant. Holloman AFB currently has allowable emissions of carbon monoxide (CO), and volatile organic compounds (VOC) that exceed 100 tpy. Holloman AFB's allowable emission limits from the operating permit are each below 250 tpy, which are below the state and federal Prevention of Significant Deterioration (PSD) regulation threshold. In addition to Operating Permit No. P105-R2-M2, Holloman AFB holds two New Source Review (NSR) Permits under 20.2.72 NMAC, Permit Nos. 1508C-M2R4 and 1508-M2R5.

3.3 Summary of Changes from the Existing Operating Permit

The existing operating permit establishes emission limits and requirements for the various types of equipment operated at Holloman AFB. This renewal application will serve as an update to the current operating permit by incorporating typographical, administrative, and minor modifications. In addition to equipment information, typographical, and administrative revisions, proposed changes include:

1. Addition of sixteen (16) diesel fired standby generators and two (2) LPG fired standby generators as summarized in Table 3-1 below. All generators listed in the Table are NSR exempt and have received an NSR Notice of Exemption Approval or NSR Administrative Amendment Approval.
2. Removal of the Wisconsin gasoline fired barrier rewind engines, EU Numbers 19604, 19605, 19610, and 19611. These engine were replaced by Deutz Model D2011L04i nonroad diesel engines that qualify for a National Security (NSE) exemption under 40 CFR 1068.255(b). As a result, the replacement engines are not being included in the permit renewal. Overall Holloman AFB now operates 14 Deutz Model barrier rewind engines that qualify for the NSE. Eight of these engines were removed as part of the previous permit renewal.
3. Removal of EU 19348 (Diesel Emergency Generator at Building 871)
4. The two new LPG standby generators are subject to 40 CFR 60 Subpart JJJJ. The applicable Subpart JJJJ requirements include the following:
    - Maintain the engine according to manufacturer's instructions and keep records of conducted maintenance [60.4243(a)(1)].

- The emergency generator(s) may be operated for a maximum of 100 hours per calendar year for maintenance checks and readiness testing (60.4243(d)(2)(i)) and there is no time limit on the use of emergency stationary ICE in emergency situations (60.4243(d)(1).
- Keep a record of the certification from the manufacturer that the engine meets emission standards that are applicable in 40 CFR Part 1048 [60.4245(a)(3)].
- The engine must be equipped with a non-resettable hour meter (60.4242(f)(1)) and document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation (60.4245(b)).

Table 3-1
New Standby Generators

EU No.	Make	Model No.	Serial No.	Capacity (hp)	Notes
19363	CUMMINS	KTA38-G1	33130788	1135 hp	B756 (WWTP) Model Yr. 1995, Installed in 1996, CI Engine, Subject to 40 CFR 63 ZZZZ
19364	CATERPILLAR	C15	FTE02791	762 hp	B872, Model Yr. 2016, CI Engine, Subject to 40 CFR 60 IIII
19365	CUMMINS	QSB7-G5 NR3	74047471	325 hp	B831, Model Yr. 2016 (Tier 3), CI Engine Subject to 40 CFR 60 IIII
19366	CUMMINS	QSB7-G5 NR3	74110056	325 hp	B302 (GCS#4), Model Yr. 2017 (Tier 3), CI Engine Subject to 40 CFR 60 IIII
19367	CUMMINS	QSB7-G5 NR3	74143021	325 hp	B318, Model Yr. 2017 (Tier 3), CI Engine Subject to 40 CFR 60 IIII
19368	CUMMINS	QSB7-G5 NR3	74214927	325 hp	B302 (GCS#5), Model Yr. 2017 (Tier 3), CI Engine Subject to 40 CFR 60 IIII
19369	CUMMINS	QSB7-G5 NR3	73974931	325 hp	B1258, Model Yr. 2017 (Tier 3), CI Engine Subject to 40 CFR 60 IIII
19370	CUMMINS	KTA38-G2	97365-1	1200 hp	B1020 (586 Flight Test Squadron) Model Yr. 1990, CI Engine, Subject to 40 CFR 63 ZZZZ
19371	CUMMINS	6BT5.9-G6	46042992	170 hp	B1108 Model Yr. 2000, Army/WSMR Unit - HAFB agreed to include in HAFB permit, CI Engine, Subject to 40 CFR 63 ZZZZ
19372	CUMMINS	4BT3.9-G4	46038158	102 hp	B1115 Model Yr. 2000, Army/WSMR Unit - HAFB agreed to include in HAFB permit, CI Engine, Subject to 40 CFR 63 ZZZZ
19373	CUMMINS	4BT3.3-G6	68090228	81 hp	B29039, Model Yr. 2007 (Tier 3), Army/WSMR Unit - HAFB agreed to include in HAFB permit, CI Engine Subject to 40 CFR 60 IIII
19374	CATERPILLAR	C4.4	E3L01681	85.83 hp	B29215, Model Yr. 2018 (Tier 4), CI Engine Subject to 40 CFR 60 IIII

EU No.	Make	Model No.	Serial No.	Capacity (hp)	Notes
19375	KUBOTA	D1703-M-BG-ET01	8W1116	27.1 hp	B81103, Model Yr. 2008 (Tier 4), CI Engine Subject to 40 CFR 60 IIII
19376	KUBOTA	D1703-M-BG-ET01	8W1108	27.1 hp	B81209, Model Yr. 2008 (Tier 4), CI Engine Subject to 40 CFR 60 IIII
19377	CUMMINS	QSB5-G13	74509809	173 hp	B508, Model Yr. 2019 (Tier 3), CI Engine Subject to 40 CFR 60 IIII
19378	GENERAC	6.8GLPNGDQT-150	3004925345	231 hp	B1161 (Test Track), Model Yr. 2019. SI (Propane Fired) Engine Subject to 40 CFR 60 JJJJ
19379	GENERAC	6.8GLPNGDQT-150	3004925472	231 hp	B1625 (Test Track), Model Yr. 2019. SI (Propane Fired) Engine Subject to 40 CFR 60 JJJJ
19380	CUMMINS	QSX15-G9	80270788	755 hp	B319, Model Yr. 2020 (Tier 2), CI Engine Subject to 40 CFR 60 IIII

Notes: CI = Compression Ignition, SI = Spark Ignition

Table 3-2 summarizes the emission changes resulting from the addition of the 18 standby generators, the removal of EU 19348, and the removal of the 8 barrier rewind engines as described above.

Table 3-2
Internal Combustion Emissions

Annual Emission Rate (ton/yr)			
Pollutant	**Current**	**Proposed Emissions**	**Change in Emissions***
NO_X	11.2	11.8	0.6
CO	9.4	8.4	(0.1)
VOC	249.9 (Basewide Allowable Limit)	No Change	No Change
SO_X	1.9	1.8	No Change
PM	0.71	0.62	(0.09)
PM_{10}	0.71	0.62	(0.09)
$PM_{2.5}$	0.71	0.62	(0.09)
HAP	24.9 combined / 9.9 individual	No Change	No Change

* Values in ( ) indicate a reduction in emissions for that pollutant

In addition to the equipment changes above the following should be noted.

1. A wing of the German Air Force that flew the Panavia Tornado aircraft that was stationed at Holloman AFB left in 2019. The fixed equipment and facilities they were leasing from Holloman AFB were taken over by the 49th Maintenance Support Group. This equipment/facilities included EU Number 20009 (Jet Engine Testing) and EU Numbers 21019 and 21020 (surface coating/paint booths). Although these

emission units are currently not being utilized, they are being retained in the permit renewal at the previously approved emission limits as they may be used in some capacity during the next five-year permit term. If warranted appropriate modifications to the NSR permit and Title V permit will be made at that time. Note that for the jet engine testing source category the existing allowable emission rates were developed in such a manner as to allow flexibility for Holloman AFB to test any type of jet engine necessary for their mission.

2. The AVAS storage tank (EU 21005) and its associated fuel dispensing and truck loading (EU 15012 & EU 16005) are currently not in service (tank has been inactive since 2015). However, because the future plans for this tank are not definitive, the tank and its associated fueling operations are included in this permit renewal using previously approved limits.

Typographical edits and updates in addition to the proposed changes discussed in this section are included in the tracked changes version of Operating Permit No. P105-R3- submitted in accordance with the guidance provided in Section 20 of the New Mexico Environment Department Air Quality Bureau’s (NMED AQB) Universal Application Forms. Table 3-3 below presents the cumulative facility emissions across all the permitted units from the current operating permit as compared to the proposed facility emissions incorporating the changes contained in this renewal application.

Table 3-3
Facility Emissions after Operating Permit Renewal

Facility Wide Annual Emission Rate (ton/yr)			
Pollutant	**Current**	**Proposed Emissions**	**Change in Emissions***
NO_X	66.4	67.0	0.6
CO	107.5	106.5	(0.1)
VOC	249.9 (Basewide Allowable Limit)	No change	No change
SO_X	18.7	18.5	(0.2)
PM	12.4	12.1	(0.3)
PM_{10}	12.4	12.1	(0.3)
$PM_{2.5}$	12.4	12.1	(0.3)
HAP	24.9 combined / 9.9 individual	No change	No change
Total CO_{2e}	67,952.2	61,731.3	(6,220.9)

* Values in ( ) indicate a reduction in emissions for that pollutant

3.4 Toxic Air Pollutants

In accordance with 20.2.72.401.B NMAC, Holloman AFB is an Existing Source, and its process or its mission is to support national security objectives by deploying combat ready airpower and personnel in support of global operations. In accordance with 20.2.72.401.D NMAC the existing and any new processes that support this same mission are integrally related with and integrally connected to the process of an existing source (Holloman AFB). Therefore, the activities listed in this application are not subject to 20.2.72.402.B NMAC and toxic air pollutants are not presented in Sections 2 or 6.

3.5 Startup, Shutdown, and Maintenance Emissions

Emissions from combustion sources in the remediation (to be determined natural gas thermal oxidizer unit), external combustion, internal combustion, and jet engine testing source categories may be slightly lower during startup and shutdown as discussed in the NMED AQB guidance document titled *Guidance for Including Emissions During Routine or Predictable Startup, Shutdown, and Scheduled Maintenance in Permit Applications* dated 29 July 2008, specifically the “Uncontrolled” sections for Engines, Turbines, and Heaters/Boilers. Emissions data is not available for estimating these startup and shutdown emissions; it is assumed that these emissions are equal to steady-state operations.

Emissions from scheduled maintenance activities were reviewed for remediation, external combustion, and internal combustion units as maintenance activities do not apply to the jet engine testing source category. Emissions data is not available for estimating scheduled maintenance activities; it is assumed that these emissions are equal to steady-state operation.

Holloman AFB assumes that startup, shutdown, and scheduled maintenance (SSM) emissions from the mission support permitted equipment related to training exercises, aircraft refueling and maintenance, jet engine testing, fuel storage and distribution, and corrosion control/surface coating activities are equal to steady state emissions; therefore it is assumed that the established emission limits contained in Holloman AFB’s operating permit for these sources are sufficient to accommodate SSM emissions and an exceedance is not expected.

3.6 Contact for Technical Information

Technical questions regarding the application may be referred to the Installation Management Flight Chief, within the Civil Engineering Squadron to the attention of:

Mr. Adam Kusmak
Chief, Installation Management Flight
49 CES/CEI
550 Tabosa Avenue
Holloman AFB, NM 88330-8458
(575) 572-0059

Section 4

Process Flow Sheet

A **process flow sheet** and/or block diagram indicating the individual equipment, all emission points and types of control applied to those points. The unit numbering system should be consistent throughout this application.

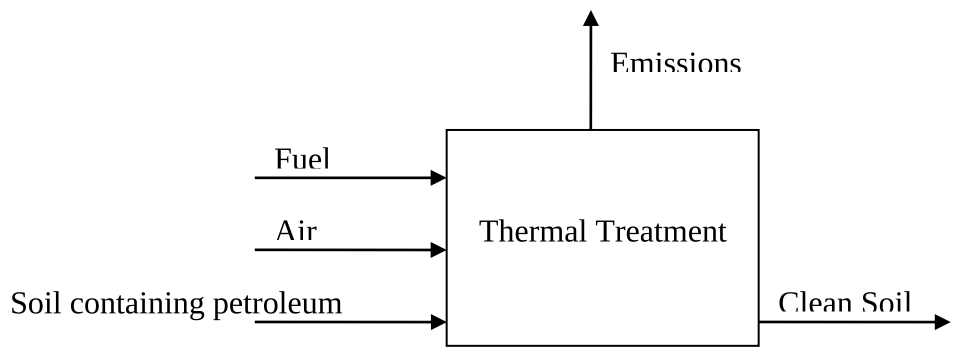

Figure 4-1. Process Flow Diagram for Thermal Treatment of Soil

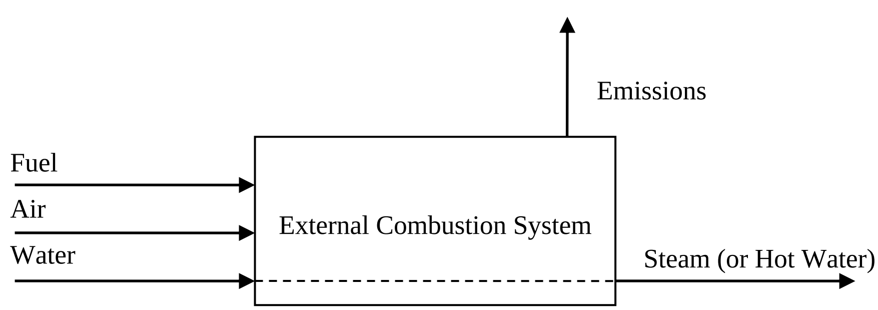

Figure 4-2. Process Flow Diagram for External Combustion

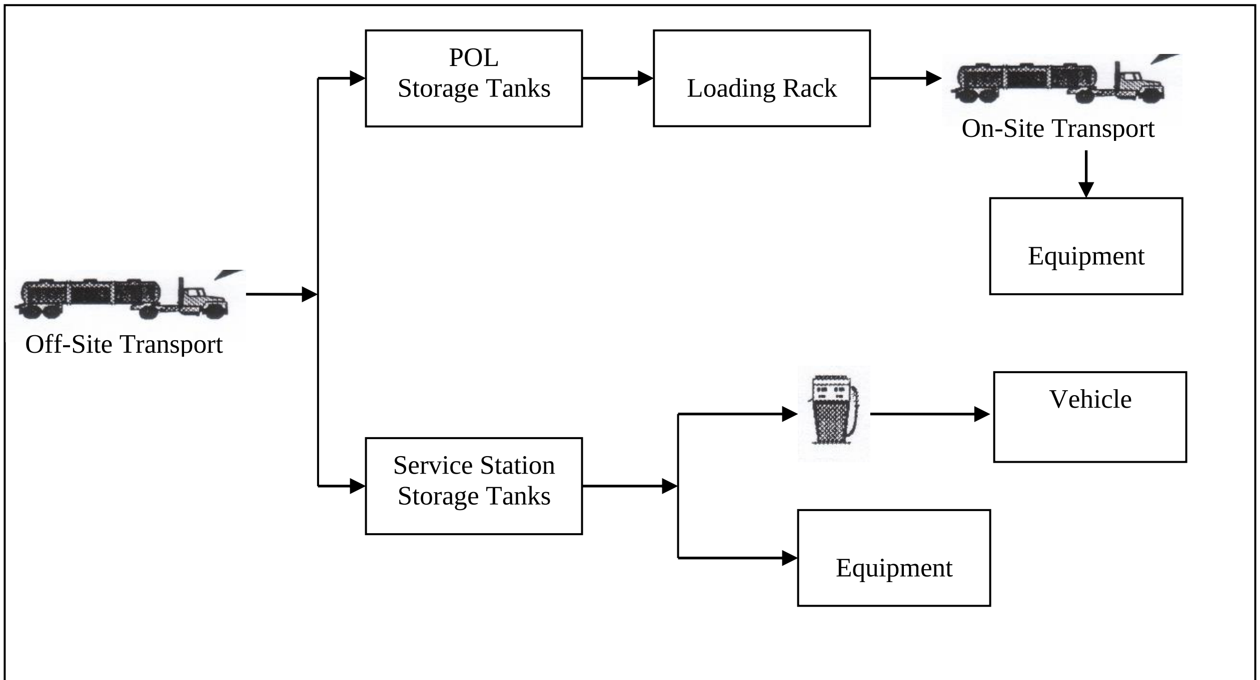

Figure 4-3. Process Flow Diagram for Fueling Operations

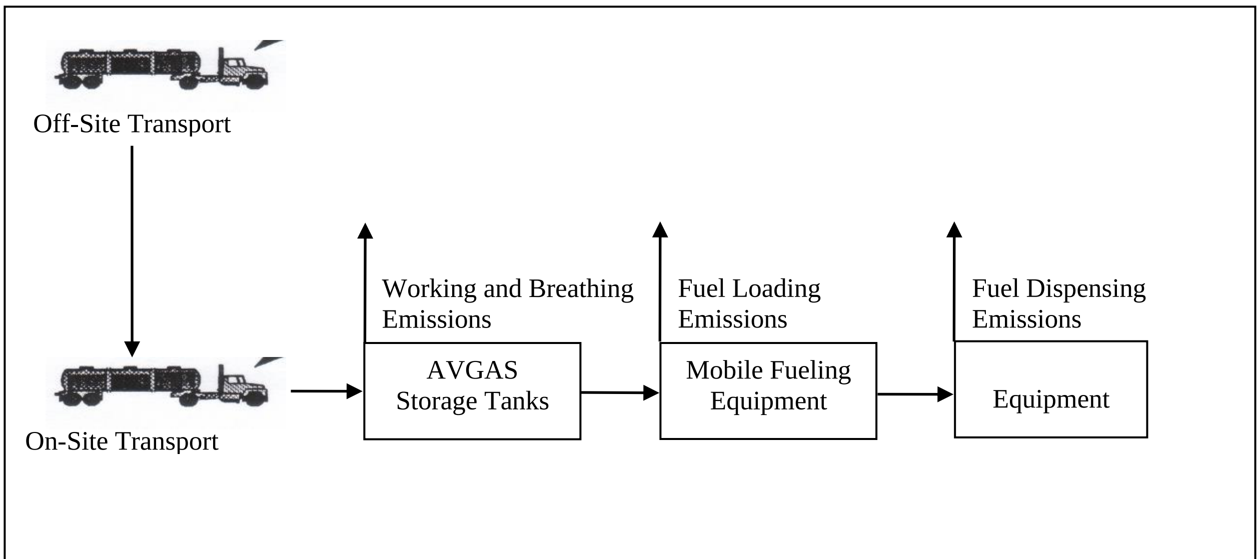

Figure 4-4. Process Flow Diagram for RPA AVGAS Operations

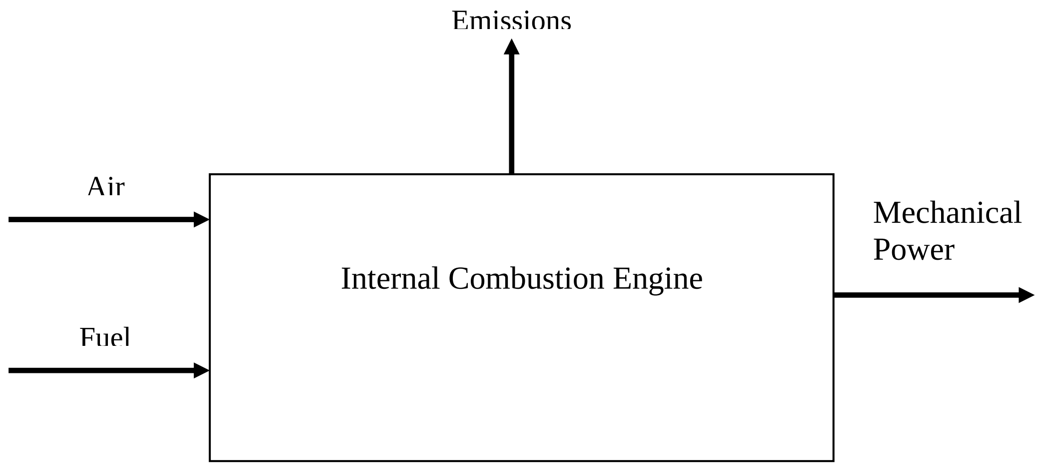

Figure 4-5. Process Flow Diagram for Internal Combustion Engines

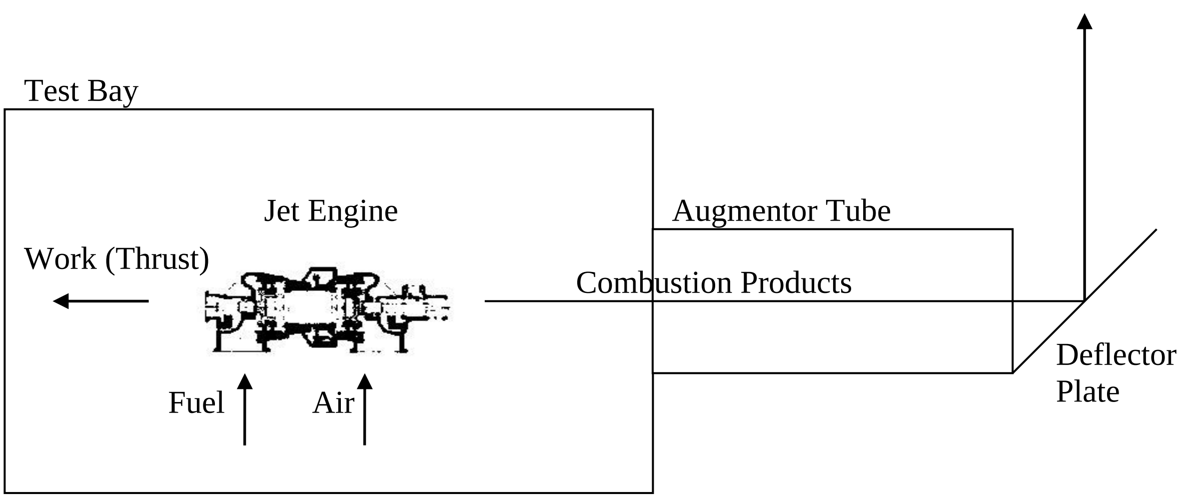

Figure 4-6. Process Flow Diagram for Jet Engine Testing

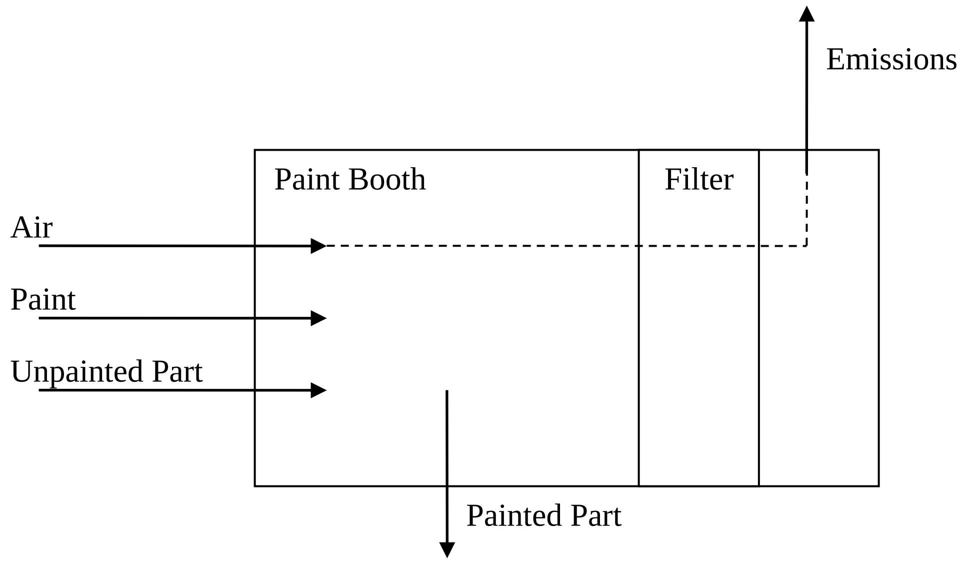

Figure 4-7. Process Flow Diagram for Surface Coating in Paint Booth

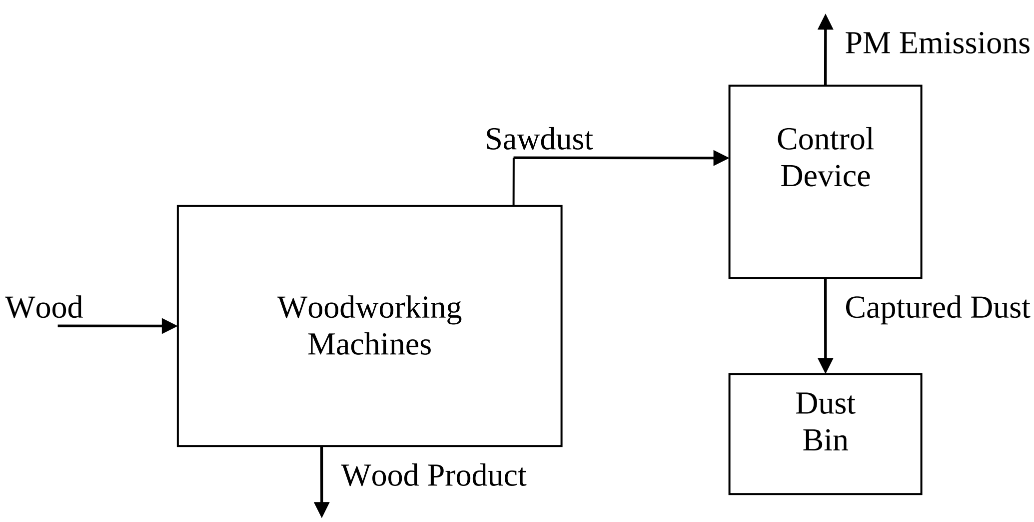

Figure 4-8. Process Flow Diagram for Woodworking Operations

Section 5

Plot Plan Drawn To Scale

A **plot plan drawn to scale** showing emissions points, roads, structures, tanks, and fences of property owned, leased, or under direct control of the applicant. This plot plan must clearly designate the restricted area as defined in UA1, Section 1-D.12. The unit numbering system should be consistent throughout this application.

Holloman AFB has provided a map in a plastic sleeve following this page that serves as a plot plan for the base. This map details the facility boundary, its buildings, roads, physical features, and the specific locations of the emission units identified in this application. The entire area enclosed with the facility boundary is restricted to public access. In addition, Holloman AFB shares its western boundary with White Sands Missile Range which is also restricted to public access. The emission units are identified on the map consistent with the emission unit numbering system and identification used throughout this application.

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Section 6

All Calculations

Show all calculations used to determine both the hourly and annual controlled and uncontrolled emission rates. All calculations shall be performed keeping a minimum of three significant figures. Document the source of each emission factor used (if an emission rate is carried forward and not revised, then a statement to that effect is required). If identical units are being permitted and will be subject to the same operating conditions, submit calculations for only one unit and a note specifying what other units to which the calculations apply. All formulas and calculations used to calculate emissions must be submitted. The "Calculations" tab in the UA2 has been provided to allow calculations to be linked to the emissions tables. Add additional "Calc" tabs as needed. If the UA2 or other spread sheets are used, all calculation spread sheet(s) shall be submitted electronically in Microsoft Excel compatible format so that formulas and input values can be checked. Format all spread sheets and calculations such that the reviewer can follow the logic and verify the input values. Define all variables. If calculation spread sheets are not used, provide the original formulas with defined variables. Additionally, provide subsequent formulas showing the input values for each variable in the formula. All calculations, including those calculations are imbedded in the Calc tab of the UA2 portion of the application, the printed Calc tab(s), should be submitted under this section.

Tank Flashing Calculations: The information provided to the AQB shall include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., NOI, permit, or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis. If Hysis is used, all relevant input parameters shall be reported, including separator pressure, gas throughput, and all other relevant parameters necessary for flashing calculation.

SSM Calculations: It is the applicant's responsibility to provide an estimate of SSM emissions or to provide justification for not doing so. In this Section, provide emissions calculations for Startup, Shutdown, and Routine Maintenance (SSM) emissions listed in the Section 2 SSM and/or Section 22 GHG Tables and the rational for why the others are reported as zero (or left blank in the SSM/GHG Tables). Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.nmenv.state.nm.us/aqb/permit/app_form.html) for more detailed instructions on calculating SSM emissions. If SSM emissions are greater than those reported in the Section 2, Requested Allowables Table, modeling may be required to ensure compliance with the standards whether the application is NSR or Title V. Refer to the Modeling Section of this application for more guidance on modeling requirements.

Glycol Dehydrator Calculations: The information provided to the AQB shall include the manufacturer's maximum design recirculation rate for the glycol pump. If GRI-Glycalc is used, the full input summary report shall be included as well as a copy of the gas analysis that was used.

Road Calculations: Calculate fugitive particulate emissions and enter haul road fugitives in Tables 2-A, 2-D, and 2-E for:

1. If you transport raw material, process material and/or product into or out of or within the facility and have PER emissions greater than 0.5 tpy.
2. If you transport raw material, process material and/or product into or out of the facility more frequently than one round trip per day.

Significant Figures:

A. All emissions standards are deemed to have at least two significant figures, but not more than three significant figures.
B. At least 5 significant figures shall be retained in all intermediate calculations.
C. In calculating emissions to determine compliance with an emission standard, the following rounding off procedures shall be used:

(1) If the first digit to be discarded is less than the number 5, the last digit retained shall not be changed;
(2) If the first digit discarded is greater than the number 5, or if it is the number 5 followed by at least one digit other than the number zero, the last figure retained shall be increased by one unit; **and**
(3) If the first digit discarded is exactly the number 5, followed only by zeros, the last digit retained shall be rounded upward if it is an odd number, but no adjustment shall be made if it is an even number.
(4) The final result of the calculation shall be expressed in the units of the standard.

Control Devices: In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device regardless if the applicant takes credit for the reduction in emissions. The applicant can indicate in this section of the application if they chose to not take credit for the reduction in emission rates. For notices of intent submitted under 20.2.73 NMAC, only uncontrolled emission rates can be considered to determine applicability unless the state or federal Acts require the control. This information is necessary to determine if federally enforceable conditions are necessary for the control device, and/or if the control device produces its own regulated pollutants or increases emission rates of other pollutants.

This section describes the emission calculation methodology for all permitted source categories at Holloman AFB.

6.1 Remediation Activities Emissions

Emissions from remediation include VOCs and some of these VOCs are also HAPs. When thermal treatment systems (including thermal oxidizers) are used to reduce VOC emissions, small amounts of combustion pollutants are also emitted.

Emission Calculation Method and Information Sources. The soil thermal treatment system has not yet been installed but the possibility still exists that it will be installed at a future date and thus it is being included in the permit renewal. The system will heat excavated soil to drive off VOC and HAP contaminants and will then oxidize these gases. This unit will have emissions of combustion pollutants (NO_X, CO, PM/PM_{10}/$PM_{2.5}$, SO_2, and VOC) resulting from the natural gas used to heat the soil and burn the extracted vapors. Combustion pollutant emissions are calculated using the external combustion emission factors and methodology described in AP-42 for natural gas. Holloman AFB will monitor the operating time and/or the amount of fuel consumed by the soil thermal treatment system and use this data to calculate emissions. The equation to calculate soil treatment emissions is given below.

$$\text{Emissions [tpy]} = \text{(natural gas used [}10^6\text{ scf/yr]) (emission factor [lb/}10^6\text{ ft3])/ (2000 [lb/ton])}$$

Holloman AFB operates one landfarm. The petroleum-containing soil is tested prior to placement in the landfarm and often soil of various concentrations will be mixed to arrive at consistent concentration. VOC and HAP emissions are estimated based on the volume of soil placed in the landfarm and the average concentrations of total petroleum hydrocarbons, benzene, ethylbenzene, toluene, xylenes, and hexane in the soil. Emissions are calculated using the Thibodeux–Hwang model at the time the soil is placed in the landfarm; these emissions are assumed to occur at the time of soil placement, since there is no reliable method for determining at what point during the landfarm process actual emissions occur.

A summary of the emissions and a description of the emission calculation methodology are provided in the spreadsheet titled “Remediation Emissions Calculation” near the end of Section 6.

Emission Measurement Methods/Equipment. Holloman AFB does not measure emissions from its remediation operations, the emissions are calculated using the methodology described above and submitted to the NMED AQB semiannually.

Emissions. Remediation operations at Holloman AFB are limited to the annual emission rates shown in Table 6-1. Emission limits for VOCs and HAPs for this source category are not presented since these emissions are included in the existing basewide emission limits for these pollutants.

Table 6-1
Emission Limits for Remediation Activities

Pollutant	**Annual Emission Rate (ton/yr)**
NO_X	8.6
CO	7.2
VOC	Included in Basewide Limit
SO_X	0.2
PM	0.7
PM_{10}	0.7
$PM_{2.5}$	0.7
HAP	Included in Basewide Limit

6.2 Open Burning/Open Detonation Emissions

Emissions consist of carbon monoxide, nitrogen oxides, and other combustion products; particulate matter produced from the disturbance of soil; and HAPs present in the gases released from the detonated material.

Emission Calculation Methods and Information Sources. Criteria pollutant (except PM and VOC) and some trace constituent emissions (lead and hydrogen cyanide) from detonation of explosives are calculated using emission factors from AP-42 Section 13.3 (February 1980 version). PM emissions are calculated based on estimates used in an air quality modeling report submitted by Kirtland AFB in September 1995. VOC and HAP emissions are calculated using emission factor data for open detonation operations established in bangbox studies conducted by the U.S. Army between 1989 and 1993.

Emission factor data are available for detonation of many different types of explosives and/or ordnance, including TNT, double-base, dynamite, RDX, 20-mm and 40-mm high explosive cartridges, Claymore mines, and T45E7 adapter boosters. For each pollutant, Holloman AFB selected the highest emission factors from the referenced open detonation source data. The general equation for calculating emissions is:

Emissions [tpy] = (net explosive weight (NEW) [lb/yr]) (Emission Factor [lb/lb NEW]) / (2000 [lb/ton])

A summary of the emissions and a detailed description of the emission calculation methodology are provided in the spreadsheet titled “Open Burning/Open Detonation Emissions Calculation” near the end of Section 6.

Emission Measurement Methods/Equipment. Holloman AFB does not measure emissions from its Open Burning/Open Detonation (OB/OD) operations. Holloman AFB records the quantity of NEW used, the emissions are calculated using the methodology described above and submitted to the NMED AQB semiannually.

Emissions. It is proposed that the OB/OD operations be limited to the emission rates listed in Table 6-2, which is a reduction as compared to the existing limitations as discussed in Section 3 of this application. These limits are based on an operating limit of 18,250 pounds of NEW per year. Emission limits for VOCs and HAPs for this source category are not presented since these emissions are included in the existing basewide emission limits for these pollutants.

Table 6-2
Emission Limits for OB/OD Activities

Pollutants	Annual Emission Rate (ton/yr)
NO_X	0.54
CO	4.3
VOC	Included in Basewide Limit
SO_X	0.073
PM	5.5
PM_{10}	5.5
$PM_{2.5}$	5.5
HAP	Included in Basewide Limit

6.3 External Combustion Emissions

Emissions from external combustion systems include NO_x, CO, SO_2, PM, VOCs, and trace amounts of HAP.

Emission Calculation Methods and Information Sources. Holloman AFB has calculated allowable emissions from external combustion systems using the algorithms described in Section 1.4 (July 1998 version) of AP-42. Fuel usage for the six nonexempt systems was calculated by multiplying the rated capacity of the units (Btu/hr) by 8,760 hours per year. By basing the allowable emissions on the maximum capacity and 8,760 hours per year, the allowable emissions will be the maximum emissions possible. Actual emissions are estimated to be less than one-third of the allowable emissions. The general equation for calculating emissions is:

$$\text{Emissions [tpy]} = \frac{(\text{rated capacity [Btu/hr]})\ (\text{hours [hr/yr]})\ (\text{emission factor [lb/}10^6\ \text{ft}^3])}{(\text{fuel heating value [Btu/ft}^3])\ (10^6\ [\text{ft}^3/10^6\ \text{ft}^3])\ (2000\ [\text{lb/ton}])}$$

A summary of the emissions and a detailed description of the emission calculation methodology are provided in the spreadsheet titled "External Combustion Engine Emissions Calculation" near the end of Section 6.

Emission Measurement Methods/Equipment. Holloman AFB does not measure emissions from external combustion systems. The units are permitted at their maximum possible emission rate; therefore, monitoring of emissions is not required to demonstrate compliance with the permit. Actual emissions are calculated and submitted to the NMED AQB semiannually.

Emissions. External combustion operations are limited to the emission rates listed in Table 6-3. Emission limits for VOCs and HAPs for this source category are not presented since these emissions are included in the existing basewide emission limits for these pollutants.

Table 6-3
Emission Limits for External Combustion Activities

Pollutant	Annual Emission Rate (ton/yr)
NO_X	14.2
CO	11.9
VOC	Included in Basewide Limit
SO_X	0.31
PM	1.1
PM_{10}	1.1
$PM_{2.5}$	1.1
HAP	Included in Basewide Limit

6.4 Fuel Dispensing Emissions

Emissions from gasoline and aviation gasoline dispensing operations occur as a result of fuel vapor displacement when the equipment/vehicle fuel tank is filled and as a result of fuel spillage. Emissions of VOCs, including some HAPs, result from gasoline dispensing.

Emission Calculation Methods and Information Sources. Emissions from fuel dispensing have been calculated based on annual fuel throughput and using the methodology described in Section 5.2 of AP-42 (June 2008 version). The following equation is used to calculate VOC emissions from fuel dispensing:

$$\boxed{\text{VOC [tpy]} = (\text{gasoline throughput } [10^3 \text{ gal/yr}])\ (11.7\ [\text{lb VOC}/10^3 \text{ gal}])\ /\ (2000\ [\text{lb/ton}])}$$

The VOC emission factor used above is the sum of the uncontrolled displacement loss and the spillage loss emission factors from AP-42 Table 5.2-7. HAP emissions for unleaded motor vehicle gasoline are calculated using the gasoline speciation factors in the *Air Emissions Guide for Air Force Stationary Sources: Methods for Estimating Emissions of Air Pollutants for Stationary Sources at U.S. Air Force Installations", August 2018, Table 6-5.* Currently, the aviation gasoline used at Holloman AFB is delivered by only one supplier who distributes 100 octane low-lead aviation gasoline (100LL) manufactured by ConocoPhillips; they are also the only supplier in the area that will deliver small shipments of fuel. The aviation gasoline HAP speciation was developed using a material safety data sheet (MSDS) developed by ConocoPhillips and obtained from their website. A summary of the emissions and a detailed description of the emission calculation methodology are provided in the spreadsheet titled "Fuel Dispensing Emissions Calculation" near the end of Section 6.

Emission Measurement Methods/Equipment. Holloman AFB does not measure emissions from fuel dispensing operations. Fuel throughput is tracked and emissions are calculated using the methodology described above and submitted to the NMED AQB semiannually.

Emissions. Source category specific allowable emission rates are not established for fuel dispensing. Holloman AFB has basewide permit limits for VOC and HAP emissions.

6.5 Fuel Loading Racks Emissions

Emissions from gasoline loading rack operations occur as a result of fuel vapor displacement when the tanker truck is filled. Emissions consist of VOCs, some of which are HAPs.

<u>Emission Calculation Methods and Information Sources</u>. Emissions for gasoline loading rack operations have been calculated based on the annual gasoline throughput and using the methodology described in Section 5.2 of AP-42 (June 2008 version). Emissions are calculated using the following general equation:

$$\boxed{\text{Emissions [tpy]} = (\text{gasoline throughput } [10^3 \text{ gal/yr}])\ (4.934\ [\text{lb VOC}/10^3 \text{ gal}]^*)}$$

* The vapor displacement emissions from gasoline fuel distribution were estimated using the “loading loss” equation for loading petroleum liquids from AP-42, Section 5.2, Equation 1. The emission factor is dependent upon the fuel temperature, vapor pressure, molecular weight, and a saturation factor which is dependent on the fuel loading methodology. The emission factor is calculated using the following equation:

$$\boxed{ER = 12.46 * [(M) * (P) * (S) / (T)]}$$

Where:

ER = Emissions due to vapor displacement (lb/1,000 gal fuel transferred)
M = Fuel vapor molecular weight (lb/pound moles [lb-mol])
P = True fuel vapor pressure (psia)
S = Saturation factor for fuel loading method
T = Temperature of fuel loaded, °R (degrees Fahrenheit [°F] + 460)

The properties of the fuel (gasoline RVP 10) were taken from AP-42, Section 7, Table 7.1-2 assuming a temperature 60 deg. F.

HAP emissions for unleaded motor vehicle gasoline are calculated using the gasoline speciation factors in *the Air Emissions Guide for Air Force Stationary Sources: Methods for Estimating Emissions of Air Pollutants for Stationary Sources at U.S. Air Force Installations", August 2018, Table 6-5.*The aviation gasoline HAP speciation was developed using the ConocoPhillips MSDS, as discussed in Section 6.4 of this application. These speciation factors, a summary of the emissions, and a detailed description of the emission calculation methodology are provided in the spreadsheet titled “Fuel Loading Emissions Calculation” near the end of Section 6.

<u>Emission Measurement Methods/Equipment</u>. Holloman AFB does not measure emissions from fuel loading rack operations. Fuel throughput is tracked and emissions are calculated using the methodology described above and submitted to the NMED AQB semiannually.

<u>Emissions</u>. The VOC emissions for fuel loading were calculated to be 0.5 tpy, however source category specific allowable emission rates are not established for the fuel loading operations. Holloman AFB has basewide permit limits for VOC and HAP emissions.

6.6 Internal Combustion Emissions

Emissions from internal combustion engines (ICE) result from the combustion of fossil fuel. Holloman AFB operates both diesel and gasoline ICE. The resultant emissions include NO_X, CO, SOx, PM, VOCs, and trace amounts of HAPs.

Emission Calculation Methods and Information Sources. Holloman AFB has calculated emissions from ICE using two methods to determine the emission factors, one for engines manufactured prior to 2006 and one for those manufactured in 2006 and later. Both methods calculate emissions using the following general equation:

Emissions [ton/yr] = (engine rating [hp]) (operating time [hr/yr]) (emission factor [lb/hp-hr]) / (2000 [lb/ton])

The emissions from the diesel engines rated less than or equal to 600 horsepower (hp) and manufactured prior to 2006 have been calculated using the emission factors from AP-42, Table 3.3-1. For diesel-fired engines greater than 600 hp, emission factors were obtained from AP-42, Table 3.4-1. For emission calculation purposes each engine was assigned 100 operating hours per year A summary of the emissions and a detailed description of the emission calculation methodology are provided in the spreadsheets titled “Internal Combustion - Emergency Engines Emissions Calculation” and “Barrier Rewind Engines Emissions Calculation” located near the end of Section 6.

The emissions from engines manufactured in 2006 and later have been calculated using the applicable emission standards for each piece of equipment in accordance with Section A1207.A of Operating Permit No. P105-R3, the emission factors presented in Sections 3.3 and 3.4 of AP-42 (October 1996 version), and the estimated hours of operation. 40 CFR 60 Subpart IIII (60.4205(a) and (b), as applicable) provide standards for, CO, PM, and non-methane hydrocarbons (NMHC) + NO_x for engines manufactured in 2006 and later. All the diesel fired engines subject to 40 CFR 60 Subpart IIII requirements are certified by the manufacturer to meet the applicable standards. To estimate emissions for both NO_x and VOC for purposes of populating the permit application forms, it was assumed that the emission standard for NMHC + NO_x is equivalent to the emissions of NO_x, and the VOC emissions are assumed to be the sum of the crankcase and exhaust portion of the Total Organic Compounds listed in AP-42 Table 3.3-1. VOC emissions from large engines are considered to be total TOC emissions minus CH4 emissions (assumed to be 9% of TOC) (Source AP-42 Table 3.4-1). Estimating emissions using this method is a conservative approach for both NOx and VOC. Given that 40 CFR 60 Subpart IIII does not contain emission standards for SOx, the emission factor from AP-42 Table 3.3-1 and Table 3.4-1 were used, as applicable.

For the two new LPG generators the emission factors from AP-42 Table 3.2-3 were used for VOC, PM, and SOx emissions. For NO_x, and CO emissions the standards applicable for 40 CFR 60 subpart JJJJ (and found at 40 CFR 1048.101(c)) were used.

The emission factors, a summary of the emissions, and a detailed description of the emission calculation methodology are provided in the spreadsheets titled “Internal Combustion - Emergency Engines Emissions Calculation” located near the end of Section 6.

HAP emissions from all categories of ICE described above are minimal; the NMED AQB indicated in its 8 December 1995 “Implementation of EPA White Paper for 40 CFR 70 Permit Applications” letter that trace levels of HAP emissions need not be included in permit applications. Therefore, HAP emissions for internal combustion units have not been calculated.

Emission Measurement Methods/Equipment. Holloman AFB does not measure emissions from its internal combustion engines. Holloman AFB records the capacity and the operating hours of each engine and emissions are calculated using the methodology described above and submitted to the NMED AQB semiannually.

Emissions. Holloman AFB proposes that the Internal Combustion source category be limited to the emission rates listed in Table 6-4 which is a reduction as compared to the existing limitations as discussed in Section 3 of this application. Emission limits for VOCs for this source category are not presented since these emissions are included in the existing basewide emission limits for these pollutants.

Table 6-4
Emission Limits for Internal Combustion Engines

Pollutants	Annual Emission Rate (ton/yr)
NO_X	11.8
CO	8.4
VOC	Included in Basewide Limit
SO_X	1.8
PM	0.6
PM_{10}	0.6
$PM_{2.5}$	0.6

6.7 Jet Engine Testing Emissions

Emissions from jet engine testing result from burning jet fuel in the engines being tested for the aircraft assigned to Holloman AFB. Pollutants emitted from jet engine testing are CO, NO_X, VOC, SO_2, PM, and some HAPs. All of the PM emitted from jet engine testing is assumed to be equal to PM_{10} and $PM_{2.5}$ as specific partitioning factors are not available.

Emission Calculation Methods and Information Sources. The jet engine test emission units at Holloman AFB are operated under NSR Permit No. 1508-M2R5. The relationship between aircraft engine emissions and engine power setting varies by pollutant. For example, NO_X emissions increase with higher engine power settings, while VOC emissions decrease with higher engine power settings. To accurately calculate emissions, the engine type, engine operating mode, and time in the operating mode must be known. The emissions described in this application are based on the last NSR permit update submitted to NMED AQB in 2008 for jet engine testing since that application presented the aircraft types used to develop the existing emission limits, even though some of these aircraft types have changed since that application was submitted. The existing NSR and Title V emission limits were developed to cover the jet engine testing needs at Holloman AFB over time and are not tied to specific aircraft or engine types. This approach is used for ease of review since the calculation methodology is not dependent on the aircraft/engine type. This is discussed further later in this section.

Maximum hourly and annual emissions from each of the jet engine emission units have been calculated using worst-case operating projections for each engine type and emission factors from various sources, as described in the following paragraphs.

The general format of the emission calculation for jet engine testing is:

$$\boxed{Emissions = \Sigma\, EF_i\, t_i}$$

where: EF_i = pollutant-specific emission factor for test mode i (lb/hr)

t_i = duration of testing in mode i (hrs)

In the equation listed above, test mode refers to the engine power setting. Four different power settings are used in jet engine testing: idle, intermediate (typically about 50% of maximum continuous power rating), military (approximately 90% to 100% of maximum continuous power rating), and afterburner (a short-term setting of > 100% maximum continuous power rating).

Emission factors for T-38 (engine type J85-GE-5H) and F-117 (engine type F404-GE-400/FID2) aircraft were taken from *Air Emissions Inventory Guidance Document for Mobile Sources at Air Force Installations*, published by the Air Force Institute for Environment, Safety and Occupational Health Risk Analysis (IERA), except for the SO_2 emission factor, which was based on a fuel sulfur limit of 67% of the maximum sulfur content specification for jet fuel (as supported by fuel sulfur content measurements at Holloman AFB). The IERA Inventory Guidance Document lists emission factors in units of pounds of pollutant per thousand pounds of fuel consumed. Fuel consumption rates are also listed for each engine power setting. Emission factors in units of pounds of pollutant per hour were calculated by multiplying these two values together. Emission factors for Panavia Tornado aircraft were obtained from the German Air Force Support Command. Emission factors for F-22 aircraft were taken from the IERA document, *Aircraft Engine and Auxiliary Power Unit Emissions Testing: Final Report Addendum F119-PW-100 Engine Emissions Testing Report*. All criteria pollutant emission factors used to develop Holloman AFB jet engine test facility emission limits are listed in the spreadsheet titled "Jet Engine Testing Emissions Calculation" near the end of Section 6. Applicable pages from the references cited above are reproduced in Section 7 of this application.

To calculate emissions from jet engine testing, Holloman AFB used worst-case historical operations for all aircraft previously tested at the base (T-38, F-117, and Tornado) and worst-case data reported at other USAF installations for F-22 aircraft for which significant testing had not yet occurred at Holloman AFB when these limits were created. For annual emissions calculations, an additional safety factor was applied to the worst-case projections. For hourly emissions calculations, the worst-case projections have proven to be conservative since they assume that all five emission units are operating simultaneously at their worst-case conditions, whereas Holloman AFB has not experienced a situation in the last ten years in which more than three of the emission units operated during the same hour.

Holloman AFB has calculated potential HAP emissions from jet engine testing using the same methodology described above for the criteria pollutants. All available HAP emission factors are summarized in the spreadsheet titled "Jet Engine HAP Emissions Calculation" near the end of Section 6 and the resultant worst-case hourly and annual HAP emissions are shown in Section 2, Table 2-I of this application.

Note that the F-22 aircraft have been replaced by F-16 aircraft and Holloman AFB continues to operate within the current permit parameters while meeting mission requirements for F-16 aircraft. As specified by NSR Permit No. 1508-M2R5 the F-16 aircraft/jet engines are functionally equivalent to those originally allowed under the NSR and Title V permits and Holloman AFB understands that it must continue to operate in a manner consistent with the current permits. To demonstrate compliance with the established emission limits for jet engine testing, Holloman AFB calculated maximum projected hourly and annual emissions and submitted them to NMED AQB on 13 March 2014 in accordance with Section I Condition 5.c of NSR Permit No. 1508-M2R5.

<u>Emission Measurement Methods/Equipment</u>. Holloman AFB does not measure emissions during engine jet engine testing operations. Holloman AFB records the engine type tested and the duration of testing at various engine

power settings and emissions are calculated using the methodology described in this section and submitted to the NMED AQB semiannually.

Emissions. Jet engine testing operations are limited to the emission rates listed in Table 6-5. Emission limits for HAPs and VOCs are established for basewide operations at Holloman AFB; however, NSR 1508-M2R5 contains a VOC permit limit for the Jet Engine Testing source category that is included in the basewide limit.

Table 6-5
Worst-Case Emissions from Jet Engine Testing at Holloman AFB

Pollutant	Annual Emission Rate (ton/yr)
NO_X	31.9
CO	74.7
VOC	8.70[a]
SO_X	16.2
PM	3.4
PM_{10}	3.4
$PM_{2.5}$	3.4
HAP	Included in Basewide Limit

[a] These emissions count towards the basewide VOC emission limit.

6.8 Surface Coating – Paint Booths Emissions

Emissions from surface coating operations consist of VOCs and HAPs associated with the solvents in the coatings, as well as PM from the solids content of paint overspray.

Emission Calculation Methods and Information Sources. Holloman AFB calculates actual emissions from paint booth operations based on the amount of paint used, the VOC and solids contents of the coatings from MSDS records, the transfer efficiency of the coating equipment used, and the manufacturer-stated control efficiencies of the paint booth filters, as applicable. Since there is no VOC consumption or emissions control in surface coating operations, calculation of VOC emissions is a mass balance formula:

$$\text{VOC Emissions [tpy]} = PQ * \rho * \text{VOC content [wt \%]} / (2000 \text{ [lb/ton]})$$

The following equation is used to calculate PM emissions:

$$\text{PM Emissions [tpy]} = PQ * \rho * \text{Solids content [wt \%]} * (1 - TE/100) * (1 - CE/100) / (2000 \text{ [lb/ton]})$$

where:

PQ	=	quantity of paint used [gal/yr]
ρ	=	density of coating material [lb/gal]
TE	=	transfer efficiency of the application equipment [%]
CE	=	efficiency of the control device [%]

PM_{10} and $PM_{2.5}$ emissions are assumed to be equal to PM emissions. Actual HAP emissions are calculated by multiplying the weight percent of the HAP constituent in the paint by the paint use, as follows:

$$\boxed{\text{HAP Emissions [tpy]} = PQ * \rho * (\text{HAP content [wt \%]}) / (2000 \text{ [lb/ton]})}$$

An example emission calculation is provided in the spreadsheet titled "Surface Coating - Paint Booths Emissions Calculation" near the end of Section 6.

Emission Measurement Methods/Equipment. Holloman AFB does not measure emissions from surface coating operations. Paint usage, application method, control efficiency (as applicable), and the paint constituents are recorded; emissions are calculated using the methodology described above and submitted to the NMED AQB semiannually.

Emissions. Paint booth operations are limited to an emission rate of 0.73 tpy for PM, PM_{10}, and $PM_{2.5}$, each. Source category specific allowable emission rates for VOCs and HAPs are not listed because Holloman AFB has basewide permit limits for these pollutants.

6.9 Storage Tanks Emissions

Emissions from fuel storage operations consist of VOCs, some of which are also HAPs. Emissions are caused by the displacement of fuel vapors by liquids during tank filling, and by standing storage losses (i.e., pressure increases within the tank associated with external heating causing fuel vapors to be forced from the tank vents).

Emission Calculation Methods and Information Sources. Holloman AFB has calculated actual emissions for gasoline storage tanks based on the type of tank, tank capacity, and annual throughput using the EPA TANKS modeling program. The methodology and equations used by EPA TANKS to calculate emissions from the storage tanks is based on Section 7.1 of AP-42.

HAP emissions for unleaded motor vehicle gasoline are calculated using the gasoline speciation factors found in the *Air Emissions Guide for Air Force Stationary Sources: Methods for Estimating Emissions of Air Pollutants for*

Stationary Sources at U.S. Air Force Installations", August 2018. The aviation gasoline HAP speciation was developed using the ConocoPhillips MSDS, as discussed in Section 6.4 of this application. These speciation factors, a summary of the emissions from EPA Tanks, and a detailed description of the emission calculation methodology are provided in the spreadsheet titled “Fuel Storage Tank Emissions Calculation” near the end of Section 6.

Emission Measurement Methods/Equipment. Holloman AFB does not measure emissions from gasoline or aviation gasoline storage tanks. Fuel throughput is recorded and emissions are calculated using the methodology cited above and submitted to the NMED AQB semiannually.

Emissions. Source category specific allowable emission rates are not established for fuel storage tanks except for EU ID 22105 where VOC emissions are limited to 0.5 tpy pursuant to NSR Permit No. 1508C-M2R4. The VOC and HAP emissions from fuel storage tanks are included in the established basewide permit limits for VOC and HAP emissions.

6.10 Woodworking Emissions

Emissions from woodworking operations consist of sawdust produced during cutting and shaping activities. The operations characterized in this section have a system that entrains the sawdust and pneumatically conveys it to a collection device – either a cyclone or a fabric filter system, or a combination of the two. Collected sawdust is dropped into a bin below the collection device and the transport air is discharged from the top of the device.

Emission Calculation Methods and Information Sources. Holloman AFB has calculated emissions from woodworking operations based on the amount of sawdust collected and the efficiency of the collection device. The equation used to calculate controlled emissions (i.e., emissions at the exit of the collection device) from woodworking operations is:

$$\boxed{\text{PM Emissions [tpy]} = (\text{dust collected [ft}^3\text{/yr]})\ (13\ [\text{lb/ft}^3])\ ((1 - \text{CE})/\text{CE})\ /\ (2000\ [\text{lb/ton}])}$$

Where:

CE = control efficiency of control device [%/100]

13 lb/ft^3 = density of sawdust (Perry’s Chem Engr Hdbk, 7th Ed., Table 7-4)

Holloman AFB does not measure the efficiencies of the woodworking control devices; instead, the efficiency is assumed to be equal to the efficiency specified for fabric filters in AP-42, Table B.2.3, which is 99% for PM. A summary of the emissions and a description of the emission calculation methodology are provided in the spreadsheet titled “Woodworking Emissions Calculation” near the end of Section 6.

Emission Measurement Methods/Equipment. Holloman AFB does not measure emissions from woodworking operations. Holloman AFB tracks the amount of dust collected by the control devices and calculates the emissions using the methodology described above. The resultant emissions are reported to AQB semiannually.

Emissions. Emissions from the woodworking operations are limited to 0.2 tpy for PM, PM_{10} and $PM_{2.5}$, each.

6.11 Miscellaneous Chemical Use Emissions

Emissions from miscellaneous chemical use consist of VOCs and HAPs contained in the chemical. All VOCs and HAPs are assumed to be emitted when the chemical is used. The only exception is for materials that are HAPs or VOC that are not emitted during normal use. Examples of this type of material are the use of ethylene glycol as antifreeze in vehicles or use of greases and lubricants containing antimony compounds.

Emission Calculation Methods and Information Sources. Holloman AFB calculates actual emissions from miscellaneous chemical use to demonstrate compliance with its basewide emission limit for VOC and HAP emissions. Miscellaneous chemical procurement and physical properties information is taken from Holloman AFB's electronic hazardous materials supply database, EESOH-MIS. The HAP and VOC contents for each material are multiplied by the amount of material purchased to yield total HAP and VOC emissions. Emissions limits were determined by adding a growth and contingency factor to the actual emissions. An example calculation and a description of the emission calculation methodology are provided in the spreadsheet titled "Miscellaneous Chemicals Emissions Calculation" near the end of Section 6.

Emission Measurement Methods/Equipment. Holloman AFB does not measure emissions from miscellaneous chemical use. Emissions are calculated using the methodology described above and submitted to the NMED AQB semiannually.

Emissions. Source category specific allowable emission rates are not established for miscellaneous chemical use. Holloman AFB has basewide permit limits for VOC and HAP emissions.

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Section 6 Emission Calculations Spreadsheets

Electronic versions submitted separately

Remediation Emissions Calculation

Soil Thermal Treatment

Unit #	Location	NOx	SO2	CO	VOC	PM	HAP	Natural Gas Used (10^6 scf/yr)
		Emission Factors (lb/10^6 scf)						
12010	To Be Determined	100	2.15	84	5.5	7.6	1.89	171.76
		Emissions (lb/hr)						
12010	To Be Determined	1.96	0.04	1.65	0.11	0.15	0.04	
		Emissions (tpy)						
12010	To Be Determined	8.6	0.18	7.2	0.47	0.65	0.16	
	Remediation Permit Limits (tpy)	8.6	0.2	7.2	Base-wide 249.9	0.7	Base-wide 9.9 / 24.9	

Landfarm Activities - Example Calculation

Unit #	Location				
12012	Landfarm Activities	Amount of Material Placed in Landfarm (yd^3):	60,000		
		VOC Content of Material (lb/yd^3):	3.19	HAP Content of Material (lb/yd3):	0.1
		VOC Emissions (tpy):	95.76	HAP Emissions (tpy):	3.00

Emission Calculation Method:

Soil Thermal Treatment: Emissions [tpy] = Emission Factor [lb/10^6 scf] * Natural Gas Used [10^6 scf/yr] / 2000 [lb/ton]
Landfarm: Emissions [tpy] = Amount of Material Placed in Landfarm [tpy] * Pollutant Content of Material [lb/ton] / 2000 [lb/ton]

Notes:

1. Soil Thermal Treatment systems use Emission Factors for External Combustion Systems, AP-42 Tables 1.4-1, 1.4-2, 1.4-3.
2. HAP and VOC content is measured before each lift is placed in the landfarm; highest representative value for each lift is used to calculate emissions.
3. SO_2 emission factor is based on a total sulfur content in natural gas of 0.75 grains sulfur per 100 cf.
4. Assume PM = PM10 = PM2.5.

Open Burn/Open Detonation Emissions Calculation

	Emission Factors (lb/lb)	Net Explosive Weight (lb/year)	Emissions lb/day	(lb/hr)	(tpy)
NOx	0.0595	18,250	3.0	3.0	0.54
SO2	0.008		0.40	0.40	0.073
CO	0.472		23.6	23.6	4.3
PM	0.6	**Net Explosive Weight**	30.0	30.0	5.5
PM10	0.6	**(lb/day)**	30.0	30.0	5.5
PM2.5	0.6		30.0	30.0	5.5
VOC	0.00213	50	0.11	0.11	0.019
1,3-Butadiene	4.17E-05		2.09E-03	2.09E-03	3.81E-04
1,4-Dichlorobenzene	3.15E-07		1.58E-05	1.58E-05	2.87E-06
2,4-Dinitrotoluene	8.40E-06		4.20E-04	4.20E-04	7.67E-05
4-Nitrophenol	2.59E-06		1.30E-04	1.30E-04	2.36E-05
Acetophenone	1.50E-05		7.50E-04	7.50E-04	1.37E-04
Antimony	1.06E-06		5.30E-05	5.30E-05	9.67E-06
Arsenic	2.23E-05		1.12E-03	1.12E-03	2.03E-04
Benzene	1.10E-04		5.50E-03	5.50E-03	1.00E-03
Biphenyl	5.20E-08		2.60E-06	2.60E-06	4.75E-07
Bis(2-ethylhexyl)phthalate	3.61E-06		1.81E-04	1.81E-04	3.29E-05
Cadmium	2.86E-06		1.43E-04	1.43E-04	2.61E-05
Carbon tetrachloride	6.30E-06		3.15E-04	3.15E-04	5.75E-05
Chromium	3.52E-06		1.76E-04	1.76E-04	3.21E-05
Dibenzofuran	1.32E-06		6.60E-05	6.60E-05	1.20E-05
Hydrogen cyanide	1.60E-02		8.00E-01	8.00E-01	1.46E-01
Lead	6.00E-04		3.00E-02	3.00E-02	5.48E-03
Mercury	1.64E-07		8.20E-06	8.20E-06	1.50E-06
Naphthalene	1.50E-04		7.50E-03	7.50E-03	1.37E-03
Nickel	2.54E-06		1.27E-04	1.27E-04	2.32E-05
Phenol	2.52E-05		1.26E-03	1.26E-03	2.30E-04
Vinyl chloride	1.23E-06		6.15E-05	6.15E-05	1.12E-05
Aggregated HAPs Emission Factor	1.70E-02		0.85	0.85	0.16

Emission Calculation Method:

Emissions [lb/day] = (net explosive weight (NEW) [lb/day]) (Emission Factor [lb/lb NEW])

Emissions [lb/hr] = (Emissions [lb/day]) / (1 hr/day)

Emissions [tpy] = (NEW [lb/yr]) (Emission Factor [lb/lb NEW]) / (2000 [lb/ton])

Notes:

1. VOC, PM and HAP (except HCN) Emission Factors from U.S. Army Bang Box Test Series Results, 1992.
2. CO, NOx, SO_2, Pb Emission Factors from AP-42, Table 13.3-1 (max EF in table for each pollutant).
3. No partitioning factors available for PM10 or PM2.5, assumed PM2.5 = PM10 = PM.
4. Assume that the maximum daily operating rate and resultant emissions occur within one hour.

External Combustion Engine Emissions Calculation

	Emission Factors Natural Gas ($lb/10^6$ scf)	Unit:	14031	14034	14035 / 36 / 37	14038	
		capacity (MMBtu/hr):	8.4	5.4	5.06	4.1	
							Total (tpy)
NOx	100	NOx	3.607	2.319	2.173	1.761	14.205
SO2	2.15	SO2	0.0776	0.0499	0.0467	0.0379	0.305
CO	84	CO	3.030	1.948	1.825	1.479	11.932
PM	7.6	PM	0.274	0.176	0.165	0.134	1.080
PM10	7.6	PM10	0.274	0.176	0.165	0.134	1.080
PM2.5	7.6	PM2.5	0.274	0.176	0.165	0.134	1.080
VOC	5.5	VOC	0.198	0.128	0.120	0.097	0.781
Lead	0.0005	Lead	0.000018	0.000012	0.000011	0.0000088	0.000071
Total HAPs	1.9	Total HAPs	0.0685	0.0441	0.0413	0.0335	0.270
							Total (lb/hr)
		NOx	0.824	0.529	0.496	0.402	3.243
		SO2	0.018	0.011	0.011	0.0086	0.070
		CO	0.692	0.445	0.417	0.338	2.724
		PM	0.063	0.040	0.038	0.031	0.246
		PM10	0.063	0.040	0.038	0.031	0.246
		PM2.5	0.063	0.040	0.038	0.031	0.246
		VOC	0.045	0.029	0.027	0.022	0.178
		Lead	0.0000041	0.0000026	0.0000025	0.0000020	0.000016
		Total HAPs	0.016	0.010	0.0094	0.0076	0.062

Emission Calculation Method:

Emissions [tpy] = Capacity [MMBtu/hr] * 8760 [hr/yr] * Emission Factor [$lb/10^6$ scf] * 10^6 [Btu/MMBtu] / (Heating Value [Btu/scf] * 10^6 [scf / 10^6 scf] * 2000 [lb/ton])

Emissions [lb/hr] = Capacity [MMBtu/hr] * Emission Factor [$lb/10^6$ scf] * 10^6 [Btu/MMBtu] / (Heating Value [Btu/scf] * 10^6 [scf / 10^6 scf])

Notes:

1. Natural Gas Emission Factors for Small Boilers from AP-42, Tables 1.4-1, 1.4-2, 1.4-3, 1.4-4.
2. Natural gas heating value (Btu/scf) = 1,020
3. SO2 emission factor is based on a total sulfur content in natural gas of 0.75 grains sulfur per 100 cf.
4. No PM partitioning factors available; assumed PM2.5 = PM10 = PM.

Fuel Dispensing Emissions Calculation

			Motor Vehicle Gasoline (15001, 4, 11, 13, & 14)	Aviation Gasoline (15005 &12)
Amount of Fuel Dispensed		gal/yr	5,000,000	100,000
VOC Emissions		lb/yr	58,500	1,170
		ton/yr	**29.25**	**0.59**
		lb/hr	**6.68**	**0.13**
	Component	**wt % in vapor**	**HAP Emissions (tpy)**	
HAP Speciation for Motor Vehicle Gasoline	Benzene	0.618	0.18	
	Cumene	0.00779	0.002	
	Ethylbenzene	0.0467	0.01	
	Hexane	0.557	0.16	
	Butadiene	0.00162	0.00	
	Naphthalene	negligible	negligible	
	Toluene	0.705	0.21	
	2,2,4-Trimethylpentane	0.711	0.21	
	Xylenes (mixed isomers)	0.243	0.07	
	Total wt % of HAPs in fuel	2.89011	0.85	
HAP Speciation for Aviation Gasoline	Benzene	0.16	0.0009	
	Ethyl Benzene	0.15	0.0009	
	n-Hexane	2.1	0.01	
	Toluene	0.92	0.005	
	Xylenes	0.38	0.002	
	Tetraethyl Lead	1.58E-06	9.24E-09	
	Total wt % of HAPs in fuel	3.71	0.02	

Emission Calculation Method:

VOC Emissions [lb/yr] = Amount of Gasoline Dispensed [gal/yr] * 11.7 [lb VOC / 10^3 gal] / 1000 [gal / 10^3 gal]
HAP Emissions [ton/yr] = Total of HAP Emission Factors [%] * Total VOC Emissions [ton/yr] / 100

Notes:

1. AP-42 Table 5.2-7 (version 06/08): Uncontrolled displacement loss (11.0 lb/ 10^3 gal) + spillage loss (0.7 lb/10^3 gal).
2. HAP speciation profile for motor vehicle gasoline from "Air Emissions Guide for Air Force Stationary Sources: Methods for Estimating Emissions of Air Pollutants for Stationary Sources at U.S. Air Force Installations", August 2018
   A copy of the applicable pages from this reference are included in Section 7 of this application.
3. HAP speciation profile for aviation gasoline from ConocoPhillips Material Safety Data Sheet (MSDS) included in Section 7 of this application.

Fuel Loading Emissions Calculation

			Motor Vehicle Gasoline (16004)	Aviation Gasoline (16005)
Amount of Fuel Loaded		gal/yr	150,000	60,000
VOC Emissions		lb/yr	740	296
		ton/yr	**0.37**	**0.15**
		lb/hr	**0.08**	**0.03**

	Component	wt % in vapor	HAP Emissions (tpy)
HAP Speciation for Motor Vehicle Gasoline	Benzene	0.618	0.002
	Cumene	0.00779	0.0000
	Ethylbenzene	0.0467	0.0002
	Hexane	0.557	0.002
	Butadiene	0.00162	0.000
	Naphthalene	negligible	negligible
	Toluene	0.705	0.0026
	2,2,4-Trimethylpentane	0.711	0.0026
	Xylenes (mixed isomers)	0.243	0.0009
	Total HAP	2.89011	0.01
HAP Speciation For Aviation Gasoline	Benzene	0.16	0.0002
	Ethyl Benzene	0.15	0.0002
	n-Hexane	2.1	0.003
	Toluene	0.92	0.001
	Xylenes	0.38	0.001
	Tetraethyl Lead	1.58E-06	2.34E-09
	Total wt % of HAPs in fuel	**3.71**	0.01

Emission Calculation Method:

VOC Emissions [lb/yr] = Gasoline Throughput of Loading Rack [gal/yr] * 4.93416 [lb VOC / 10^3 gal] / 1000 [gal / 10^3 gal]
HAP Emissions [ton/yr] = Total of HAP Emission Factors [%] * Total VOC Emissions [ton/yr] / 100

Emission Factor [lb VOC / 10^3 gal] = 12.46*SPM/T [AP-42, Section 5.2, Equation 1]
S = saturation factor = 0.6 [AP-42, Table 5.2-1]
P = true vapor pressure = 5.2 psia [AP-42, Table 7.1-2]
M = vapor molecular weight = 66 g/g-mol [AP-42, Table 7.1-2]
T = absolute temperature = 520 R [60 F + 460]

Notes:

1. Submerged loading, dedicated service
2. RVP10 gasoline, bulk temperature = 60F
2. HAP speciation profile for motor vehicle gasoline from "Air Emissions Guide for Air Force Stationary Sources: Methods for Estimating Emissions of Air Pollutants for Stationary Sources at U.S. Air Force Installations", August 2018
   A copy of the applicable pages from this reference are included in Section 7 of this application.
4. HAP speciation profile for aviation gasoline from ConocoPhillips Material Safety Data Sheet (MSDS) included in Section 7 of this application.

Internal Combustion - Emergency Engines Emission Calculations

	Total Annual Usage per Engine	
Emergency Power, Water Pump and Fire Pump Engines	100	hr/yr

Diesel Engines				Emissions (lb/hr)					
Emission Unit ID	Function	Model Year	Location - Facility ID	HP	NOx	CO	SOx	PM/10/2.5	VOC
19210	Fire Pump - GERMAN PUMP #1	2006	-	265	4.56	1.52	0.54	0.23	0.67
19211	TBD	TBD	TBD	265	1.75	1.52	0.54	0.09	0.67
19212	TBD	TBD	TBD	265	1.75	1.52	0.54	0.09	0.67
19213	TBD	TBD	TBD	265	1.75	1.52	0.54	0.09	0.67
19214	TBD	TBD	TBD	265	1.75	1.52	0.54	0.09	0.67
19215	TBD	TBD	TBD	265	1.75	1.52	0.54	0.09	0.67
19216	TBD	TBD	TBD	265	1.75	1.52	0.54	0.09	0.67
19217	TBD	TBD	TBD	265	1.75	1.52	0.54	0.09	0.67
19218	TBD	TBD	TBD	265	1.75	1.52	0.54	0.09	0.67
19219	TBD	TBD	TBD	265	1.75	1.52	0.54	0.09	0.67
19220	TBD	TBD	TBD	265	1.75	1.52	0.54	0.09	0.67
19221	TBD	TBD	TBD	265	1.75	1.52	0.54	0.09	0.67
19222	TBD	TBD	TBD	265	1.75	1.52	0.54	0.09	0.67
19223	TBD	TBD	TBD	265	1.75	1.52	0.54	0.09	0.67
19224	TBD	TBD	TBD	265	1.75	1.52	0.54	0.09	0.67
19300	BASE OPS/WEATHER	2009	577	145	0.96	1.18	0.30	0.07	0.36
19302	TEST GP GUIDE 1	2009	1272	415	2.74	2.38	0.85	0.14	1.04
19331	GERMAN (POL)	2006	288	207	3.15	3.88	0.42	0.18	0.52
19332	RAPCON/NAVAIDS	2006	572	99	1.51	0.66	0.20	0.22	0.25
19333	RECIEVER/ NAVAID	2006	1097	99	1.51	0.66	0.20	0.22	0.25
19334	COMM SUPPORT	2006	202	364	5.54	6.82	0.75	0.32	0.91
19335	Fire Station #1	2006	525	399	6.07	7.48	0.82	0.35	1.00
19336	Fire Station #3	2006	1053	207	3.15	3.88	0.42	0.18	0.52
19337	SECURITY POLICE	2007	35	99	0.76	0.81	0.20	0.07	0.25
19338	WG INTELL	2007	317	364	2.41	2.09	0.75	0.12	0.91
19339	POL	2007	702	364	2.41	2.09	0.75	0.12	0.91
19340	MOBILITY PROCESSING CENTER	2008	908	364	2.41	2.09	0.75	0.12	0.91
19341	MAINTENANCE OPERATIONS CENTER	2008	811	27.1	0.33	0.24	0.06	0.01	0.07
19342	SPACE CONTROL 21 CES/CEPD	2008	1062	470	3.11	2.69	0.96	0.16	1.18
19343	TOWER	2011	864	324	2.14	1.86	0.66	0.11	0.81
19344	UNMANNED AERIAL SQUADRON	2010	302	250	1.65	1.43	0.51	0.08	0.63

Emergency Engine Emission Calculations Continued

19345	GROUND DATA TRANSMITTTER SYSTEM	2010	13102	145	0.96	1.18	0.30	0.07	0.36
19346	WATER PLANT	2010	51	364	2.41	2.09	0.75	0.12	0.91
19347	TACAN/ NAVAID	2011	1093	145	0.96	1.18	0.30	0.07	0.36
19349	GROUND CONTROL STATIONS	2010	(302) GCS#1	250	1.65	1.43	0.51	0.08	0.63
19350	GROUND CONTROL STATIONS	2010	(302) GCS#2	250	1.65	1.43	0.51	0.08	0.63
19351	GROUND CONTROL STATIONS	2010	(302) GCS#3	250	1.65	1.43	0.51	0.08	0.63
19352	AIR SURVEILANCE RADAR (ASR)	2010	13662	178	1.18	1.02	0.36	0.06	0.45
19353	FRIE STATION #2	2011	826	145	0.96	1.18	0.30	0.07	0.36
19354	ILS/NAVAID	2012	684	27.1	0.33	0.24	0.06	0.02	0.07
19355	ILS/NAVAID	2012	685	27.1	0.33	0.24	0.06	0.02	0.07
19356	WEST ILS/NAVAID	2012	688	27.1	0.33	0.24	0.06	0.02	0.07
19357	EAST ILS/NAVAID	2012	689	27.1	0.33	0.24	0.06	0.02	0.07
19358	Information Transfer Node(ITN)	2010	310	27.1	0.33	0.24	0.06	0.02	0.07
19359	Information Transfer Node(ITN)	2010	1086	27.1	0.33	0.24	0.06	0.02	0.07
19360	Telephone switching	2008	878	27.1	0.33	0.24	0.06	0.02	0.07
19361	Telephone switching	2008	1081	27.1	0.33	0.24	0.06	0.02	0.07
19362	Solar Observatory	2013	911	69.0	0.53	0.56	0.14	0.05	0.17
19363	WWTP	1996	756	1135	27.24	6.24	0.01	0.79	0.73
19364	Hydrant Fuels	2016	872	762	8.06	4.37	0.01	0.25	0.49
19365		2016	831	325	2.15	1.86	0.67	0.11	0.82
19366	Ground Control Stations	2017	302 GCS#4	325	2.15	1.86	0.67	0.11	0.82
19367		2017	318	325	2.15	1.86	0.67	0.11	0.82
19368	Ground Control Stations	2017	302 GCS#5	325	2.15	1.86	0.67	0.11	0.82
19369	Test Group	2016	1258	325	2.15	1.86	0.67	0.11	0.82
19370	586 Flight Test Squadron/96 Test Group	1990	1020	1200	28.80	6.60	0.01	0.84	0.77
19371	Army Information Management Directorate	2000	1108	170	5.27	1.14	0.35	0.37	0.43
19372	Clark Site (Army WSMR)	2000	1155	102	3.16	0.68	0.21	0.22	0.26
19373	Gate 10 (Army WSMR)	2007	29039	81	0.63	0.66	0.17	0.05	0.20
19374	Army WSMR (near Test Group)	2018	29215	85.8	0.66	0.70	0.18	0.06	0.22
19375	Electrical Substation	2010	81103	27.1	0.33	0.24	0.06	0.02	0.07
19376	Electrical Substation	2010	81209	27.1	0.33	0.24	0.06	0.02	0.07
19377		2019	508	173	1.14	1.41	0.35	0.08	0.43
19378	Test Track	2019	1161	231	1.42	2.43	0.00	0.04	0.06
19379	Test Track	2019	1625	231	1.42	2.43	0.00	0.04	0.06
19380		2020	319	755	4.99	6.16	1.55	0.37	1.90
19381	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19382	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19383	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19384	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19385	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19386	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35

Emergency Engine Emission Calculations Continued

19387	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19388	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19389	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19390	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19391	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19392	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19393	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19394	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19395	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19396	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19397	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19398	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19399	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19400	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19401	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19402	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19403	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19404	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19405	TBD	TBD	TBD	138	0.91	1.13	0.28	0.07	0.35
19406	Emergency Generator	2005	1103	134	4.15	0.90	0.27	0.29	0.34
				Total emissions (lb/hr)	**204.76**	**148.16**	**34.51**	**10.42**	**44.31**
				Total emissions (tpy)	**10.24**	**7.41**	**1.73**	**0.52**	**2.22**
				TOTAL ICE:	11.8	8.4	1.8	0.6	5.1
				TOTAL lb/hr:	207.62	149.97	34.66	10.61	49.49

Emission Calculation Method:

The following equations were used to calculate hourly emissions for each pollutant:

Hourly emissions (lb/hr) = HP * EF (lb/hp-hr)

Hourly emissions (lb/hr) = HP * EF (g/hp-hr) / 453.6 (g/lb)

*Hourly emissions (lb/hr) = HP * EF (lb/hp-hr) (for units using AP-42 emission factors)*

where: HP = horsepower
EF = Emission Factor

The following equation was used to calculate annual emissions for each pollutant:

Annual emissions (ton/yr) = Hourly emissions (lb/hr) * Annual Usage Rate (hr/yr) / 2000 (lb/ton)

Emergency Engine Emission Calculations Continued

Notes:

1. Holloman AFB is authorized to have place holders for future emergency fire pump engines numbered emission unit IDs 19211 through 19224. Holloman AFB has estimated the emissions from these engines based on an average power rating of 265 HP, 100 hours per year of operation per engine, and a manufacture date later than 2012.
2. Holloman AFB is authorized to have place holders for future emergency engines numbered emission unit IDs 19381 through 19405. Holloman AFB has estimated the emissions from these engines based on an average power rating of 138 HP, 100 hours per year of operation per engine, and a manufacture date later than 2012.
3. AP-42 emission factors are used to estimate emissions for internal combustion engines subject to 40 CFR 63 Subpart ZZZZ. For engines subject to emission standards from 40 CFR 60 Subparts IIII and JJJJ, the applicable standards for NOx, CO, and PM were used to estimate these emissions. AP-42 emission factors for SOx and VOC are still being utilized for these engines since standards are not specified for these pollutants. For standards specified as NMHC + NOx it is assumed that this standard is equal to the total NOx emissions from the engine.
4. Emission factors for SOx and VOC are from AP-42 Section 3.3 Gasoline and Diesel Industrial Engines, Table 3.3-1 and AP-42 Section 3.4 Large Stationary Diesel Engines, Table 3.4-1 (October 1996).
5. No emission factor data for Particulate Matter (PM2.5 & PM10) is included in AP-42 Tables 3.3-1 and 3.4-1, assumed PM and PM2.5 are equal to PM10.
6. Emission factor data given for PM in Table 1 to 40 CFR 89.112, assumed PM emissions equal to PM10 and PM2.5.
7. Volatile Organic Compounds (VOC) assumed to be the sum of the crankcase and exhaust portion of Total Organic Compounds (TOC) from AP-42 Table 3.3-1 .
8. VOC emissions from large engines are considered to be total TOC emissions minus CH4 emissions (CH4 is assumed to be 9% of TOC)(Source AP-42 Table 3.4-1)
9. Annual hours based on the allowable annual hours for maintenance operation for emergency generators from 40 CFR 60 Subpart IIII - 60.4211(e).
10. HAP emissions from internal combustion engines are minimal; the AQB indicated in its 8 December 1995 "Implementation of EPA White Paper for 40 CFR 70 Permit Applications" letter that trace levels of HAP emissions need not be included in permit applications. Therefore, HAP emissions for internal combustion engines have not been calculated.
11. For the new LPG generators (19378 & 19379), for PM and SOx emissions calculations a manufacturer fuel consumption rate of 22.57 gal/hr and a fuel heat content of 91,300 btu/hr gal were used.
12. The following color scheme was used to represent IC NSPS applicability. In addition, this color scheme will help identify the emission factors used for each engine.

	Affected sources for 40 CFR 60 Subpart IIII (stationary emergency pre-2007 model year engines with a displacement of <10 liters per cylinder) must comply with the emission standards in Table 1 of Subpart IIII).
	Affected sources for 40 CFR 60 Subpart IIII (2008 Model Year and Later Emergency Stationary CI ICE <37 KW (50 HP) With a Displacement of <10 Liters per Cylinder) must comply with the emission standards in Table 2 of Subpart IIII).
	Affected sources for 40 CFR 60 Subpart IIII (stationary emergency fire pump engines) must meet the emission standards in Table 4 of Subpart IIII).
	Affected sources for 40 CFR 60 Subpart IIII (2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines) must comply with the emission standards for new nonroad CI engines in §60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE. §60.4202 states that the emission standards are found in 40 CFR 89.112 Table 1.
	Affected sources for 40 CFR 60 Subpart JJJJ (Stationary emergency engines >25 hp Manufactured on or January 1, 2009)
	Affected source for 40 CFR 63 Subpart ZZZZ, AP-42 emission factors used for all pollutants.

Emergency Engine Emission Calculations Continued

Emission Factors for Diesel Industrial Engines ≤600 hp AP-42 Chapter 3.3 Table 3.3-1			Convert to g/hp-hr
	Emission Factors		
Pollutant	lb/hp-hr	lb/MMBtu	
NO_x	0.031	4.41	14.06
CO	0.00668	0.95	3.03
SO_x	0.00205	0.29	0.93
PM_{10}	0.0022	0.31	1.00
VOC	0.00251	0.36	1.14

For small engines there is no VOC emission factor, just Total Organic Compounds (TOC)
Exhaust TOC = 2.47E-03; Crankcase TOC = 4.41E-05

Emission Factors for Diesel Industrial Engines > 600 hp AP-42 Chapter 3.4 Table 3.4-1			Convert to g/hp-hr
	Emission Factors		
Pollutant	lb/hp-hr	lb/MMBtu	
NO_x	0.024	3.2	10.8864
CO	0.0055	0.85	2.4948
SO_x	0.00001	0.002	0.005504436
PM_{10}	0.0007	0.1	0.31752
VOC	0.00064155	0.0819	0.29100708

SOx = 0.00809(S), where S = Percent Sulfur in Fuel (0.0015)

Table 1 to Subpart IIII of Part 60— Emission standards for stationary pre-2007 model year engines with a displacement of <10 liters per cylinder and 2007–2010 model year engines >2,237 KW (3,000 HP) and with a displacement of <10 liters per cylinder in (g/HP-hr)

Maximum engine power	NMHC + NO_X	HC	NO_X	CO	PM
KW<8 (HP<11)	7.8	-	-	6.0	0.75
8≤KW<19 (11≤HP<25)	7.1	-	-	4.9	0.60
19≤KW<37 (25≤HP<50)	7.1	-	-	4.1	0.60
37≤KW<56 (50≤HP<75)	-	-	6.9	-	-
56≤KW<75 (75≤HP<100)	-	-	6.9	-	-
75≤KW<130 (100≤HP<175)	-	-	6.9	-	-
130≤KW<225 (175≤HP<300)	-	1.0	6.9	8.5	0.40
225≤KW<450 (300≤HP<600)	-	1.0	6.9	8.5	0.40
450≤KW≤560 (600≤HP≤750)	-	1.0	6.9	8.5	0.40
KW>560 (HP>750)	-	1.0	6.9	8.5	0.40

Emergency Engine Emission Calculations Continued

Table 2 to Subpart IIII of Part 60—Emission Standards for 2008 Model Year and Later Emergency Stationary CI ICE <37 KW (50 HP) With a Displacement of <10 Liters per Cylinder (g/HP-hr)				
Engine power	**Model year(s)**	**NO_X+ NMHC**	**CO**	**PM**
KW<8 (HP<11)	2008+	5.6	6.0	0.30
8≤KW<19 (11≤HP<25)	2008+	5.6	4.9	0.30
19≤KW<37 (25≤HP<50)	2008+	5.6	4.1	0.22

Table 4 to Subpart IIII of Part 60—Emission Standards for Stationary Fire Pump Engines (g/HP-hr)				
Maximum engine power	**Model year(s)**	**NMHC + NO_X**	**CO**	**PM**
KW<8 (HP<11)	2010 and earlier	7.8	6.0	0.75
	2011+	5.6	-	0.30
8≤KW<19 (11≤HP<25)	2010 and earlier	7.1	4.9	0.6
	2011+	5.6	-	0.30
19≤KW<37 (25≤HP<50)	2010 and earlier	7.1	4.1	0.60
	2011+	5.6	-	0.22
37≤KW<56 (50≤HP<75)	2010 and earlier	7.8	3.7	0.60
	2011+[1]	3.5	-	0.30
56≤KW<75 (75≤HP<100)	2010 and earlier	7.8	3.7	0.60
	2011+[1]	3.5	-	0.30
75≤KW<130 (100≤HP<175)	2009 and earlier	7.8	3.7	0.60
	2010+[2]	3.0	-	0.22
130≤KW<225 (175≤HP<300)	2008 and earlier	7.8	2.6	0.40
	2009+[3]	3.0	-	0.15
225≤KW<450 (300≤HP<600)	2008 and earlier	7.8	2.6	0.40
	2009+[3]	3.0	-	0.15
450≤KW≤560 (600≤HP≤750)	2008 and earlier	7.8	2.6	0.40
	2009+	3.0	-	0.15
KW>560 (HP>750)	2007 and earlier	7.8	2.6	0.40
	2008+	4.8	-	0.15

Emergency Engine Emission Calculations Continued

Table 1 to 40 CFR 89.112 (Nonroad Diesel Engine Emission Standards (g/bhp-hr)) [2007 Model year and later]							
Engine Power	Tier	Year	CO	HC	NMHC+NOx	NOx	PM
kW < 8 (hp < 11)	Tier 1	2000	6.0	-	7.8	-	0.75
	Tier 2	2005	6.0	-	5.6	-	0.6
8 ≤ kW < 19 (11 ≤ hp < 25)	Tier 1	2000	4.9	-	7.1	-	0.6
	Tier 2	2005	4.9	-	5.6	-	0.6
19≤ kW < 37 (25 ≤ hp < 50)	Tier 1	1999	4.1	-	7.1	-	0.6
	Tier 2	2004	4.1	-	5.6	-	0.45
37 ≤ kW < 75 (50 ≤ hp < 100)	Tier 1	1998	-	-	-	6.9	-
	Tier 2	2004	3.7	-	5.6	-	0.3
	Tier 3	2008	3.7	-	3.5	-	*
75 ≤ kW < 130 (100 ≤ hp < 175)	Tier 1	1997	-	-	-	6.9	-
	Tier 2	2003	3.7	-	4.9	-	0.22
	Tier 3	2007	3.7	-	3.0	-	*
130 ≤ kW < 225 (175 ≤ hp < 300)	Tier 1	1996	8.5	1.0	-	6.9	0.4
	Tier 2	2003	2.6	-	4.9	-	0.15
	Tier 3	2006	2.6	-	3.0	-	*
225 ≤ kW < 450 (300 ≤ hp < 600)	Tier 1	1996	8.5	1.0	-	6.9	0.4
	Tier 2	2001	2.6	-	4.8	-	0.15
	Tier 3	2006	2.6	-	3.0	-	*
450 ≤ kW < 560 (600 ≤ hp < 750)	Tier 1	1996	8.5	1.0	-	6.9	0.4
	Tier 2	2002	2.6	-	4.8	-	0.15
	Tier 3	2006	2.6	-	3.0	-	*
kW ≥ 560 (hp ≥ 750)	Tier 1	2000	8.5	1.0	-	6.9	0.4
	Tier 2	2006	2.6	-	4.8	-	0.15

* Not adopted, engines must meet Tier 2 PM standard.

EMISSION FACTORS FOR 4-STROKE RICH-BURN ENGINES				
40 CFR 60 Subpart JJJJ* (g/hp-hr)		AP-42 Table 3.2-3 (lbs/MMBtu)		
HC + NOx	CO	VOC	SO2	PM
2.8	4.8	0.0296	0.000588	0.02

*: Standards for LPG engines, rich burn, >25 HP, manufactured on or after 01/01/2009 are those contained in 60.4231(c) [which references 40 CFR 1048.101(c)] for field testing. Standards are given in g/kW-hr and have been converted to g/hp-hr

Internal Combustion - Barrier Rewind Engine Emissions Calculation

	Total Annual Usage per Engine	Cumulative Annual Usage	
Barrier Rewind Engines	275	1100	hr/yr

Gasoline Engines			Emissions (lb/hr)				
Emission Unit ID	**Location**	**HP Rating**	**NOx**	**CO**	**SOx**	**PM/10/2.5**	**VOC**
19602	07 NORTH	65	0.72	0.45	0.038	0.047	1.29
19603	07 SOUTH	65	0.72	0.45	0.038	0.047	1.29
19608	22 NORTH	65	0.72	0.45	0.038	0.047	1.29
19609	22 SOUTH	65	0.72	0.45	0.038	0.047	1.29
		Gasoline Engine Emissions (lb/hr)	**2.86**	**1.81**	**0.15**	**0.19**	**5.17**
		Gasoline Engine Emissions (tpy)	**1.57**	**1.00**	**0.08**	**0.10**	**2.85**

Emission Factors	Gasoline Engine	
Pollutant	lb/hp-hr	lb/MMBtu
NOx	0.011	1.63
CO	0.00696	0.99
SOx	0.000591	0.084
PM10	0.000721	0.1
VOC	0.0199	2.79

Emission Calculation Method:

The following equation was used to calculate hourly emissions for each pollutant:

Hourly emissions (lb/hr) = HP * EF (lb/hp-hr)

where: HP = horsepower

EF = Emission Factor

The following equation was used to calculate annual emissions for each pollutant:

Annual emissions (ton/yr) = Hourly emissions (lb/hr) * Annual Usage Rate (hr/yr) / 2000 (lb/ton)

Notes:

1. Emission factors for stationary gasoline engines from AP-42 Section 3.3 Gasoline and Diesel Industrial Engines, Table 3.3-1 (October 1996).
2. Assume PM = PM10 = PM2.5.
3. Annual hours based on a fixed rate of 0.25 hrs per day 365 days per year for each engine, and rounded to the nearest 100.
4. Volatile Organic Compounds assumed to be the sum of the crankcase and exhaust portion of Total Organic Compounds (TOC).
5. HAP emissions from internal combustion engines are minimal; the AQB indicated in its 8 December 1995 "Implementation of EPA White Paper for 40 CFR 70 Permit Applications" letter that trace levels of HAP emissions need not be included in permit applications. Therefore, HAP emissions for internal combustion engines have not been calculated.

Jet Engine Testing Emissions Calculation

ANNUAL Emissions Calculation																
	Idle			Intermediate			Military			Afterburner			Total Emissions	Allowable Emissions		
	Minutes (min/test)	EF (lb/hr)	Emissions (lb/hr)	Minutes (min/test)	EF (lb/hr)	Emissions (lb/hr)	Minutes (min/test)	EF (lb/hr)	Emissions (lb/hr)	Minutes (min/test)	EF (lb/hr)	Emissions (lb/hr)	(lb/yr)	tpy		
20001 - F-22A																
NOx	2672.8	4.14	184.42	119.6	125.36	249.88	202.8	368.76	1246.41	31.2	369.8	192.30	1873.01	4.68		
CO	2672.8	66.3	2953.44	119.6	21.62	43.10	202.8	13.99	47.29	31.2	807.67	419.99	3463.81	8.66		
VOC	2672.8	9.41	419.18	119.6	5.35	10.66	202.8	0	0.00	31.2	9.27	4.82	434.67	1.09		
PM	2672.8	3.43	152.80	119.6	14.24	28.39	202.8	20.92	70.71	31.2	20.92	10.88	262.77	0.66		
SOx	2672.8	5.508	245.36	119.6	40.44	80.61	202.8	74.448	251.63	31.2	200.68	104.35	681.96	1.70	S content =	0.002
20003 - T-38 Sound Suppressor																
NOx	1112	1.07	19.83	1087	12.22	221.39	969	13.12	211.89	440	17.01	124.74	577.84	1.44		
CO	1112	80.06	1483.78	1087	61.16	1108.02	969	81.58	1317.52	440	115.48	846.85	4756.16	11.89		
VOC	1112	7.76	143.82	1087	1.38	25.00	969	1.46	23.58	440	18.64	136.69	329.09	0.82		
PM	1112	2.38	44.11	1087	2.44	44.20	969	3.18	51.36	440	2.03	14.89	154.56	0.39		
SOx	1112	2.024	37.51	1087	8.62	156.17	969	11.26	181.85	440	32.552	238.71	614.24	1.54	S content =	0.002
20006 - F22A in F-117A Hush House[4]																
NOx	2672.8	4.14	184.42	119.6	125.36	249.88	202.8	368.76	1246.41	31.2	369.8	192.30	1873.01	4.68		
CO	2672.8	66.3	2953.44	119.6	21.62	43.10	202.8	13.99	47.29	31.2	807.67	419.99	3463.81	8.66		
VOC	2672.8	9.41	419.18	119.6	5.35	10.66	202.8	0	0.00	31.2	9.27	4.82	434.67	1.09		
PM	2672.8	3.43	152.80	119.6	14.24	28.39	202.8	20.92	70.71	31.2	20.92	10.88	262.77	0.66		
SOx	2672.8	5.508	245.36	119.6	40.44	80.61	202.8	74.448	251.63	31.2	200.68	104.35	681.96	1.70	S content =	0.002
20007 - T-38 Test Cell																
NOx	2291	1.07	40.86	3295	12.22	671.08	2691	13.12	588.43	929	17.01	263.37	1563.74	3.91		
CO	2291	80.06	3056.96	3295	61.16	3358.70	2691	81.58	3658.86	929	115.48	1788.02	11862.54	29.66		
VOC	2291	7.76	296.30	3295	1.38	75.79	2691	1.46	65.48	929	18.64	288.61	726.18	1.82		
PM	2291	2.38	90.88	3295	2.44	134.00	2691	3.18	142.62	929	2.03	31.43	398.93	1.00		
SOx	2291	2.024	77.28	3295	8.62	473.38	2691	11.26	505.01	929	32.552	504.01	1559.69	3.90	S content =	0.002
20009 - Tornado Hush House[3]																
NOx	2518	1.59	66.73	1408	83.39	1956.89	1920	75.71	2422.72	899	159.71	2392.99	6839.32	17.10		
CO	2518	25.64	1076.03	1408	17.56	412.07	1920	17.25	552.00	899	285.64	4279.84	6319.94	15.80		
VOC	2518	5.06	212.35	1408	0.48	11.26	1920	0.5	16.00	899	86	1288.57	1528.18	3.82		
PM	2518	0.13	5.46	1408	3.15	73.92	1920	3.86	123.52	899	4.6	68.92	271.82	0.68		
SOx	2518	2.88	120.86	1408	17.52	411.14	1920	16.792	537.34	899	122.6	1836.96	2906.30	7.27	S content =	0.002

Safety Factor= 5

Jet Engine Testing Emissions Calculation - Continued

HOURLY Emissions Calculation															
	Idle			**Intermediate**			**Military**			**Afterburner**			**Total Emissions**		
	Minutes (min/test)	**EF (lb/hr)**	**Emissions (lb/hr)**	**Minutes (min/test)**	**EF (lb/hr)**	**Emissions (lb/hr)**	**Minutes (min/test)**	**EF (lb/hr)**	**Emissions (lb/hr)**	**Minutes (min/test)**	**EF (lb/hr)**	**Emissions (lb/hr)**	**(lb/hr)**		
20001 - F-22A															
NOx	89	4.14	6.14	10	125.36	20.89	16	368.76	98.34	5	369.8	30.82	156.19		
CO	89	66.3	98.35	10	21.62	3.60	16	13.99	3.73	5	807.67	67.31	172.98		
VOC	89	9.41	13.96	10	5.35	0.89	16	0	0	5	9.27	0.77	15.62		
PM	89	3.43	5.09	10	14.24	2.37	16	20.92	5.58	5	20.92	1.74	14.78		
SOx	89	5.508	8.17	10	40.44	6.74	16	74.448	19.85	5	200.68	16.72	51.49	fuel S =	0.002
20003 - T-38 Sound Suppressor															
NOx	0	1.07	0	5	12.22	1.02	40	13.12	8.75	15	17.01	4.25	14.02		
CO	5	80.06	6.67	0	61.16	0	40	81.58	54.39	15	115.48	28.87	89.93		
VOC	45	7.76	5.82	0	1.38	0	0	1.46	0	15	18.64	4.66	10.48		
PM	0	2.38	0	20	2.44	0.81	40	3.18	2.12	0	2.03	0	2.93		
SOx	0	1.35	0	5	4.38	0.37	40	7.89	5.26	15	24.96	6.24	11.87	fuel S =	0.002
20006 - F22A in F-117A Hush House[4]															
NOx	89	4.14	6.14	10	125.36	20.89	16	368.76	98.34	5	369.8	30.82	156.19		
CO	89	66.3	98.35	10	21.62	3.60	16	13.99	3.73	5	807.67	67.31	172.98		
VOC	89	9.41	13.96	10	5.35	0.89	16	0	0	5	9.27	0.77	15.62		
PM	89	3.43	5.09	10	14.24	2.37	16	20.92	5.58	5	20.92	1.74	14.78		
SOx	89	5.508	8.17	10	40.44	6.74	16	74.448	19.85	5	200.68	16.72	51.49	fuel S =	0.002
20007 - T-38 Test Cell															
NOx	0	1.07	0	0	12.22	0	40	13.12	8.75	20	17.01	5.67	14.42		
CO	0	80.06	0	0	61.16	0	40	81.58	54.39	20	115.48	38.49	92.88		
VOC	40	7.76	5.17	0	1.38	0	0	1.46	0	20	18.64	6.21	11.39		
PM	0	2.38	0	10	2.44	0.41	50	3.18	2.65	0	2.03	0	3.06		
SOx	0	1.35	0	0	4.38	0	40	7.89	5.26	20	24.96	8.32	13.58	fuel S =	0.002
20009 - Tornado Hush House[3]															
NOx	0	1.59	0	30	83.39	41.70	0	75.71	0	30	159.71	79.86	121.55		
CO	30	25.64	12.82	0	17.56	0	0	17.25	0	30	285.64	142.82	155.64		
VOC	30	5.06	2.53	0	0.48	0	0	0.5	0	30	86	43.00	45.53		
PM	0	0.13	0	0	3.15	0	30	3.86	1.93	30	4.6	2.30	4.23		
SOx	0	2.88	0	30	17.52	8.76	0	16.792	0	30	122.6	61.30	70.06	fuel S =	0.002

Jet Engine Testing Emissions Calculation - Continued

Emission Factors											
Aircraft	Mode	Fuel Flow (lb/hr)	Emission Factor (lb/hr)[1]								
			NOx	CO	VOC	SO_2[2]	PM	PM10	PM2.5	HAP	
T-38	Idle	506	1.07	80.06	7.76	2.02	2.38	2.38	2.38		IERA Mob Source AEI Guidance; Jan 2002, pg 37, J85-GE-5H engine
	Intermediate	2,155	12.22	61.16	1.38	8.62	2.44	2.44	2.44		(older factors in Arcft Eng Emiss Estimator, Nov 1985, pg 19, J85-05 engine)
	Military	2,815	13.12	81.58	1.46	11.26	3.18	3.18	3.18		NOTE - PM10 factors are from reference - all PM assumed to be PM10 and PM2.5
	Afterburner	8,138	17.01	115.48	18.64	32.55	2.03	2.03	2.03		
F-4E	Idle	1,060	2.862	69.96	24.486	4.24	0.19	0.19	0.19		AFESC Arcft Eng Emiss Estimator; Nov 1985, pg 19, J79-17 engine
	Intermediate	7,000	40.6	54.6	0.7	28.00	5.04	5.04	5.04		NOTE - PM factors are from reference - all PM assumed to be PM10 and PM2.5
	Military	9,820	104.1	51.06	0.982	39.28	9.03	9.03	9.03		
	Afterburner	34,950		139.8	0.35	139.80	5.24	5.24	5.24		
F-117A	Idle	654	0.94	80.93	35.85	2.62	2.93	2.93	2.93		IERA Mob Source AEI Guidance; Jan 2002, pg 37, F404-GE-400/F1D2 engine
	Intermediate	6,503	103.53	8.58	1.76	26.01	10.21	10.21	10.21		NOTE - PM10 factors are from reference - all PM assumed to be PM10 and PM2.5
	Military	10,887	169.63	10.13	1.83	43.55	12.26	12.26	12.26		
	Afterburner										
Tornado[3]	Idle	721	1.59	25.64	5.06	2.88	0.13	0.13	0.13		German AF data sheet
	Intermediate	4,380	83.39	17.56	0.48	17.52	3.15	3.15	3.15		PM = ratio of Tornado/F-4 fuel use in each mode * F-4 PM EF for that mode
	Military	4,198	75.71	17.25	0.50	16.79	3.86	3.86	3.86		all PM assumed to be PM10 and PM2.5
	Afterburner	30,650	159.71	285.64	86.00	122.60	4.60	4.60	4.60		
F-22A[4]	Idle	1,377	4.14	66.3	9.41	5.51	3.43	3.33	2.42		IERA-RS-BR-SR-2002-0006; T6-7 (pg 115 of 251) - NOx, CO, VOC (NMHC); T6-17, 6-19, 6-20 - PM
	Intermediate	10,110	125.36	21.62	5.35	40.44	14.24	14.14	11.08		PM: both F-4 and T-38 show decrease from MIL to AB - for F-22, assume AB = MIL
	Military	18,612	368.76	13.99	0	74.45	20.92	20.77	18.12		PM size distribution: IERA T6-21 (pg 129 of 251)
	Afterburner	50,170	369.8	807.67	9.27	200.68	20.92	20.77	18.12		

[1] Emission Factors listed in the Mobile Source Guidance's UOM is lb/1000lb, the emission factors have been converted to lb/hr
Emission Factor lb/hr = Fuel Flow (lb/hr) * Emission Factor (lb/1000lb)

[2] S content = 0.002

[3] The German AFB is no longer at Holloman AFB and thus there is currently no engine testing at EU 21009.
The type and numbers of engines to be tested at EU 21009 in the coming years was unknown at the time this application was renewed. However the allowable emissions are being reserved for future engine testing and as a result no changes are being made to the German aircraft type (Tornado) and associated emissions at this time. When the future utilization of the test cell becomes known the change will be addressed through a NSR revision and TV permit modification as applicable.

[4] F-22As have been replaced by F-16s, NMED AQB was notified in accordance with NSR Permit No. 1508-M2R5 Section I Condition 5.c. However, as the allowable emission limits have not changed and for clarity on how these limits were calculated, the original emission factors for F-22s are presented in these calculations.

Jet Engine Testing Emissions Calculation - Continued

ANNUAL Emissions Summary									
		Emissions (tpy)							
Unit	Description	NOx	CO	VOC	SO2	TSP	PM10	PM2.5	HAP
20001	F-4 Hush House	4.68	8.66	1.09	1.70	0.66	0.66	0.66	--
20003	Sound Suppressors (T-38)	1.44	11.89	0.82	1.54	0.39	0.39	0.39	--
20006	F-117A Hush House	4.68	8.66	1.09	1.70	0.66	0.66	0.66	--
20007	Test Cells (T-38)	3.91	29.66	1.82	3.90	1.00	1.00	1.00	--
20009	GAF Hush House (Tornado)	17.10	15.80	3.82	7.27	0.68	0.68	0.68	--
	ANNUAL Sum Over all Facilities	**31.82**	**74.67**	**8.63**	**16.11**	**3.38**	**3.38**	**3.38**	--
	Emission Limit from NSR Permit No. 1508-M2R5	**31.9**	**74.7**	**8.7**	**16.2**	**3.4**	**3.4**	**3.4**	**N/A**

HOURLY Emissions Summary									
		Emissions (tpy)							
Unit	Description	NOx	CO	VOC	SO2	TSP	PM10	PM2.5	HAP
20001	F-4 Hush House	156.19	172.98	15.62	51.49	14.78	14.78	14.78	--
20003	Sound Suppressors (T-38)	14.02	89.93	10.48	11.87	2.93	2.93	2.93	--
20006	F-117A Hush House	156.19	172.98	15.62	51.49	14.78	14.78	14.78	--
20007	Test Cells (T-38)	14.42	92.88	11.39	13.58	3.06	3.06	3.06	--
20009	GAF Hush House (Tornado)	121.55	155.64	45.53	70.06	4.23	4.23	4.23	--
	HOURLY Sum Over all Facilities	**462.36**	**684.42**	**98.64**	**198.48**	**39.79**	**39.79**	**39.79**	
	Emission Limit from NSR Permit No. 1508-M2R5	**462.4**	**684.4**	**98.6**	**198.6**	**39.8**	**39.8**	**39.8**	

Jet Engine Testing Emissions Calculation - Continued

Emission Calculation Method:

Emissions [tpy] = Idle Emissions [tpy] + Intermediate Emissions [tpy] + Military Emissions [tpy] + Afterburner Emissions [tpy]

Idle Emissions [tpy] = Amount of time engine is operated in Idle Mode [hr/yr] * Idle Mode Emission Factor [lb/hr] / 2000 [lb/ton]
Intermediate Emissions [tpy] = Amount of time engine is operated in Intermediate Mode [hr/yr] * Intermediate Mode Emission Factor [lb/hr] / 2000 [lb/ton]
Military Emissions [tpy] = Amount of time engine is operated in Military Mode [hr/yr] * Military Mode Emission Factor [lb/hr] / 2000 [lb/ton]
Afterburner Emissions [tpy] = Amount of time engine is operated in Afterburner Mode [hr/yr] * Afterburner Mode Emission Factor [lb/hr] / 2000 [lb/ton]
HAP Emission [tpy] = VOC Emission limit [tpy] * average of HAP emission factor for engine type [lb/hr] / average of VOC emission factor for engine type [lb/hr]

Notes:

1. Emission Factors for F-4, T-38, and F-117A from "Air Emissions Inventory Guidance Document for Mobile Sources at Air Force Installations", IERA, 2002.
2. Emission Factors for Tornado from data provided by German Air Force.
3. For all SO2 emission factors, S = sulfur content of fuel, lb/lb.
4. F-117A aircraft does not have afterburner operating mode.
5. Permit No. NSR 1508M2R2 does not contain HAP emission limits; HAP emissions are provided for informational purposes.
6. F-22 fuel flow data is from IERA-RS-BR-SR-2002-0006, Table 6-23 (pg 131 of 251).
7. Assume PM = PM10 = PM2.5.

Minutes/Mode

1. F-22 hourly: information provided by ACC - test consists of 22.3 min idle, 2.3 min intermediate, 3.9 min military, 0.6 min afterburner + second engine running in idle for entire 29.1 min of test
2. F-22 annual: information provided by ACC - 103 tests/year (used 104) split evenly between F4 and F117 hush houses
3. T-38 and Tornado hourly: worst-case min/hr for each mode from Jan 2001 to July 2006 - took max minutes of mode with highest EF (for each pollutant), then any remaining min/hr in mode with next highest EF, etc
4. T-38 and Tornado annual: worst-case minutes/year for each mode from historical operating data (Jan 2001 to July 2006)

Emission Factors

1. F-22: IERA-RS-BR-SR-2002-0006; Table 6-7 (pg 115 of 251) - NOx, CO, VOC (NMHC); Tables 6-17, 6-19, 6-20 - PM
2. F-22 PM for afterburner mode: both F-4 and T-38 show decrease from MIL to AB - for F-22, assume AB = MIL
3. T-38: IERA Mobile Source Guide - p 33 defines engine type (J85-GE-5) and p 37 lists factors

5. Tornado: datasheet provided by German Air Force

4. Tornado PM: based on ratio of Tornado/F-4 fuel use in each mode multiplied by F-4 published PM EF for that mode

6. SO2: Fuel consumption (lb/hr) * wt % S/100 * 2 (lb SO2 / lb S)
7. F-22As have been replaced by F-16s, however as the allowable emission limits have not changed and for clarity on how these limits were calculated, the original emission factors for F-22s are presented in these calculations.
8. The German AFB is no longer at Holloman AFB. However the allowable emissions are being reserved for future engine testing and as a result, at this time, no changes are being made to the emission factors being used.

Jet Engine HAPs

Emission Factors for F-117A and T-38

	F-117A (lb/hr)			T-38 (lb/hr)			
	Idle	Intermediate	Military	Idle	Intermediate	Military	Afterburner
Acetaldehyde	0.039			0.043			
Acrolein	0.116			0.1			
Benzene	0.356	0.004	0.006	0.056	0.152	0.036	0.059
Ethylbenzene	0.051	0.003		0.011	0.01	0.001	0.004
Formaldehyde	0.754	0.149	0.07	0.082	0.618	0.225	0.203
Naphthalene	0.089	0.005	0.001	0.036	0.014	0.004	0.007
Styrene	0.06			0.015	0.014	0.002	0.002
Toluene	0.178	0.007	0.005	0.061	0.055	0.01	0.015
Xylenes	0.171	0.013	0.009	0.052	0.041	0.044	0.024

Worst-Case Test*

Minutes in Mode	29.4	21.2	9.4	15.8	11	25.8	7.4	Test Cells
				56.4	1.2	1.2	1.2	Sound Suppressors

Emissions (lb/hr)

	F-117	Test Cells	Sound Supp
Acetaldehyde	0.02	0.01	0.04
Acrolein	0.06	0.03	0.09
Benzene	0.18	0.07	0.06
Ethylbenzene	0.03	0.01	0.01
Formaldehyde	0.43	0.26	0.10
Naphthalene	0.05	0.01	0.03
Styrene	0.03	0.01	0.01
Toluene	0.09	0.03	0.06
Xylenes	0.09	0.04	0.05

Emissions (tpy)**

	F-117	Test Cells	Sound Supp
Acetaldehyde	0.014	0.008	0.030
Acrolein	0.041	0.019	0.069
Benzene	0.129	0.048	0.042
Ethylbenzene	0.019	0.004	0.008
Formaldehyde	0.316	0.187	0.072
Naphthalene	0.033	0.011	0.025
Styrene	0.021	0.006	0.011
Toluene	0.066	0.024	0.043
Xylenes	0.066	0.031	0.037

*Worst-case test is from page 3 of 6 in Calculation #1, Appendix C of June 1998 Jet Engine Test Facility Modification Application

**Annual emissions based on 1460 hr/yr (from Item 3 on page 2 of 2 in Calculation #2, Appendix C of June 1998 Jet Engine Test Facility Modification Application

Jet Engine HAPs Continued

Emission Factors for F-22

	F-22 (lb/hr)		
	Idle	Intermediate	Military
Acetaldehyde	0.153	0.026	0.016
Acrolein	0.050	0.000	0.000
Benzene	0.145	0.007	0.009
1,3-Butadiene	0.069	0.004	0.017
Carbon Tetrachloride	0.413	0.003	0.003
Chloroform	0.000	0.002	0.000
Ethylbenzene	0.022	0.005	0.003
Formaldehyde	1.370	0.247	0.141
Methylene Chloride	0.633	0.000	0.000
Styrene	0.043	0.000	0.000
Toluene	0.087	0.000	0.000
Xylenes	0.101	0.005	0.009

Worst-Case Test*

Minutes in Mode	178	20	32

Emissions (lb/hr)

	F-22
Acetaldehyde	0.47
Acrolein	0.15
Benzene	0.43
1,3-Butadiene	0.21
Carbon Tetrachloride	1.23
Chloroform	0.00
Ethylbenzene	0.07
Formaldehyde	4.22
Methylene Chloride	1.88
Styrene	0.13
Toluene	0.26
Xylenes	0.31

Emissions (tpy)**

	F-22
Acetaldehyde	0.415
Acrolein	0.133
Benzene	0.390
1,3-Butadiene	0.188
Carbon Tetrachloride	1.105
Chloroform	0.000
Ethylbenzene	0.060
Formaldehyde	3.720
Methylene Chloride	1.692
Styrene	0.115
Toluene	0.233
Xylenes	0.272

*Worst-case test is from "New Proposed Hourly" sheet of **JETF emissions 070914.xls**
**Annual emissions based on "New Annual" sheet of JETF emissions 070914.xls

Jet Engine HAPs Continued

HAP Summary

Emissions (lb/hr)	20006	20007	20003	20001/20006		
	F-117	T-38 TC	T-38 SS	F-22	Total (2*F-22)	Total
Acetaldehyde	0.019	0.011	0.040	0.471	0.994	0.542
Acrolein	0.057	0.026	0.094	0.147	0.415	0.324
Benzene	0.177	0.065	0.058	0.432	0.988	0.732
1,3-Butadiene				0.205	0.410	0.205
Carbon Tetrachloride				1.226	2.452	1.226
Chloroform				0.001	0.001	0.001
Ethylbenzene	0.026	0.006	0.011	0.069	0.154	0.111
Formaldehyde	0.433	0.257	0.098	4.222	8.798	5.010
Methylene Chloride				1.878	3.756	1.878
Naphthalene	0.046	0.015	0.034		0.049	0.095
Styrene	0.029	0.008	0.014	0.128	0.277	0.179
Toluene	0.090	0.032	0.059	0.259	0.609	0.440
Xylenes	0.090	0.043	0.051	0.306	0.706	0.490

Emissions (lb/hr)	20006	20007	20003	20001/20006		
	F-117	T-38 TC	T-38 SS	F-22	Total (2*F-22)	Total
Acetaldehyde	0.014	0.008	0.030	0.415	0.868	0.467
Acrolein	0.041	0.019	0.069	0.133	0.353	0.262
Benzene	0.129	0.048	0.042	0.390	0.870	0.609
1,3-Butadiene				0.188	0.375	0.188
Carbon Tetrachloride				1.105	2.210	1.105
Chloroform				0.000	0.000	0.000
Ethylbenzene	0.019	0.004	0.008	0.060	0.132	0.091
Formaldehyde	0.316	0.187	0.072	3.720	7.699	4.295
Methylene Chloride				1.692	3.384	1.692
Naphthalene	0.033	0.011	0.025		0.036	0.069
Styrene	0.021	0.006	0.011	0.115	0.246	0.153
Toluene	0.066	0.024	0.043	0.233	0.533	0.366
Xylenes	0.066	0.031	0.037	0.272	0.613	0.407

Total (2*F-22) is based on F-22 testing in Emission Unit 20001 and 20006
Total is based on F-22 testing in Emission Unit 20001 and F-117 testing in Emission Unit 20006
Blue shading indicates the worst case for this HAP

Surface Coating - Paint Booths Emissions Calculation

Example Calculation:

		Material 1	Material 2	Material 3	Material 4		Total Emissions	
							lb/yr	tpy
Amount of Material Used	gal/yr	85.2	2.25	156	0.125			
Density	lb/gal	6.52	10.37	8.1	6.68			
VOC Content	%	100	25	48.6	79.2			
VOC Emissions	lb/yr	555.50	5.83	614.11	0.66		1176.11	0.588
Solid Content	%	0	75	51.4	20.8			
PM Emissions	lb/yr	0.00	0.52	19.48	0.01		20.01	0.010
HAP Content	%	43.5	32	10.6	21.5			
HAP Emissions	lb/yr	241.64	7.47	133.94	0.18		383.23	0.192

Emission Calculation Method:

VOC Emissions [lb/yr] = Amount of Material Used [gal/yr] * Density [lb/gal] * VOC Content [%] / 100
PM Emissions [lb/yr] = Amount of Material Used [gal/yr] * Density [lb/gal] * Solid Content [%] * (1 - Transfer Efficiency) * (1 - Control Efficiency) / 100
HAP Emissions [lb/yr] = Amount of Material Used [gal/yr] * Density [lb/gal] * HAP Content [%] / 100

Notes:

1. Amount of Material Used is recorded in paint booth logs.
2. Density, VOC Content, and HAP Content are obtained from Material Safety Data Sheets (MSDS) and stored in EESOH-MIS.
3. Solid Content (%) is calculated as 100 - VOC Content; this gives a high value since it does not account for water or other non-VOC solvents.
4. Transfer efficiency is assumed to be 0.7 (70% - the default for HVLP equipment, which is used in all paint booths).
5. Control efficiency varies from 0.9 to 0.99 depending on the Equipment ID and is listed in the operating permit.
6. HAP Content and HAP Emissions are calculated for individual HAPs and summed to obtain value for total HAPs.
7. Example shows only four materials; in actual practice, hundreds of materials may be used each year.
8. No PM partitioning factors available; assumed PM2.5 = PM10 = PM.

Paint Booth Emissions Summary

Emission Source Name and ID		Annual Usage	VOC Emissions (tpy)	Controlled PM emissions (tpy)	Uncontrolled PM emissions
MXS Paint Booths (Bldg 830)	21006	400 g/yr regular solvent, 500 gal/yr nonaersol paint, 100 g/yr RAM Coating, C473 Mixture, EP-91 (each), 500 g/yr Deoxidine, Isopropyl Alcohol (each), 50 g/yr aersol paint	3.64	0.02	1.79
M-1 Paint Booths (Bldg 282)	21007	333.33g/y nonaersol, 33.33 g/y aerosol	2.32	0.087	0.87
	21008	166.67 g/y nonaersol, 16.67 g/y aerosol			
Test Group Paint Booth (Bldg 1178)	21009	250 gal/yr nonaerosol; 50 gal/yr aerosol	1.18	0.04	0.44
NewTec Paint Booth (Bldg 856)	21010	250 gal/yr nonaerosol; 50 gal/yr aerosol	1.06	0.030	0.28
TRANS Paint Booth (Bldg 195)	21011R	40 g/yr aerosol, 250 g/yr nonaerosol, 40 g/yr solvent	1.12	0.06	0.58
German Air Force Paint Booth (Bldg 294)	21018	250 gal/yr aerosol-nonaerosol-solvent	3.27	0.07	0.66
German Air Force Teflon Coating Operations (Bldg 21295)	21020	50 gal/yr each coating	0.26	0.07	0.07
BEAR Base Paint Booth (Bldg 903)	21019	400 gal/yr paint, 150 gal/yr solvent	1.97	0.06	0.59
LOCRF Paint Booths	21021 21022 21023	High-Volume Paints 30 gal/hr, Paint/Solvent 10 gal/hr; Non-Spray Coatings 15 gal/hr. 1,500 g/yr nonaersol, 1,500 g/yr aersol	11.73	0.04	3.91
Hangarette Surface Coating Operations	21024	1 gal/day; 100 gal/yr for spray and non-spray materials	0.74	0.26	0.26
		Total:	27.29	0.73	9.45

Fuel Storage Tank Emissions Calculation

Fuel Properties:		**Holloman AFB Properties:**	
Gasoline and Aviation Gasoline - GRAY TANKS			
Vapor Density Gasoline (lb/ft^3):	0.0726	Average Liquid Surface Temperature (F):	63.06
Vapor Molecular Weight (lb/lb-mole):	66	Daily Average Ambient Temperature (F):	69.79
Vapor Pressure @ daily avg liq surf temp (psia):	6.25	Atmospheric Pressure (psia):	12.731
Gasoline and Aviation Gasoline - WHITE TANKS			
Vapor Density Gasoline (lb/ft^3):	0.0649	Average Liquid Surface Temperature (F):	60.84
Vapor Molecular Weight (lb/lb-mole):	66	Daily Average Ambient Temperature (F):	60.82
Vapor Pressure @ daily avg liq surf temp (psia):	5.52	Atmospheric Pressure (psia):	12.731

HAP Speciation	**wt% in Gasoline Vapor**	**wt% in Aviation Gasoline Vapor**
Benzene	0.618	0.16
Cumene (Isopropyl benzene)	0.00779	-
Ethylbenzene	0.0467	0.15
Hexane	0.557	2.10
Butadiene	0.00162	-
Naphthalene	negligible	-
Tetraethyl Lead	-	1.58E-06
Toluene	0.705	0.92
2,2,4-Trimethylpentane	0.711	-
Xylenes (mixed isomers)	0.243	0.38
Total HAP	2.89011	3.71

Storage Tank Characteristics and Emissions:

Unit #	**Location**	**Capacity (gal)**	**Type**	**Throughput (gal/yr)**	**Standing Loss (lb/yr)**	**Working Loss (lb/yr)**	**Total Emissions (lb/yr)**	**VOC Emissions (lb/hr)**
22002	POL Facilities	12,000	Fixed Rf	100,000	6,124	982	7,106	0.81
22014R	Bldg 1166	1,000	Fixed Rf	50,000	1,074	376	1,451	0.17
22054	Bldg 136	20,000	Fixed Rf	600,000	5,247	5,891	11,138	1.27
22058	Bldg 12303	1,661	Fixed Rf	50,000	1,255	491	1,746	0.20
22100	AAFES Bldg 33	12,000	Fixed Rf	2,500,000	3,025	6,739	9,764	1.11
22101	AAFES Bldg 33	12,000	Fixed Rf	900,000	3,025	4,425	7,450	0.85
22102	AAFES Bldg 33	12,000	Fixed Rf	750,000	3,025	4,208	7,233	0.83
22103	Aeroclub	3,000	Fixed Rf	40,000	2,260	393	2,652	0.30
22105	Bldg 500	1,000	Fixed Rf	60,000	509	521	1,030	0.12
22110	Bldg 906	750	Fixed Rf	50,000	370	268	638	0.07
					Total VOC Emissions (lb/yr)		**50,208**	**5.7**
					Total VOC Emissions (tpy)		**25.10**	
					Total HAP Emissions (tpy)		**0.74**	

Emission Calculation Method:

VOC Emissions [lb/yr] = Standing Loss [lb/yr] + Working Loss [lb/yr]

VOC Emissions [lb/hr] = VOC Emissions [lb/yr] / 8760 [hrs/yr]

HAP Emissions [tpy] = VOC emissions [lb/yr] * (1 ton /2000 lbs) * (Total HAP [wt% in vapor] / 100)

Notes:

1. Standing and working loss values from EPA TANKS software Version 4.0.9d.
2. Holloman AFB Properties are from AP-42 Table 7.1-7, data for Roswell, New Mexico.
3. Assumed tanks are either light gray or white color with good paint condition.
4. HAP speciation profile for motor vehicle gasoline from "Air Emissions Guide for Air Force Stationary Sources: Methods for Estimating Emissions of Air Pollutants for Stationary Sources at U.S. Air Force Installations", August 2018

Woodworking Emissions Calculation

Unit #	Location	Dust Collected (lb/yr)	Emission Control Type	Control Efficiency (%)	Total Emissions (lb/yr)
29004	CE Vertical, Bldg 55	33,800	Cyclone/Fabric Filter	99	341.4
			Total PM Emissions (lb/yr)		**341.4**
			Total PM Emissions (tpy)		**0.17**

Emission Calculation Method:
PM Emissions [lb/yr] = Dust Collected [lb/yr] * (1 - Collection Efficiency) / (Collection Efficiency)

Notes:
1. Amount of dust collected is tracked by operating organization.
2. No PM partitioning factors available; assumed PM2.5 = PM10 = PM.
3. Used control efficiency for fabric filter from AP-42, Table B.2.3. Did not take additional credit for collection in cyclone.

Miscellaneous Chemicals Emissions Calculation

Example Calculation:

		Material 1	Material 2	Material 3	Material 4		Total Emissions	
							lb/yr	tpy
Amount of Material Used	gal/yr	85.2	2.25	156	0.125			
Density	lb/gal	6.52	10.37	8.1	6.68			
VOC Content	%	100	65	48.6	79.2			
VOC Emissions	lb/yr	555.50	15.17	614.11	0.66		1185.44	0.593
HAP Content	%	100	35	10.6	26.4			
HAP Emissions	lb/yr	555.50	8.17	133.94	0.22		697.83	0.349

Emission Calculation Method:

VOC Emissions [lb/yr] = Amount of Material Used [gal/yr] * Density [lb/gal] * VOC Content [%] / 100

HAP Emissions [lb/yr] = Amount of Material Used [gal/yr] * Density [lb/gal] * HAP Content [%] / 100

Notes:

1. Amount of Material Used is tracked from hazardous material pharmacy records using EESOH-MIS.
2. Density, VOC Content, and HAP Content are obtained from Safety Data Sheets (SDS) and stored in EESOH-MIS.
3. HAP Content and HAP Emissions are calculated for individual HAPs and summed to obtain value for total HAPs.
4. Example shows only four materials; in actual practice, hundreds of materials may be used each year.

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Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

Title V (20.2.70 NMAC), Minor NSR (20.2.72 NMAC), and PSD (20.2.74 NMAC) applicants must estimate and report greenhouse gas (GHG) emissions to verify the emission rates reported in the public notice, determine applicability to 40 CFR 60 Subparts, and to evaluate Prevention of Significant Deterioration (PSD) applicability. GHG emissions that are subject to air permit regulations consist of the sum of an aggregate group of these six greenhouse gases: carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

Calculating GHG Emissions:

1. Calculate the ton per year (tpy) GHG mass emissions and GHG CO_2e emissions from your facility.
2. GHG mass emissions are the sum of the total annual tons of greenhouse gases without adjusting with the global warming potentials (GWPs). GHG CO_2e emissions are the sum of the mass emissions of each individual GHG multiplied by its GWP found in Table A-1 in 40 CFR 98 Mandatory Greenhouse Gas Reporting.
3. Emissions from routine or predictable start up, shut down, and maintenance must be included.
4. Report GHG mass and GHG CO_2e emissions in Table 2-P of this application. Emissions are reported in **short** tons per year and represent each emission unit's Potential to Emit (PTE).
5. All Title V major sources, PSD major sources, and all power plants, whether major or not, must calculate and report GHG mass and CO2e emissions for each unit in Table 2-P.
6. For minor source facilities that are not power plants, are not Title V, and are not PSD there are three options for reporting GHGs in Table 2-P: 1) report GHGs for each individual piece of equipment; 2) report all GHGs from a group of unit types, for example report all combustion source GHGs as a single unit and all venting GHGs as a second separate unit; 3) or check the following ☐ By checking this box, the applicant acknowledges the total CO2e emissions are less than 75,000 tons per year.

Sources for Calculating GHG Emissions:

- Manufacturer's Data
- AP-42 Compilation of Air Pollutant Emission Factors at http://www.epa.gov/ttn/chief/ap42/index.html
- EPA's Internet emission factor database WebFIRE at http://cfpub.epa.gov/webfire/
- 40 CFR 98 Mandatory Green House Gas Reporting except that tons should be reported in short tons rather than in metric tons for the purpose of PSD applicability.
- API Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry. August 2009 or most recent version.
- Sources listed on EPA's NSR Resources for Estimating GHG Emissions at http://www.epa.gov/nsr/clean-air-act-permitting-greenhouse-gases:

Global Warming Potentials (GWP):
Applicants must use the Global Warming Potentials codified in Table A-1 of the most recent version of 40 CFR 98 Mandatory Greenhouse Gas Reporting. The GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to that of one unit mass of CO_2 over a specified time period.

"Greenhouse gas" for the purpose of air permit regulations is defined as the aggregate group of the following six gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. **(20.2.70.7 NMAC, 20.2.74.7 NMAC).** You may also find GHGs defined in 40 CFR 86.1818-12(a).

Metric to Short Ton Conversion:
Short tons for GHGs and other regulated pollutants are the standard unit of measure for PSD and title V permitting programs. 40 CFR 98 Mandatory Greenhouse Reporting requires metric tons.
1 metric ton = 1.10231 short tons (per Table A-2 to Subpart A of Part 98 – Units of Measure Conversions)

6.a.1 Greenhouse Gas Emissions

Greenhouse gas (GHG) emissions emitted at Holloman AFB are primarily due to combustion of fossil fuel. The combustion of fuel results in emissions of carbon dioxide (CO_2), nitrous oxide (N_2O) and methane (CH_4). The activities at Holloman AFB result in the combustion of six fuel types: TNT; natural gas; diesel; gasoline; LPG; and jet fuel. Emissions are calculated using the methodology described below and submitted to the NMED AQB annually as required by 20.2.73.300 NMAC.

Emission Calculation Methods and Information Sources. Holloman AFB has calculated the CO_2 equivalent (CO_2e) emissions and the mass GHG emissions for CO_2, N_2O and CH_4 using the methodology discussed in 40 CFR 98 Subparts A and C. 40 CFR 98 Subpart C guidelines for quantifying general stationary combustion fuel source emissions follow a tiered approach. For Holloman AFB, the Tier 1 methodology based on default high heating values (HHV) and default emission factors were utilized for all but one source type, the combustion of TNT from the OB/OD source category. The equations used are shown below:

Fuel Combustion

CO_2 Mass Emissions Rate = (volume of fuel combusted) * (default HHV of the fuel) * (fuel-specific default CO_2 emission factor) * (conversion factor from kg to metric tons)

CH_4 or N_2O Mass Emissions Rate^{A} = (volume of fuel combusted) * (default HHV of the fuel) * (fuel specific default CH_4 or N_2O emission factor) * (conversion factor from kg to metric tons) * (GWP)^{B}

A: Expressed as CO_2e
B: GWP= Global warming potential for each GHG from Table A-1 of 40 CFR 98 Subpart A

Open Burning/Open Detonation

CO_2 Mass Emission Rate = (material throughput [lb/yr]) * (EF [lb CO2/lb material detonated]) * (1/2000) * (conversion factor from U.S. Short Tons to Metric Tons)

CH_4 Emission Rate^{A} = (material throughput [lb/yr]) * (EF [lb CH_4/lb material detonated]) * (1/2000) * (conversion factor from U.S. Short Tons to Metric Tons) * (GWP)^{B}

Notes:

A: Expressed as CO_2e
B: GWP= Global warming potential from Table A-1 of 40 CFR 98 Subpart A

The emission factors relevant to the fuels used at Holloman AFB are shown in Tables 6a-1 and 6a-2 below. Global warming potentials are shown in Table 6a-3.

Table 6a-1
General Stationary Fuel Combustion Source Emission Factors

Fuel Type	Default HHV*	CO_2 Emission Factor (kg/MMBtu)	CH_4 Emission Factor (kg/MMBtu)	N_2O Emission Factor (kg/MMBtu)
Natural Gas	0.001026	53.06	0.0010	0.0001
Distillate Fuel Oil #2	0.138	73.96	0.0030	0.0006
Liquefied Petroleum Gas (LPG)	0.092	61.71	0.0030	0.0006
Gasoline	0.125	70.22	0.0030	0.0006
Jet A	0.135	72.22	0.0030	0.0006

Source: Appendix Tables C-1 and C-2 of 40 CFR Part 98 Subpart C
Conversion Factor: One kilogram = 0.001 metric ton
*: Natural Gas HHV Units are MMBtu/scf, Diesel Fuel, Jet A, and LPG units are MMBtu/gal

Table 6a-2
OB/OD Emission Factors

Fuel Type	Default HHV	CO_2 Emission Factor (lb/lb NEW)	CH_4 Emission Factor (lb/lb NEW)	N_2O Emission Factor (lb/lb NEW)
Worst Case Ordnance	N/A	5	15.4	N/A

CO_2 Emission Factor Source: "Emission Factors for the Disposal of Energetic Materials by Open Burning and Open Detonation (OB/OD)," EPA 600/R-98/103, August 1998. Worst case average emission factor data were used.
CH_4 Emission Factor Source: AP 42, Section 13.3 Table 13.3-1. Worst case TNT value used.
Conversion Factor: 1 Short Ton = 0.907185 Metric Tons

Table 6a-3
Global Warming Potentials

GHG	GWP
CO_2	1
CH_4	25
N_2O	298

Source: Appendix Table A-1 of 40 CFR 98 Subpart A

The emission calculations are provided in the UA2 spreadsheet. As shown in the referenced spreadsheet and summarized in Table 6a-4 below, the total GHG potential emissions (CO_2e) for Holloman AFB are calculated to be 61,731.3 tons per year. This is a slight reduction from what was reported in the previous 2015 permit renewal and demonstrates that Holloman AFB is a minor source for greenhouse gases (GHGs). Actual GHG emissions (not shown in this application) are below the GHG Mandatory Reporting Rule threshold of 25,000 tons per year

Table 6a-4
Maximum Greenhouse Gas Emissions

Pollutant	Project Emissions Rate[1] (short tons / year)*	Proposed Facility Wide Annual Emissions Rate after the Title V Permit Renewal[2] (short tons / year)	Facility Wide Annual Emission Rate based on the Current Title V Permit (short tons / year)
Total CO_2e	(6,220.9)	61,731.3	67,952.2
Mass GHG [3]	(6,199.2)	58,224.4	64,423.6
Mass CO_2	(6,198.9)	58,081.8	64,280.7
Mass N_2O	(0.05)	0.31	0.36
Mass CH_4	(0.3)	142.3	142.6
Mass SF_6 [4]	N/A	N/A	N/A
Mass PFC/HFC [4]	N/A	N/A	N/A

* Values in ( ) indicate a reduction in emissions for that pollutant.
[1] Aggregate sum of the reduction in emissions resulting from changes to emission units in this application.
[2] Aggregate sum over all existing and proposed emission units included in this Title V renewal application. These values were used to determine the applicability in this Section.
[3] GHG mass emissions are the sum of the total annual tons of greenhouse gases without adjusting with the GWPs.
[4] GHG emissions were calculated from fuel combustion sources; emission of this pollutant is not expected.

Greenhouse Gas (GHG) Emissions Calculations

Emission Unit ID	Annual Fuel Use from Table 2-J		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	Total GHG Mass Basis ton/yr	Total CO_2e ton/yr		
		GWPs [1]	1	298	25				
Open Burn/Open Detonation		Emission Factor (lb/lb NEW)	5		15.4				
13002	18,250 NEW lb/yr[2]	mass GHG	45.6250	-	140.5250	186.2			
		CO_2e	45.6250	-	3,513.1250		3,558.8		
Natural Gas Combustion Units		Emission Factor (kg/MMBtu)	53.06	0.0001	0.001			1.026E-03	MM Btu/scf
12010	171,800,000 scf/yr	mass GHG	10,309.5928	0.0194	0.1943	10,309.8			
		CO_2e	10,309.5928	5.7902	4.8575		10,320.2		
14031	72,138,600 scf/yr	mass GHG	4,328.9848	0.0082	0.0816	4,329.1			
		CO_2e	4,328.9848	2.4313	2.0397		4,333.5		
14034	46,375,440 scf/yr	mass GHG	2,782.9564	0.0052	0.0524	2,783.0			
		CO_2e	2,782.9564	1.5630	1.3112		2,785.8		
14035	43,456,471 scf/yr	mass GHG	2,607.7911	0.0049	0.0491	2,607.8			
		CO_2e	2,607.7911	1.4646	1.2287		2,610.5		
14036	43,456,471 scf/yr	mass GHG	2,607.7911	0.0049	0.0491	2,607.8			
		CO_2e	2,607.7911	1.4646	1.2287		2,610.5		
14037	43,456,471 scf/yr	mass GHG	2,607.7911	0.0049	0.0491	2,607.8			
		CO_2e	2,607.7911	1.4646	1.2287		2,610.5		
14038	35,211,765 scf/yr	mass GHG	1,916.9130	0.0036	0.0361	1,917.0			
		CO_2e	1,916.9130	1.0766	0.9032		1,918.9		
Diesel Combustion Units		Emission Factor (kg/MMBtu)	73.96	0.0006	0.003			0.138	MMBtu/gal
19210	1,354 gal/yr	mass GHG	15.23345	0.00012	0.00062	15.2			
		CO_2e	15.23345	0.03683	0.01545		15.3		
19211 - 19224 [3]	9,872 gal/yr	mass GHG	111.06170	0.00090	0.00450	111.1			
		CO_2e	111.06170	0.26849	0.11262		111.4		
19300	741 gal/yr	mass GHG	8.33538	0.00007	0.00034	8.3			
		CO_2e	8.33538	0.02015	0.00845		8.4		
19302	2,120 gal/yr	mass GHG	23.85642	0.00019	0.00097	23.9			
		CO_2e	23.85642	0.05767	0.02419		23.9		
19331	1,058 gal/yr	mass GHG	11.89947	0.00010	0.00048	11.9			
		CO_2e	11.89947	0.02877	0.01207		11.9		
19332	506 gal/yr	mass GHG	5.69105	0.000046	0.00023	5.7			
		CO_2e	5.69105	0.01376	0.00577		5.7		
19333	506 gal/yr	mass GHG	5.69105	0.000046	0.00023	5.7			
		CO2e	5.69105	0.01376	0.00577		5.7		
19334	1,860 gal/yr	mass GHG	20.92467	0.00017	0.00085	20.9			
		CO_2e	20.92467	0.05059	0.02122		21.0		
19335	2,039 gal/yr	mass GHG	22.93666	0.00019	0.00093	22.9			
		CO_2e	22.93666	0.05545	0.02326		23.0		
19336	1,058 gal/yr	mass GHG	11.89947	0.00010	0.00048	11.9			
		CO_2e	11.89947	0.02877	0.01207		11.9		

GHG Emission Calcs Continued

Emission Unit ID	Annual Fuel Use from Table 2-J		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	Total GHG Mass Basis ton/yr	Total CO_2e ton/yr
19337	506	mass GHG	5.69105	0.000046	0.00023	5.7	
	gal/yr	CO2e	5.69105	0.01376	0.00577		5.7
19338	1,860	mass GHG	20.92467	0.00017	0.00085	20.9	
	gal/yr	CO_2e	20.92467	0.05059	0.02122		21.0
19339	1,860	mass GHG	20.92467	0.00017	0.00085	20.9	
	gal/yr	CO_2e	20.92467	0.05059	0.02122		21.0
19340	1,860	mass GHG	20.92467	0.00017	0.00085	20.9	
	gal/yr	CO_2e	20.92467	0.05059	0.02122		21.0
19341	138	mass GHG	1.55785	0.000013	0.000063	1.6	
	gal/yr	CO2e	1.55785	0.00377	0.00158		1.6
19342	2,401	mass GHG	27.01812	0.00022	0.00110	27.0	
	gal/yr	CO_2e	27.01812	0.06532	0.02740		27.1
19343	1,655	mass GHG	18.62525	0.00015	0.00076	18.6	
	gal/yr	CO_2e	18.62525	0.04503	0.01889		18.7
19344	1,277	mass GHG	14.37134	0.00012	0.00058	14.4	
	gal/yr	CO_2e	14.37134	0.03474	0.01457		14.4
19345	741	mass GHG	8.33538	0.00007	0.00034	8.3	
	gal/yr	CO2e	8.33538	0.02015	0.00845		8.4
19346	1,860	mass GHG	20.92467	0.00017	0.00085	20.9	
	gal/yr	CO_2e	20.92467	0.05059	0.02122		21.0
19347	741	mass GHG	8.33538	0.00007	0.00034	8.3	
	gal/yr	CO_2e	8.33538	0.02015	0.00845		8.4
19349	1,277	mass GHG	14.37134	0.00012	0.00058	14.4	
	gal/yr	CO2e	14.37134	0.03474	0.01457		14.4
19350	1,277	mass GHG	14.37134	0.00012	0.00058	14.4	
	gal/yr	CO_2e	14.37134	0.03474	0.01457		14.4
19351	1,277	mass GHG	10.23239	0.000083	0.00042	10.2	
	gal/yr	CO_2e	10.23239	0.02474	0.01038		10.3
19352	909	mass GHG	10.23239	0.000083	0.00042	10.2	
	gal/yr	CO_2e	10.23239	0.02474	0.01038		10.3
19353	741	mass GHG	8.33538	0.000068	0.00034	8.3	
	gal/yr	CO2e	8.33538	0.02015	0.00845		8.4
19354	138	mass GHG	1.55785	0.000013	0.000063	1.6	
	gal/yr	CO_2e	1.55785	0.00377	0.00158		1.6
19355	138	mass GHG	1.55785	0.000013	0.000063	1.6	
	gal/yr	CO_2e	1.55785	0.00377	0.00158		1.6
19356	138	mass GHG	1.55785	0.000013	0.000063	1.6	
	gal/yr	CO_2e	1.55785	0.00377	0.00158		1.6
19357	138	mass GHG	1.55785	0.000013	0.000063	1.6	
	gal/yr	CO2e	1.55785	0.00377	0.00158		1.6
19358	138	mass GHG	1.55785	0.000013	0.000063	1.6	
	gal/yr	CO_2e	1.55785	0.00377	0.00158		1.6

GHG Emission Calcs Continued

Emission Unit ID	Annual Fuel Use from Table 2-J		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	Total GHG Mass Basis ton/yr	Total CO_2e ton/yr
19359	138	mass GHG	1.55785	0.000013	0.000063	1.6	
	gal/yr	CO_2e	1.55785	0.00377	0.00158		1.6
19360	138	mass GHG	1.55785	0.000013	0.000063	1.6	
	gal/yr	CO_2e	1.55785	0.00377	0.00158		1.6
19361	138	mass GHG	1.55785	0.000013	0.000063	1.6	
	gal/yr	CO2e	1.55785	0.00377	0.00158		1.6
19362	353	mass GHG	3.96649	0.000032	0.000161	4.0	
	gal/yr	CO2e	3.96649	0.00959	0.00402		4.0
19363	5,799	mass GHG	65.24588	0.000529	0.002647	65.2	
	gal/yr	CO_2e	65.24588	0.15773	0.06616		65.5
19364	3,893	mass GHG	43.80384	0.000355	0.001777	43.8	
	gal/yr	CO_2e	43.80384	0.10590	0.04442		44.0
19365	138	mass GHG	1.55785	0.000013	0.000063	1.6	
	gal/yr	CO2e	1.55785	0.00377	0.00158		1.6
19366	353	mass GHG	3.96649	0.000032	0.000161	4.0	
	gal/yr	CO2e	3.96649	0.00959	0.00402		4.0
19367	1,661	mass GHG	18.68274	0.000152	0.000758	18.7	
	gal/yr	CO_2e	18.68274	0.04517	0.01895		18.7
19368	1,661	mass GHG	18.68274	0.000152	0.000758	18.7	
	gal/yr	CO_2e	18.68274	0.04517	0.01895		18.7
19369	1,661	mass GHG	18.68274	0.000152	0.000758	18.7	
	gal/yr	CO2e	18.68274	0.04517	0.01895		18.7
19370	6,131	mass GHG	68.98242	0.000560	0.002798	69.0	
	gal/yr	CO2e	68.98242	0.16677	0.06995		69.2
19371	869	mass GHG	9.77251	0.000079	0.000396	9.8	
	gal/yr	CO_2e	9.77251	0.02363	0.00991		9.8
19372	521	mass GHG	5.86351	0.000048	0.000238	5.9	
	gal/yr	CO_2e	5.86351	0.01418	0.00595		5.9
19373	414	mass GHG	4.65631	0.000038	0.000189	4.7	
	gal/yr	CO2e	4.65631	0.01126	0.00472		4.7
19374	439	mass GHG	4.93397	0.000040	0.000200	4.9	
	gal/yr	CO2e	4.93397	0.01193	0.00500		5.0
19375	138	mass GHG	1.55785	0.000013	0.000063	1.6	
	gal/yr	CO_2e	1.55785	0.00377	0.00158		1.6
19376	138	mass GHG	1.55785	0.000013	0.000063	1.6	
	gal/yr	CO_2e	1.55785	0.00377	0.00158		1.6
19377	884	mass GHG	9.94497	0.000081	0.000403	9.9	
	gal/yr	CO2e	9.94497	0.02404	0.01008		10.0
19380	3,858	mass GHG	43.40144	0.000352	0.001760	43.4	
	gal/yr	CO2e	43.40144	0.10492	0.04401		43.6
19381- 19405 [3]	17,628	mass GHG	198.32447	0.001609	0.008045	198.3	
	gal/yr	CO2e	198.32447	0.47945	0.20111		199.0
19406	685	mass GHG	7.70304	0.000062	0.000312	7.7	
	gal/yr	CO2e	7.70304	0.01862	0.00781		7.7

GHG Emission Calcs Continued

Emission Unit ID	Annual Fuel Use from Table 2-J		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	Total GHG Mass Basis ton/yr	Total CO_2e ton/yr		
LPG Combustion Units		Emission Factor (kg/MMBtu)	61.71	0.0006	0.003			0.092	MMBtu/gal
19378	2,257	mass GHG	12.81371	0.000137	0.000687	12.8			
	gal/yr	CO2e	12.81371	0.04093	0.01717		12.9		
19379	2,257	mass GHG	12.81371	0.000137	0.000687	12.8			
	gal/yr	CO_2e	12.81371	0.04093	0.01717		12.9		
Gasoline Combustion Units		Emission Factor (kg/MMBtu)	70.22	0.0006	0.003			0.125	MMBtu/gal
19602	322	mass GHG	2.82636	0.000027	0.000133	2.8			
	gal/yr	CO2e	2.8264	0.0079	0.0033		2.8		
19603	322	mass GHG	2.82636	0.000027	0.000133	2.8			
	gal/yr	CO_2e	2.8264	0.0079	0.0033		2.8		
19608	322	mass GHG	2.82636	0.000027	0.000133	2.8			
	gal/yr	CO2e	2.8264	0.0079	0.0033		2.8		
19609	322	mass GHG	2.82636	0.000027	0.000133	2.8			
	gal/yr	CO_2e	2.8264	0.0079	0.0033		2.8		
Kerosene-Type Jet Fuel Combustion Units		Emission Factor (kg/MMBtu)	72.22	0.0006	0.003			0.135	MMBtu/gal
20001	1,647,800	mass GHG	17,709.2227	0.1471	0.7356	17,710.1			
	gal/yr	CO2e	17,709.2227	43.8439	18.3909		17,771.5		
20003	109,700	mass GHG	1,178.9669	0.0098	0.0490	1,179.0			
	gal/yr	CO_2e	1,178.9669	2.9188	1.2243		1,183.1		
20006	220,600	mass GHG	2,370.8305	0.0197	0.0985	2,370.9			
	gal/yr	CO_2e	2,370.8305	5.8696	2.4621		2,379.2		
20007	278,600	mass GHG	2,994.1676	0.0249	0.1244	2,994.3			
	gal/yr	CO_2e	2,994.1676	7.4129	3.1094		3,004.7		
20009	519,000	mass GHG	5,577.7925	0.0463	0.2317	5,578.1			
	gal/yr	CO2e	5,577.7925	13.8093	5.7925		5,597.4		
					Facility Total mass GHG	**58,224.4**			
					Facility Total CO_2e		**61,731.4**		

1. Global Warming Potentials (GWPs) from Table A-1 of 40 CFR 98 Subpart A.
2. The annual throughput net explosive weight (NEW) for Open Burning/Open Detonation is based on the requested operating rate presented in Table 2-A of this application.
3. The fuel use for these emission units was calculated using the number of engines, the estimated horsepower from the Internal Combustion - Emergency Engines Emissions Calculation spreadsheet, the brake specific horse power from Table 3.3.1 of AP-42 (7,000 btu/hp-hr), and the number of hours operated per year (100 hrs/yr).

Emission Calculation Method:

The following equation was used to calculate annual emissions for each pollutant from Open Burning/Open Detonation (OB/OD):

CO_2 emissions (ton/yr) = material throughput [lb/yr] * EF [lb CO_2/lb material detonated] * (1/2000)

CH_4 emissions (ton/yr) = material throughput [ton/yr] * EF [lb CH_4/ton material detonated] * (1/2000)

The following equation was used to calculate annual emissions for each pollutant from Fuel Combustion Units:

Annual emissions (ton/yr) = (1.10231×10^{-3}) * Fuel * HHV * EF

Where:

Fuel = Annual volume of fuel use as noted in Table 2-J of this application.
(express volume in standard cubic feet for gaseous fuel, and volume in gallons for liquid fuel).
HHV = Default high heat value of the fuel, from Table C-1 of 40 CFR Part 98 (mmBtu per volume).
EF = Fuel-specific default pollutant emission factor, from Tables C-1 and C-2 of 40 CFR Part 98 (kg pollutant /mmBtu).

GHG Emission Calculations Continued

Notes:

1. EOD emission factor for carbon dioxide from "Emission Factors for the Disposal of Energetic Materials by Open Burning and Open Detonation (OB/OD)," EPA 600/R-98/103, August 1998. Worst case average emission factor data were used for OB/OD.
2. OB/OD emission factor for methane from the worst case TNT value in Table 13.3-1, AP42 Section 13.3 Explosives Detonation.
3. Fuel Combustion Unit emission calculation methodology from Paragraphs 98.33(a)(1)(i) and 98.33(b)(1) of 40 CFR 98 Subpart C.
4. Conversion factor from kilograms to short tons is from Table A-2 to Subpart A of Part 98—Units of Measure Conversions for (Kilograms to Pounds of 2.20462) / (2000 pounds per short ton).

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Section 7

Information Used To Determine Emissions

<u>Information Used to Determine Emissions</u> shall include the following:

☑ If manufacturer data are used, include specifications for emissions units <u>and</u> control equipment, including control efficiencies specifications and sufficient engineering data for verification of control equipment operation, including design drawings, test reports, and design parameters that affect normal operation.
☑ If test data are used, include a copy of the complete test report. If the test data are for an emissions unit other than the one being permitted, the emission units must be identical. Test data may not be used if any difference in operating conditions of the unit being permitted and the unit represented in the test report significantly affect emission rates.
☑ If the most current copy of AP-42 is used, reference the section and date located at the bottom of the page. Include a copy of the page containing the emissions factors, and clearly mark the factors used in the calculations.
☐ If an older version of AP-42 is used, include a complete copy of the section.
☑ If an EPA document or other material is referenced, include a complete copy.
☑ Fuel specifications sheet.
☑ If computer models are used to estimate emissions, include an input summary (if available) and a detailed report, and a disk containing the input file(s) used to run the model. For tank-flashing emissions, include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., permit or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis.

Information used to determine emissions from the sources addressed in this permit application is summarized by source category in Table 7-1. Following is a brief list of the reference materials found in this section:

- Applicable tables from AP-42;
- Material Safety Data Sheets (MSDS);
- Test data showing that the particulate matter control efficiency will exceed 99 percent for the filter materials used in building 830 and building 898 paint booths;
- Test data showing that the particulate matter control efficiency will exceed 90 percent for the filter materials used in all paint booths excluding those in buildings 830 and 898;
- EPA TANKS data, version 4.0.9d;
- 40 CFR 60 Subpart IIII and JJJJ emission standards for internal combustion engines;
- 40 CFR 98 Subparts A and C for greenhouse gas emission factors;
- Natural gas fuel sulfur content record – purchase agreement (cover page and page 9 which states sulfur content limits); and
- Manufacturer specifications.

Table 7-1.
Emission Factor Reference Table

Source Category	Reference	Emission Factors for:	Comment/Reference Page Numbers
Remediation	AP-42 Tables 1.4-1 through 1.4-3	NO_X,, CO, VOC, Pb, PM, SO_2, HAP (hexane)	See Pages 1.4-5 through 1.4-8
Open Burning/Open Detonation	AP-42 Table 13.3-1	NO_X, SO_2, Pb, CO, HCN	Pages 13.3-2 and 3
External Combustion	AP-42 Table 1.4-1	NO_X, CO	Page 1.4-5 (natural gas)
	AP-42 Table 1.4-2	Pb, PM, SO_2, VOC	Page 1.4-6 (natural gas)
	AP-42 Table 1.4-3	HAP (hexane)	Pages 1.4-7 and -8 (natural gas)
	AP-42 Table 1.4-4	HAP (metals)	Page 1.4-9 (natural gas)
Aviation Gasoline	ConocoPhillips MSDS	HAP speciation	Pages 2 and 8 were used to develop the AVGAS HAP speciation.
Fuel Dispensing	AP-42 Table 5.2-7	VOC	Page 5.2-15
	Air Emissions Guide for Air Force Stationary Sources: Methods for Estimating Emissions of Air Pollutants for Stationary Sources at U.S. Air Force Installations	HAP	Cover Page, Page 119; same HAP speciation used for Fuel Loading, and Storage Tanks
Fuel Loading	AP-42 Section 5.2 equation 1	VOC	Page 5.2-4
	AP-42 Table 5.2-1	--	Saturation factor for use in equation 1; Page 5.2-5
	AP-42 Table 7.1-2	--	Properties of gasoline for use in equation 1; Page 7.1-49
Internal Combustion	AP-42 Table 3.3-1	NO_X, CO, SO_X, PM_{10}, VOC	Page 3.3-6
	AP-42 Table 3.4-1	NO_X, CO, SO_X, PM_{10}, VOC	Page 3.4-5
	AP-42 Table 3.2-3	VOC, SO_2, PM	Page 3.2-15
	40 CFR 60 Subpart IIII	NOx, CO, PM	Tables 1, 2, and 4
	40 CFR 89.112	NOx, CO, PM	Table 1 – emission standards
	40 CFR 1048.101	NOx, CO	Paragraph (c) (3)
Jet Engine Testing	IERA Air Emissions Inventory Guidance Document for Mobile Sources at Air Force Installations	NO_X, CO, VOC, PM_{10}, HAPs	Cover Page, Pages 37, 48 and 49
	NATO Data Sheet	NO_X, CO, VOC, PM_{10}	--
	IERA Aircraft Engine and Auxiliary Power Unit Emissions Testing	NO_X, CO, VOC, PM_{10}, HAPs	Cover Page, Pages 20, 22, 24, 25, 30, 32 and 33

Source Category	**Reference**	**Emission Factors for:**	**Comment/Reference Page Numbers**
Surface Coating	Test Results	--	Control efficiency
	Manufacturer Specification sheets	--	Control efficiency and manometer readings
Storage Tanks	AP-42 Table 7.1-7	--	Roswell, NM data for calculating tank emissions; Page 7.1-59
	TANKS 4.09b	--	EPA TANKS report starts on page 65 of this section.
Woodworking	AP-42 Table B.2-3	--	See data for fabric filter and single cyclone in Typical Collection Efficiencies of Various Particulate Control Devices table.
Greenhouse Gases	40 CFR 98 Subparts A and C Tables A-1, A-2, C1, and C-2	GHGs and GWPs	Subpart A Tables A-1 and A-2. Subpart C Equation C-1, 40 CFR 98.33(a)(1)(i). Subpart C Tables C-1 and C-2.

7.1 Open Burning/Open Detonation Emission Factor References

Table 13.3-1 (Metric And English Units). EMISSION FACTORS FOR DETONATION OF EXPLOSIVES

EMISSION FACTOR RATING: D

			Carbon Monoxide[a]		Nitrogen Oxides[a]		Methane[b]		Other		
Explosive	Composition	Uses	kg/Mg	lb/ton	kg/Mg	lb/ton	kg/Mg	lb/ton	Pollutant	kg/Mg	lb/ton
Black powder[2]	75/15/10; Potassium (sodium) nitrate/ charcoal sulfur	Delay fuses	85 (38-120)	170 (76-240)	ND	ND	2.1 (0.3-4.9)	4.2 (0.6-9.7)	H_2S	12 (0-37)	24 (0-73)
Smokeless powder[2]	Nitrocellulose (sometimes with other materials)	Small arms, propellant	38 (34-42)	77 (68-84)	ND	ND	0.6 (0.4-0.6)	1.1 (0.7-1.5)	H_2S Pb	10 (10-11) c	21 (20-21) c
Dynamite, straight[2]	20-60% Nitroglycerine/ sodium nitrate/ wood pulp/ calcium carbonate	Rarely used	141 (44-262)	281 (87-524)	ND	ND	1.3 (0.3-2.8)	2.5 (0.6-5.6)	H_2S	3 (0-7)	6 (0-15)
Dynamite, ammonia[2]	20-60% Nitroglycerine/ ammonium nitrate/sodium nitrate/wood pulp	Quarry work, stump blasting	32 (23-64)	63 (46-128)	ND	ND	0.7 (0.3-1.1)	1.3 (0.6-2.1)	H_2S	16 (9-19)	31 (19-37)
Dynamite, gelatin[2]	20-100% Nitroglycerine	Demolition, construction work, blasting in mines	52 (13-110)	104 (26-220)	26 (4-59)	53 (8-119)	0.3 (0.1-0.8)	0.7 (0.3-1.7)	H_2S SO_2	2 (0-3) 1 (0-8)	4 (0-6) 1 (1-16)

Table 13.3-1 (cont.).

			Carbon Monoxide[a]		Nitrogen Oxides[a]		Methane[b]		Other		
Explosive	Composition	Uses	kg/Mg	lb/ton	kg/Mg	lb/ton	kg/Mg	lb/ton	Pollutant	kg/Mg	lb/ton
ANFO[4,5]	Ammonium nitrate with 5.8-8% fuel oil	Construction work, blasting in mines	34	67	8	17	ND	ND	SO_2	1 (0-2)	2 (1-3)
TNT[2]	Trinitrotoluene	Main charge in artillery projectiles, mortar rounds, etc.	398 (324-472)	796 (647-944)	ND	ND	7.2 (6.6-7.7)	14.3 (13.2-15.4)	NH_3 HCN C_2H_2 C_2H_6	14 (14-15) 13 (11-16) 61 0.5	29 (27-30) 27 (22-32) 121 1.1
RDX[3]	$(CH_2)_3N_3(NO_2)_3$ Cyclotri-methylene-trinitroamine	Booster	98[d] (2.8-277)	196[d] (5.6-554)	ND	ND	ND	ND	NH_3	22[d] (12-61)	44[d] (24-122)
PETN[2]	$C(CH_2ONO_2)_4$ Pentaerythritol tetranitrate	Booster	149 (138-160)	297 (276-319)	ND	ND	ND	ND	NH_3	1.3 (0-25)	2.5 (0-5)

[a] Based on experiments carried out prior to 1930 except in the case of ANFO, TNT, and PETN. ND = no data.

[b] The factors apply to the chemical species, methane. They do not represent total volatile organic compounds (VOC) expressed as methane. Studies were carried out more than 40 years ago.

[c] Greater than 6 mg per 158 grain projectile (0.6 kg/Mg, 1.2 lb/ton).

[d] These factors are derived from theoretical calculations, not from experimental data.

7.2 ConocoPhillips MSDS for AVGAS – Reference for AVGAS HAP Speciation

Pre-Existing Medical Conditions: Conditions aggravated by exposure may include skin disorders, respiratory (asthma-like) disorders. Exposure to high concentrations of this material may increase the sensitivity of the heart to certain drugs. Persons with pre-existing heart disorders may be more susceptible to this effect (see Section 4 - Note to Physicians).

See Section 11 for additional Toxicity Information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS	Concentration (wt %)
Gasoline	NONE	>99.8
Benzene	71-43-2	<0.5
Tetraethyl Lead	78-00-2	<0.13

4. FIRST AID MEASURES

Eye: If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

Skin: Remove contaminated shoes and clothing, and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops, seek medical attention. Remove contaminated shoes and clothing and cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops and persists, seek medical attention.

Inhalation (Breathing): If respiratory symptoms or other symptoms of exposure develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek immediate medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion (Swallowing): Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

Notes to Physician: Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents (e.g., in enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe for the development of cardiac arrhythmias.

Federal regulations (29 CFR 1910.1028) specify medical surveillance programs for certain exposures to benzene above the action level or PEL (specified in Section (i)(1)(i) of the Standard). In addition, employees exposed in an emergency situation shall, as described in Section (i)(4)(i), provide a urine sample at the end of the shift for measurement of urine phenol.

5. FIRE-FIGHTING MEASURES

NFPA 704 Hazard Class

Health: 1 **Flammability:** 3 **Instability:** 0 (0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

Unusual Fire & Explosion Hazards: This material is extremely flammable and can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. If container is not properly cooled, it can rupture in the heat of a fire.

Extinguishing Media: Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters.

CERCLA/SARA - Section 311/312 (Title III Hazard Categories)

Acute Health:	Yes
Chronic Health:	Yes
Fire Hazard:	Yes
Pressure Hazard:	No
Reactive Hazard:	No

CERCLA/SARA - Section 313 and 40 CFR 372:
This material contains the following chemicals subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR 372:

Component	Concentration (wt %)	de minimis
Xylenes	1-15	1.0%
Toluene	1-10	1.0%
Ethyl Benzene	1-5	0.1%
1,2,4-Trimethyl Benzene	1-5	1.0%
n-Hexane	<4	1.0%
Cyclohexane	<3	1.0%
Benzene	<0.5	0.1%

EPA (CERCLA) Reportable Quantity (in pounds):
EPA's Petroleum Exclusion applies to this material - (CERCLA 101(14)).

California Proposition 65:
Warning: This material may contain detectable quantities of the following chemicals, known to the State of California to cause cancer, birth defects or other reproductive harm, and which may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Component	Type of Toxicity
Unleaded Gasoline (Wholly Vaporized)	Cancer
Ethylene Dibromide	Cancer Developmental Toxicant Male Reproductive Toxicant
Toluene	Developmental Toxicant
Benzene	Cancer Developmental Toxicant Male Reproductive Toxicant
Lead / Lead Compounds	Cancer Developmental Toxicant Female Reproductive Toxicant Male Reproductive Toxicant

Canadian Regulations:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
B2 - Flammable Liquids
D2A - Very Toxic Material

National Chemical Inventories:
All components are either listed on the US TSCA Inventory, or are not regulated under TSCA.
All components are listed on the Canadian DSL.

U.S. Export Control Classification Number: EAR99

16. OTHER INFORMATION

Issue Date:	23-May-2007
Status:	Final
Previous Issue Date:	17-Apr-2007
Product Code:	1014050

7.3 External Combustion Emission Factor References for Boilers and Remediation Activities

Table 1.4-1. EMISSION FACTORS FOR NITROGEN OXIDES (NO_x) AND CARBON MONOXIDE (CO) FROM NATURAL GAS COMBUSTION[a]

Combustor Type (MMBtu/hr Heat Input) [SCC]	NO_x[b]		CO	
	Emission Factor (lb/10^6 scf)	Emission Factor Rating	Emission Factor (lb/10^6 scf)	Emission Factor Rating
Large Wall-Fired Boilers (>100) [1-01-006-01, 1-02-006-01, 1-03-006-01]				
Uncontrolled (Pre-NSPS)[c]	280	A	84	B
Uncontrolled (Post-NSPS)[c]	190	A	84	B
Controlled - Low NO_x burners	140	A	84	B
Controlled - Flue gas recirculation	100	D	84	B
Small Boilers (<100) [1-01-006-02, 1-02-006-02, 1-03-006-02, 1-03-006-03]				
Uncontrolled	100	B	84	B
Controlled - Low NO_x burners	50	D	84	B
Controlled - Low NO_x burners/Flue gas recirculation	32	C	84	B
Tangential-Fired Boilers (All Sizes) [1-01-006-04]				
Uncontrolled	170	A	24	C
Controlled - Flue gas recirculation	76	D	98	D
Residential Furnaces (<0.3) [No SCC]				
Uncontrolled	94	B	40	B

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. To convert from lb/10^6 scf to kg/10^6 m^3, multiply by 16. Emission factors are based on an average natural gas higher heating value of 1,020 Btu/scf. To convert from 1b/10^6 scf to lb/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. SCC = Source Classification Code. ND = no data. NA = not applicable.

[b] Expressed as NO_2. For large and small wall fired boilers with SNCR control, apply a 24 percent reduction to the appropriate NO_X emission factor. For tangential-fired boilers with SNCR control, apply a 13 percent reduction to the appropriate NO_X emission factor.

[c] NSPS=New Source Performance Standard as defined in 40 CFR 60 Subparts D and Db. Post-NSPS units are boilers with greater than 250 MMBtu/hr of heat input that commenced construction modification, or reconstruction after August 17, 1971, and units with heat input capacities between 100 and 250 MMBtu/hr that commenced construction modification, or reconstruction after June 19, 1984.

TABLE 1.4-2. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM NATURAL GAS COMBUSTION[a]

Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
CO_2[b]	120,000	A
Lead	0.0005	D
N_2O (Uncontrolled)	2.2	E
N_2O (Controlled-low-NO_X burner)	0.64	E
PM (Total)[c]	7.6	D
PM (Condensable)[c]	5.7	D
PM (Filterable)[c]	1.9	B
SO_2[d]	0.6	A
TOC	11	B
Methane	2.3	B
VOC	5.5	C

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $lb/10^6$ scf to 1b/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. TOC = Total Organic Compounds. VOC = Volatile Organic Compounds.

[b] Based on approximately 100% conversion of fuel carbon to CO_2. $CO_2[lb/10^6$ scf$]$ = (3.67) (CON) (C)(D), where CON = fractional conversion of fuel carbon to CO_2, C = carbon content of fuel by weight (0.76), and D = density of fuel, $4.2x10^4$ $lb/10^6$ scf.

[c] All PM (total, condensible, and filterable) is assumed to be less than 1.0 micrometer in diameter. Therefore, the PM emission factors presented here may be used to estimate PM_{10}, $PM_{2.5}$ or PM_1 emissions. Total PM is the sum of the filterable PM and condensible PM. Condensible PM is the particulate matter collected using EPA Method 202 (or equivalent). Filterable PM is the particulate matter collected on, or prior to, the filter of an EPA Method 5 (or equivalent) sampling train.

[d] Based on 100% conversion of fuel sulfur to SO_2. Assumes sulfur content is natural gas of 2,000 grains/10^6 scf. The SO_2 emission factor in this table can be converted to other natural gas sulfur contents by multiplying the SO_2 emission factor by the ratio of the site-specific sulfur content (grains/10^6 scf) to 2,000 grains/10^6 scf.

TABLE 1.4-3. EMISSION FACTORS FOR SPECIATED ORGANIC COMPOUNDS FROM NATURAL GAS COMBUSTION[a]

CAS No.	Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
91-57-6	2-Methylnaphthalene[b, c]	2.4E-05	D
56-49-5	3-Methylchloranthrene[b, c]	<1.8E-06	E
	7,12-Dimethylbenz(a)anthracene[b,c]	<1.6E-05	E
83-32-9	Acenaphthene[b,c]	<1.8E-06	E
203-96-8	Acenaphthylene[b,c]	<1.8E-06	E
120-12-7	Anthracene[b,c]	<2.4E-06	E
56-55-3	Benz(a)anthracene[b,c]	<1.8E-06	E
71-43-2	Benzene[b]	2.1E-03	B
50-32-8	Benzo(a)pyrene[b,c]	<1.2E-06	E
205-99-2	Benzo(b)fluoranthene[b,c]	<1.8E-06	E
191-24-2	Benzo(g,h,i)perylene[b,c]	<1.2E-06	E
205-82-3	Benzo(k)fluoranthene[b,c]	<1.8E-06	E
106-97-8	Butane	2.1E+00	E
218-01-9	Chrysene[b,c]	<1.8E-06	E
53-70-3	Dibenzo(a,h)anthracene[b,c]	<1.2E-06	E
25321-22-6	Dichlorobenzene[b]	1.2E-03	E
74-84-0	Ethane	3.1E+00	E
206-44-0	Fluoranthene[b,c]	3.0E-06	E
86-73-7	Fluorene[b,c]	2.8E-06	E
50-00-0	Formaldehyde[b]	7.5E-02	B
110-54-3	Hexane[b]	1.8E+00	E
193-39-5	Indeno(1,2,3-cd)pyrene[b,c]	<1.8E-06	E
91-20-3	Naphthalene[b]	6.1E-04	E
109-66-0	Pentane	2.6E+00	E
85-01-8	Phenanathrene[b,c]	1.7E-05	D

TABLE 1.4-3. EMISSION FACTORS FOR SPECIATED ORGANIC COMPOUNDS FROM NATURAL GAS COMBUSTION (Continued)

CAS No.	Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
74-98-6	Propane	1.6E+00	E
129-00-0	Pyrene[b, c]	5.0E-06	E
108-88-3	Toluene[b]	3.4E-03	C

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $1b/10^6$ scf to lb/MMBtu, divide by 1,020. Emission Factors preceeded with a less-than symbol are based on method detection limits.

[b] Hazardous Air Pollutant (HAP) as defined by Section 112(b) of the Clean Air Act.

[c] HAP because it is Polycyclic Organic Matter (POM). POM is a HAP as defined by Section 112(b) of the Clean Air Act.

[d] The sum of individual organic compounds may exceed the VOC and TOC emission factors due to differences in test methods and the availability of test data for each pollutant.

TABLE 1.4-4. EMISSION FACTORS FOR METALS FROM NATURAL GAS COMBUSTION[a]

CAS No.	Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
7440-38-2	Arsenic[b]	2.0E-04	E
7440-39-3	Barium	4.4E-03	D
7440-41-7	Beryllium[b]	<1.2E-05	E
7440-43-9	Cadmium[b]	1.1E-03	D
7440-47-3	Chromium[b]	1.4E-03	D
7440-48-4	Cobalt[b]	8.4E-05	D
7440-50-8	Copper	8.5E-04	C
7439-96-5	Manganese[b]	3.8E-04	D
7439-97-6	Mercury[b]	2.6E-04	D
7439-98-7	Molybdenum	1.1E-03	D
7440-02-0	Nickel[b]	2.1E-03	C
7782-49-2	Selenium[b]	<2.4E-05	E
7440-62-2	Vanadium	2.3E-03	D
7440-66-6	Zinc	2.9E-02	E

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. Emission factors preceeded by a less-than symbol are based on method detection limits. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by l6. To convert from $lb/10^6$ scf to 1b/MMBtu, divide by 1,020.

[b] Hazardous Air Pollutant as defined by Section 112(b) of the Clean Air Act.

7.4.1 Fuel Dispensing VOC Emission Factor Reference

Table 5.2-7 (Metric And English Units). EVAPORATIVE EMISSIONS FROM GASOLINE SERVICE STATION OPERATIONS[a]

Emission Source	Emission Rate	
	mg/L Throughput	$lb/10^3$ gal Throughput
Filling underground tank (Stage I)		
Submerged filling	880	7.3
Splash filling	1,380	11.5
Balanced submerged filling	40	0.3
Underground tank breathing and emptying[b]	120	1.0
Vehicle refueling operations (Stage II)		
Displacement losses (uncontrolled)[c]	1,320	11.0
Displacement losses (controlled)	132	1.1
Spillage	80	0.7

[a] Factors are for VOC as well as total organic emissions, because of the methane and ethane content of gasoline evaporative emissions is negligible.
[b] Includes any vapor loss between underground tank and gas pump.
[c] Based on Equation 6, using average conditions.

A second source of vapor emissions from service stations is underground tank breathing. Breathing losses occur daily and are attributable to gasoline evaporation and barometric pressure changes. The frequency with which gasoline is withdrawn from the tank, allowing fresh air to enter to enhance evaporation, also has a major effect on the quantity of these emissions. An average breathing emission rate is 120 mg/L (1.0 lb/1000 gal) of throughput.

5.2.2.3 Motor Vehicle Refueling -

Service station vehicle refueling activity also produces evaporative emissions. Vehicle refueling emissions come from vapors displaced from the automobile tank by dispensed gasoline and from spillage. The quantity of displaced vapors depends on gasoline temperature, auto tank temperature, gasoline RVP, and dispensing rate. Equation 6 can be used to estimate uncontrolled displacement losses from vehicle refueling for a particular set of conditions.[14]

$$E_R = 264.2\ [(-5.909) - 0.0949\ (\Delta T) + 0.0884\ (T_D) + 0 \qquad (6)$$

where:

E_R = refueling emissions, mg/L
ΔT = difference between temperature of fuel in vehicle tank and temperature of dispensed fuel, °F
T_D = temperature of dispensed fuel, °F
RVP = Reid vapor pressure, psia

Note that this equation and the spillage loss factor are incorporated into the *MOBILE* model. The *MOBILE* model allows for disabling of this calculation if it is desired to include these emissions in the stationary area source portion of an inventory rather than in the mobile source portion. It is estimated that the uncontrolled emissions from vapors displaced during vehicle refueling average 1320 mg/L (11.0 lb/1000 gal) of dispensed gasoline.[5,13]

Spillage loss is made up of contributions from prefill and postfill nozzle drip and from spit-back and

7.4.2 Fuel Dispensing, Loading, and Storage, HAP Speciation Reference

AIR EMISSIONS GUIDE FOR AIR FORCE STATIONARY SOURCES

METHODS FOR ESTIMATING EMISSIONS OF AIR POLLUTANTS FOR STATIONARY SOURCES AT UNITED STATES AIR FORCE INSTALLATIONS

Air Force Civil Engineer Center
Compliance Technical Support Branch
250 Donald Goodrich Drive; Building #1650
San Antonio, TX 78226

August 2018

Table 6-5. HAP Speciation of Fuels Commonly Used at USAF Installations

Compound	Typical wt. %					
	Diesel		Gasoline		JP-8/Jet A[a]	
	Liquid Phase	Vapor Phase[b]	Liquid Phase	Vapor Phase[b]	Liquid Phase	Vapor Phase[b]
Anthracene	2.83E-03[c]	---	---	---	---	---
Benzene	8.00E-04	1.96E-01	1.80E+00	6.18E-01	3.38E-02	1.58E+00
1,3-Butadiene	---	---	2.00E-04[c]	1.62E-03	---	---
Cumene (Isopropylbenzene)	---	---	5.00E-01	7.79E-03	1.81E-01	3.83E-01
Dibenzofuran	1.64E-02[c]	---	---	---	---	---
Ethylbenzene	1.30E-02	3.10E-01	1.40E+00	4.67E-02	1.59E-01	7.20E-01
Fluorene	2.94E-02[c]	---	---	---	3.44E-03	---
Hexane	1.00E-04	3.98E-02	1.00E+00	5.57E-01	---	---
Isooctane (2,2,4-Trimethyl Pentane)	---	---	4.00E+00	7.11E-01	1.23E-03	2.97E-02
Naphthalene	3.39E-01[c]	2.15E-01	1.74E-01[c]	1.54E-04	2.68E-01	3.23E-02
Phenanthrene	3.22E-02[c]	---	---	---	---	---
Phenylbenzene (1,1′-biphenyl)	---	---	---	---	6.78E-02	---
Pyrene	3.62E-02[c]	---	---	---	1.00E-05	---
Toluene	3.20E-02	2.30E+00	7.00E+00	7.05E-01	2.19E-01	3.00E+00
Xylenes	2.90E-01	7.19E+00	7.00E+00	2.43E-01	1.19E+00	5.61E-02

SOURCE (Unless otherwise stated): Data taken from USEPA 2005, TANKS, Version 4.09d, U.S. Environmental Protection Agency, October 2005. wt. % = weight percent.

a) SOURCE: "JP-8 Composition and Variability," Armstrong Laboratory, Environics Directorate, Environmental Research Division, May 1996. An average density of 6.67 pounds per gallon (lb/gal) was used for unit conversion.

b) The vapor phase speciation data was estimated using the liquid phase speciation data and equations found in Section 7.1.4 of AP-42, Fifth Edition, Volume I last updated November 2006. Physical properties for fuels used for calculations can be found below, in Table 6-6.

c) SOURCE: SPECIATE, Version 4.4, U.S. Environmental Protection Agency, February 2014.

"---" No data available

Table 6-6. Fuel Properties

Fuel	Liquid Molecular Weight (lb/lb-mol)	Vapor Molecular Weight (lb/lb-mol)	Vapor Pressure (psia)[b]
JP-8/Jet A	162	130	4.08E-02[c]
Diesel	188	130	9.00E-03
Gasoline[a]	92	66	6.20E+00

SOURCE (Unless otherwise stated): Data taken from USEPA 2005, TANKS, Version 4.09d, U.S. Environmental Protection Agency, October 2005.

a) Based on gasoline with a Reid Vapor Pressure of 10.

b) Based on Temperature of 70 degrees Fahrenheit (°F).

c) SOURCE: "JP-8 Volatility Study," Southwest Research Institute, March 2001. Vapor pressures calculated using the composite data calculation, an average flash point temperature of 118.238 (°F), and atmospheric pressure of 760 millimeters of mercury (mmHg). Flash point temperature average provided by "Petroleum Quality Information System Fuels Data (2005)," Defense Logistics Agency, Defense Energy Support Center, Technology and Standardization Division, 2006.

Table 15-2. Liquid-phase and Vapor-phase HAP Speciation of Gasoline

HAP Component	Weight Percent in Liquid-Phase[a]	Weight Percent in Vapor-Phase[b]
Benzene	1.8	0.6
Cumene	0.5	0.02
Ethylbenzene	1.4	0.04
Hexane (*n*-hexane)	1	0.5
Methyl tert-butyl ether	4.5	4.6
Naphthalene	0.3	Negligible
Toluene	7	0.7
2,2,4-Trimethylpentane	4	0.7
Xylenes (mixed isomers)	7	0.2

[a] With the exception of naphthalene, the liquid-phase speciation is based on "typical" values obtained from Table 3 of API's Manual of Petroleum Measurement Standards, Chapter 19.4. The naphthalene liquid-phase percentage was obtained by averaging the sample results found in the draft version of EPA's report entitled "Technical Support Document for Development of a Comparable Fuel Exemption."

[b] The vapor-phase speciation was calculated using the liquid-phase speciation values and the procedures found in Section 7.1.4 of AP-42. Specific data (e.g., molecular weights, vapor pressures, etc.) used in the calculations can be found in Appendix E.

15.3 Information Resources: The gasoline service station supervisor should be contacted for information such as the annual gasoline throughput and whether or not Stage II vapor recovery controls are being used. Although the supervisor may also have the required information pertaining to filling of the USTs, in some cases the gasoline supplier(s) will need to be contacted. The required UST information includes the method in which the USTs are filled (submerged filling or splash spilling) and whether or not Stage I vapor recovery controls are being used.

15.4 Example Problem: A base has an AAFES service station located at the shoppette. According to the service station supervisor, a total of a 172,000 gallons of gasoline was dispensed at the service station during the year and no Stage II vapor recovery controls were used. The shop supervisor also stated that only one fuel supplier was used during the year. When contacted, the fuel supplier stated that the USTs were filled using the submerged filling technique and that no Stage I vapor controls were used. Calculate both the VOC and HAP emissions.

a. First calculate the VOC emissions as follows:

$$E_{VOC\text{-}Total} = [GT * EF_{VOC\text{-}Fill}] + [GT * EF_{VOC\text{-}B\&E}] + [GT * EF_{VOC\text{-}VD}] + [GT * EF_{VOC\text{-}S}]$$

$$E_{VOC\text{-}Total} = [(172 \times 10^3 \text{ gal/yr}) * 7.3 \text{ lb}/10^3 \text{ gal}] + [(172 \times 10^3 \text{ gal/yr}) * 1.0 \text{ lb}/10^3 \text{ gal}] + [(172 \times 10^3 \text{ gal/yr}) * 11.0 \text{ lb}/10^3 \text{ gal}] + [(172 \times 10^3 \text{ gal/yr}) * 0.7 \text{ lb}/10^3 \text{ gal}]$$

$$E_{VOC\text{-}Total} = 1{,}255.6 \text{ lb/yr} + 172 \text{ lb/yr} + 1{,}892 \text{ lb/yr} + 120.4 \text{ lb/yr} = \mathbf{3{,}440 \text{ lb/yr}}$$

b. Next, calculate the HAP emissions associated with the evaporative losses from the USTs and automobile tanks. This is done by multiplying the VOC emissions associated with evaporation from the USTs and automobile tanks times the weight fraction of each HAP in the vapor-phase.

(1) The VOC emissions associated with evaporation from the USTs and automobile tanks are equal to:

7.5 Fuel Loading Emission Calculation References

loading operation, resulting in high levels of vapor generation and loss. If the turbulence is great enough, liquid droplets will be entrained in the vented vapors.

A second method of loading is submerged loading. Two types are the submerged fill pipe method and the bottom loading method. In the submerged fill pipe method, the fill pipe extends almost to the bottom of the cargo tank. In the bottom loading method, a permanent fill pipe is attached to the cargo tank bottom. During most of submerged loading by both methods, the fill pipe opening is below the liquid surface level. Liquid turbulence is controlled significantly during submerged loading, resulting in much lower vapor generation than encountered during splash loading.

The recent loading history of a cargo carrier is just as important a factor in loading losses as the method of loading. If the carrier has carried a nonvolatile liquid such as fuel oil, or has just been cleaned, it will contain vapor-free air. If it has just carried gasoline and has not been vented, the air in the carrier tank will contain volatile organic vapors, which will be expelled during the loading operation along with newly generated vapors.

Cargo carriers are sometimes designated to transport only one product, and in such cases are practicing "dedicated service". Dedicated gasoline cargo tanks return to a loading terminal containing air fully or partially saturated with vapor from the previous load. Cargo tanks may also be "switch loaded" with various products, so that a nonvolatile product being loaded may expel the vapors remaining from a previous load of a volatile product such as gasoline. These circumstances vary with the type of cargo tank and with the ownership of the carrier, the petroleum liquids being transported, geographic location, and season of the year.

One control measure for vapors displaced during liquid loading is called "vapor balance service", in which the cargo tank retrieves the vapors displaced during product unloading at bulk plants or service stations and transports the vapors back to the loading terminal. Figure 5.2-5 shows a tank truck in vapor balance service filling a service station underground tank and taking on displaced gasoline vapors for return to the terminal. A cargo tank returning to a bulk terminal in vapor balance service normally is saturated with organic vapors, and the presence of these vapors at the start of submerged loading of the tanker truck results in greater loading losses than encountered during nonvapor balance, or "normal", service. Vapor balance service is usually not practiced with marine vessels, although some vessels practice emission control by means of vapor transfer within their own cargo tanks during ballasting operations, discussed below.

Emissions from loading petroleum liquid can be estimated (with a probable error of ±30 percent)[4] using the following expression:

$$L_L = 12.46 \frac{SPM}{T} \quad (1)$$

where:

L_L = loading loss, pounds per 1000 gallons (lb/10^3 gal) of liquid loaded

S = a saturation factor (see Table 5.2-1)
P = true vapor pressure of liquid loaded, pounds per square inch absolute (psia) (see Figure 7.1-5, Figure 7.1-6, and Table 7.1-2)
M = molecular weight of vapors, pounds per pound-mole (lb/lb-mole) (see Table 7.1-2)
T = temperature of bulk liquid loaded, °R (°F + 460)

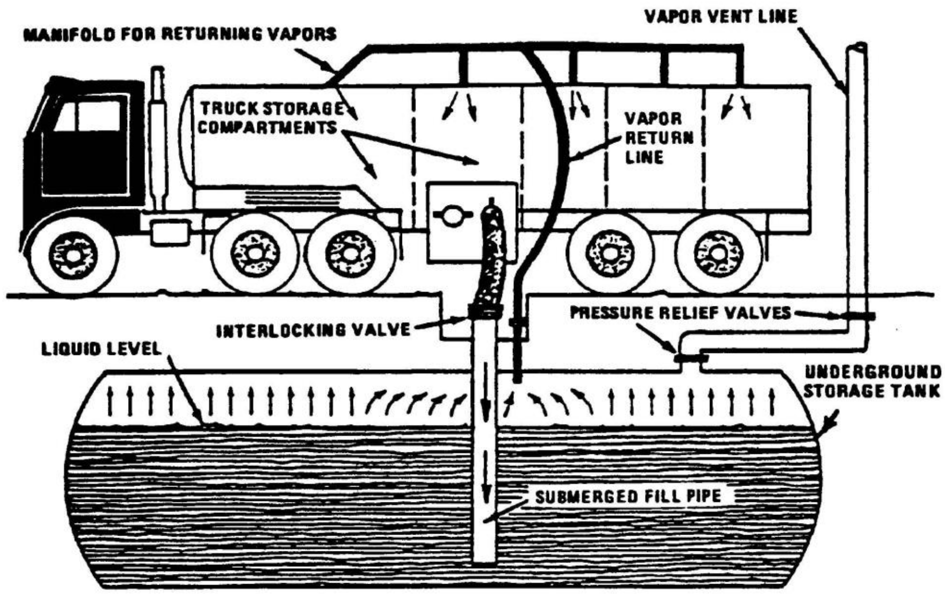

Figure 5.2-5. Tank truck unloading into a service station underground storage tank and practicing "vapor balance" form of emission control.

Table 5.2-1. SATURATION (S) FACTORS FOR CALCULATING PETROLEUM LIQUID LOADING LOSSES

Cargo Carrier	Mode Of Operation	S Factor
Tank trucks and rail tank cars	Submerged loading of a clean cargo tank	0.50
	Submerged loading: dedicated normal service	0.60
	Submerged loading: dedicated vapor balance service	1.00
	Splash loading of a clean cargo tank	1.45
	Splash loading: dedicated normal service	1.45
	Splash loading: dedicated vapor balance service	1.00
Marine vessels[a]	Submerged loading: ships	0.2
	Submerged loading: barges	0.5

[a] For products other than gasoline and crude oil. For marine loading of gasoline, use factors from Table 5.2-2. For marine loading of crude oil, use Equations 2 and 3 and Table 5.2-3.

Table 7.1-2. PROPERTIES (M_V, P_{VA}, W_L) OF SELECTED PETROLEUM LIQUIDS[a]

Petroleum Liquid	Vapor Molecular Weight at 60°F, M_V (lb/lb-mole)	Liquid Density At 60°F, W_L (lb/gal)	True Vapor Pressure, P_{VA} (psi)						
			40°F	50°F	60°F	70°F	80°F	90°F	100°F
Crude oil RVP 5	50	7.1	1.8	2.3	2.8	3.4	4.0	4.8	5.7
Distillate fuel oil No. 2	130	7.1	0.0031	0.0045	0.0065	0.0090	0.012	0.016	0.022
Gasoline RVP 7	68	5.6	2.3	2.9	3.5	4.3	5.2	6.2	7.4
Gasoline RVP 7.8	68	5.6	2.5929	3.2079	3.9363	4.793	5.7937	6.9552	8.2952
Gasoline RVP 8.3	68	5.6	2.7888	3.444	4.2188	5.1284	6.1891	7.4184	8.8344
Gasoline RVP 10	66	5.6	3.4	4.2	5.2	6.2	7.4	8.8	10.5
Gasoline RVP 11.5	65	5.6	4.087	4.9997	6.069	7.3132	8.7519	10.4053	12.2949
Gasoline RVP 13	62	5.6	4.7	5.7	6.9	8.3	9.9	11.7	13.8
Gasoline RVP 13.5	62	5.6	4.932	6.0054	7.2573	8.7076	10.3774	12.2888	14.4646
Gasoline RVP 15.0	60	5.6	5.5802	6.774	8.1621	9.7656	11.6067	13.7085	16.0948
Jet kerosene	130	7.0	0.0041	0.0060	0.0085	0.011	0.015	0.021	0.029
Jet naphtha (JP-4)	80	6.4	0.8	1.0	1.3	1.6	1.9	2.4	2.7
Residual oil No. 6	190	7.9	0.00002	0.00003	0.00004	0.00006	0.00009	0.00013	0.00019

[a] References 10 and 11

7.6 Internal Combustion Emission Factor References

Table 3.3-1. EMISSION FACTORS FOR UNCONTROLLED GASOLINE AND DIESEL INDUSTRIAL ENGINES[a]

Pollutant	Gasoline Fuel (SCC 2-02-003-01, 2-03-003-01)		Diesel Fuel (SCC 2-02-001-02, 2-03-001-01)		EMISSION FACTOR RATING
	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)	
NO_x	0.011	1.63	0.031	4.41	D
CO	6.96 E-03[d]	0.99[d]	6.68 E-03	0.95	D
SO_x	5.91 E-04	0.084	2.05 E-03	0.29	D
PM-10[b]	7.21 E-04	0.10	2.20 E-03	0.31	D
CO_2[c]	1.08	154	1.15	164	B
Aldehydes	4.85 E-04	0.07	4.63 E-04	0.07	D
TOC					
Exhaust	0.015	2.10	2.47 E-03	0.35	D
Evaporative	6.61 E-04	0.09	0.00	0.00	E
Crankcase	4.85 E-03	0.69	4.41 E-05	0.01	E
Refueling	1.08 E-03	0.15	0.00	0.00	E

[a] References 2,5-6,9-14. When necessary, an average brake-specific fuel consumption (BSFC) of 7,000 Btu/hp-hr was used to convert from lb/MMBtu to lb/hp-hr. To convert from lb/hp-hr to kg/kw-hr, multiply by 0.608. To convert from lb/MMBtu to ng/J, multiply by 430. SCC = Source Classification Code. TOC = total organic compounds.

[b] PM-10 = particulate matter less than or equal to 10 μm aerodynamic diameter. All particulate is assumed to be ≤ 1 μm in size.

[c] Assumes 99% conversion of carbon in fuel to CO_2 with 87 weight % carbon in diesel, 86 weight % carbon in gasoline, average BSFC of 7,000 Btu/hp-hr, diesel heating value of 19,300 Btu/lb, and gasoline heating value of 20,300 Btu/lb.

[d] Instead of 0.439 lb/hp-hr (power output) and 62.7 lb/mmBtu (fuel input), the correct emissions factors values are 6.96 E-03 lb/hp-hr (power output) and 0.99 lb/mmBtu (fuel input), respectively. This is an editorial correction. March 24, 2009

Table 3.4-1. GASEOUS EMISSION FACTORS FOR LARGE STATIONARY DIESEL AND ALL STATIONARY DUAL-FUEL ENGINES[a]

	Diesel Fuel (SCC 2-02-004-01)			Dual Fuel[b] (SCC 2-02-004-02)		
Pollutant	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)	EMISSION FACTOR RATING	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)	EMISSION FACTOR RATING
NO_x						
Uncontrolled	0.024	3.2	B	0.018	2.7	D
Controlled	0.013[c]	1.9[c]	B	ND	ND	NA
CO	5.5 E-03	0.85	C	7.5 E-03	1.16	D
SO_x[d]	8.09 E-03S_1	1.01S_1	B	4.06 E-04S_1 + 9.57 E-03S_2	0.05S_1 + 0.895S_2	B
CO_2[e]	1.16	165	B	0.772	110	B
PM	0.0007[c]	0.1[c]	B	ND	ND	NA
TOC (as CH_4)	7.05 E-04	0.09	C	5.29 E-03	0.8	D
Methane	f	f	E	3.97 E-03	0.6	E
Nonmethane	f	f	E	1.32 E-03	0.2[g]	E

[a] Based on uncontrolled levels for each fuel, from References 2,6-7. When necessary, the average heating value of diesel was assumed to be 19,300 Btu/lb with a density of 7.1 lb/gallon. The power output and fuel input values were averaged independently from each other, because of the use of actual brake-specific fuel consumption (BSFC) values for each data point and of the use of data possibly sufficient to calculate only 1 of the 2 emission factors (e. g., enough information to calculate lb/MMBtu, but not lb/hp-hr). Factors are based on averages across all manufacturers and duty cycles. The actual emissions from a particular engine or manufacturer could vary considerably from these levels. To convert from lb/hp-hr to kg/kw-hr, multiply by 0.608. To convert from lb/MMBtu to ng/J, multiply by 430. SCC = Source Classification Code.

[b] Dual fuel assumes 95% natural gas and 5% diesel fuel.

[c] References 8-26. Controlled NO_x is by ignition timing retard.

[d] Assumes that all sulfur in the fuel is converted to SO_2. S_1 = % sulfur in fuel oil; S_2 = % sulfur in natural gas. For example, if sulfer content is 1.5%, then S = 1.5.

[e] Assumes 100% conversion of carbon in fuel to CO_2 with 87 weight % carbon in diesel, 70 weight % carbon in natural gas, dual-fuel mixture of 5% diesel with 95% natural gas, average BSFC of 7,000 Btu/hp-hr, diesel heating value of 19,300 Btu/lb, and natural gas heating value of 1050 Btu/scf.

[f] Based on data from 1 engine, TOC is by weight 9% methane and 91% nonmethane.

[g] Assumes that nonmethane organic compounds are 25% of TOC emissions from dual-fuel engines. Molecular weight of nonmethane gas stream is assumed to be that of methane.

Table 3.2-3. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE RICH-BURN ENGINES[a]
(SCC 2-02-002-53)

Pollutant	Emission Factor (lb/MMBtu)[b] (fuel input)	Emission Factor Rating
Criteria Pollutants and Greenhouse Gases		
NO_x[c] 90 - 105% Load	2.21 E+00	A
NO_x[c] <90% Load	2.27 E+00	C
CO[c] 90 - 105% Load	3.72 E+00	A
CO[c] <90% Load	3.51 E+00	C
CO_2[d]	1.10 E+02	A
SO_2[e]	5.88 E-04	A
TOC[f]	3.58 E-01	C
Methane[g]	2.30 E-01	C
VOC[h]	2.96 E-02	C
PM10 (filterable)[i,j]	9.50 E-03	E
PM2.5 (filterable)[j]	9.50 E-03	E
PM Condensable[k]	9.91 E-03	E
Trace Organic Compounds		
1,1,2,2-Tetrachloroethane[l]	2.53 E-05	C
1,1,2-Trichloroethane[l]	<1.53 E-05	E
1,1-Dichloroethane	<1.13 E-05	E
1,2-Dichloroethane	<1.13 E-05	E
1,2-Dichloropropane	<1.30 E-05	E
1,3-Butadiene[l]	6.63 E-04	D
1,3-Dichloropropene[l]	<1.27 E-05	E
Acetaldehyde[l,m]	2.79 E-03	C
Acrolein[l,m]	2.63 E-03	C
Benzene[l]	1.58 E-03	B
Butyr/isobutyraldehyde	4.86 E-05	D
Carbon Tetrachloride[l]	<1.77 E-05	E

Table 1 to Subpart IIII of Part 60—Emission Standards for Stationary Pre-2007 Model Year Engines With a Displacement of <10 Liters per Cylinder and 2007-2010 Model Year Engines >2,237 KW (3,000 HP) and With a Displacement of <10 Liters per Cylinder

[As stated in §§ 60.4201(b), 60.4202(b), 60.4204(a), and 60.4205(a), you must comply with the following emission standards]

Maximum engine power	Emission standards for stationary pre-2007 model year engines with a displacement of <10 liters per cylinder and 2007-2010 model year engines >2,237 KW (3,000 HP) and with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)				
	$NMHC + NO_X$	HC	NO_X	CO	PM
KW<8 (HP<11)	10.5 (7.8)			8.0 (6.0)	1.0 (0.75)
8≤KW<19 (11≤HP<25)	9.5 (7.1)			6.6 (4.9)	0.80 (0.60)
19≤KW<37 (25≤HP<50)	9.5 (7.1)			5.5 (4.1)	0.80 (0.60)
37≤KW<56 (50≤HP<75)			9.2 (6.9)		
56≤KW<75 (75≤HP<100)			9.2 (6.9)		
75≤KW<130 (100≤HP<175)			9.2 (6.9)		
130≤KW<225 (175≤HP<300)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
225≤KW<450 (300≤HP<600)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
450≤KW≤560 (600≤HP≤750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
KW>560 (HP>750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)

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Table 2 to Subpart IIII of Part 60—Emission Standards for 2008 Model Year and Later Emergency Stationary CI ICE <37 KW (50 HP) With a Displacement of <10 Liters per Cylinder

[As stated in § 60.4202(a)(1), you must comply with the following emission standards]

Engine power	Emission standards for 2008 model year and later emergency stationary CI ICE <37 KW (50 HP) with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)			
	Model year(s)	NO_X+ NMHC	CO	PM
KW<8 (HP<11)	2008+	7.5 (5.6)	8.0 (6.0)	0.40 (0.30)
8≤KW<19 (11≤HP<25)	2008+	7.5 (5.6)	6.6 (4.9)	0.40 (0.30)
19≤KW<37 (25≤HP<50)	2008+	7.5 (5.6)	5.5 (4.1)	0.30 (0.22)

Table 4 to Subpart IIII of Part 60—Emission Standards for Stationary Fire Pump Engines

[As stated in §§ 60.4202(d) and 60.4205(c), you must comply with the following emission standards for stationary fire pump engines]

Maximum engine power	Model year(s)	NMHC + NO_X	CO	PM
KW<8 (HP<11)	2010 and earlier	10.5 (7.8)	8.0 (6.0)	1.0 (0.75)
	2011+	7.5 (5.6)		0.40 (0.30)
8≤KW<19 (11≤HP<25)	2010 and earlier	9.5 (7.1)	6.6 (4.9)	0.80 (0.60)
	2011+	7.5 (5.6)		0.40 (0.30)
19≤KW<37 (25≤HP<50)	2010 and earlier	9.5 (7.1)	5.5 (4.1)	0.80 (0.60)
	2011+	7.5 (5.6)		0.30 (0.22)
37≤KW<56 (50≤HP<75)	2010 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2011+ [1]	4.7 (3.5)		0.40 (0.30)
56≤KW<75 (75≤HP<100)	2010 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2011+ [1]	4.7 (3.5)		0.40 (0.30)
75≤KW<130 (100≤HP<175)	2009 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2010+ [2]	4.0 (3.0)		0.30 (0.22)
130≤KW<225 (175≤HP<300)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009+ [3]	4.0 (3.0)		0.20 (0.15)
225≤KW<450 (300≤HP<600)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009+ [3]	4.0 (3.0)		0.20 (0.15)
450≤KW≤560 (600≤HP≤750)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009+	4.0 (3.0)		0.20 (0.15)
KW>560 (HP>750)	2007 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2008+	6.4 (4.8)		0.20 (0.15)

[1] For model years 2011-2013, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 revolutions per minute (rpm) may comply with the emission limitations for 2010 model year engines.

[2] For model years 2010-2012, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2009 model year engines.

[3] In model years 2009-2011, manufacturers of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2008 model year engines.

Table 1 to 40 CFR 89.112 (Nonroad Diesel Engine Emission Standards) [2007 Model year]

Table 1.—Emission Standards (g/kW-hr)

Rated Power (kW)	Tier	Model Year[1]	NOx	HC	NMHC + NOx	CO	PM
kW<8	Tier 1	2000	—	—	10.5	8.0	1.0
	Tier 2	2005	—	—	7.5	8.0	0.80
8≤kW<19	Tier 1	2000	—	—	9.5	6.6	0.80
	Tier 2	2005	—	—	7.5	6.6	0.80
19≤kW<37	Tier 1	1999	—	—	9.5	5.5	0.80
	Tier 2	2004	—	—	7.5	5.5	0.60
37≤kW<75	Tier 1	1998	9.2	—	—	—	—
	Tier 2	2004	—	—	7.5	5.0	0.40
	Tier 3	2008	—	—	4.7	5.0	
75≤kW<130	Tier 1	1997	9.2	—	—	—	—
	Tier 2	2003	—	—	6.6	5.0	0.30
	Tier 3	2007	—	—	4.0	5.0	
130≤kW<225	Tier 1	1996	9.2	1.3	—	11.4	0.54
	Tier 2	2003	—	—	6.6	3.5	0.20
	Tier 3	2006	—	—	4.0	3.5	
225≤kW<450	Tier 1	1996	9.2	1.3	—	11.4	0.54
	Tier 2	2001	—	—	6.4	3.5	0.20
	Tier 3	2006	—	—	4.0	3.5	
450≤kW≤560	Tier 1	1996	9.2	1.3	—	11.4	0.54
	Tier 2	2002	—	—	6.4	3.5	0.20
	Tier 3	2006	—	—	4.0	3.5	
kW>560	Tier 1	2000	9.2	1.3	—	11.4	0.54
	Tier 2	2006	—	—	6.4	3.5	0.20

[1] The model years listed indicate the model years for which the specified tier of standards take effect.

Table 2 of §1048.101—Tier 1 Emission Standards (g/kW-hr)

Testing	General emission standards		Alternate emission standards for severe-duty engines	
	$HC + NO_X$	CO	$HC + NO_X$	CO
Certification and production-line testing	4.0	50.0	4.0	130.0
In-use testing	5.4	50.0	5.4	130.0

(3) Starting in the 2007 model year, steady-state exhaust emissions from your engines may not exceed the numerical emission standards in paragraph (a) of this section. See paragraph (d) of this section for alternate standards that apply for certain engines.

(c) *Standards for field testing.* Starting in 2007, exhaust emissions may not exceed field-testing standards, as follows:

(1) Measure emissions using the field-testing procedures in subpart F of this part:

(2) The $HC + NO_X$ standard is 3.8 g/kW-hr and the CO standard is 6.5 g/kW-hr. For severe-duty engines, the $HC + NO_X$ standard is 3.8 g/kW-hr and the CO standard is 200.0 g/kW-hr. For natural gas-fueled engines, you are not required to measure nonmethane hydrocarbon emissions or total hydrocarbon emissions for testing to show that the engine meets the emission standards of this paragraph (c); that is, you may assume HC emissions are equal to zero.

(3) You may apply the following formula to determine alternate emission standards that apply to your engines instead of the standards in paragraph (c)(1) of this section: $(HC + NO_X) \times CO^{0.791} \leq 16.78$. $HC + NO_X$ emission levels may not exceed 3.8 g/kW-hr and CO emission levels may not exceed 31.0 g/kW-hr. The following table illustrates a range of possible values under this paragraph (c)(2):

Table 3 of §1048.101—Examples of Possible Tier 2 Field-testing Emission Standards

7.7 Jet Engine Testing Emission Factor References

Emission factors for T-38 (engine type J85-GE-5H) and F-117 (engine type F404-GE-400/FID2) aircraft were taken from Air Emissions Inventory Guidance Document for Mobile Sources at Air Force Installations, published by the Air Force Institute for Environment, Safety and Occupational Health Risk Analysis (IERA), except for the SO_2 emission factor, which was based on a fuel sulfur limit of 67% of the maximum sulfur content specification for Jet fuel (as supported by fuel sulfur content measurements at Holloman AFB) and assuming a sulfur mass balance (sulfur in the fuel will be emitted as SO_2). The IERA Inventory Guidance Document lists emission factors in units of pounds of pollutant per thousand pounds of fuel consumed. Fuel consumption rates are also listed for each engine power setting. Emission factors in units of pounds of pollutant per hour were calculated by multiplying these two values together. Emission factors for Panavia Tornado aircraft were obtained from the German Air Force Support Command*. Emission factors for F-22 16 aircraft were taken from the IERA document, Aircraft Engine and Auxiliary Power Unit Emissions Testing: Final Report Addendum F119-PW-100 Engine Emissions Testing Report. All criteria pollutant and HAP emission factors used to calculate Holloman AFB jet engine testing emissions are presented in the emissions calculation spreadsheets titled “Jet Engine Testing Emissions Calculation” and “Jet Engine Testing HAP Emissions Calculation” located near the end of Section 6 of this application. Applicable pages from the references cited above are reproduced below. The entire reports were submitted in electronic format on a CD enclosed with the NSR Permit Application for Permit No. 1508-M2 in 2008. Several of the F-22 emission factor tables are marginally legible in the original IERA report (Tables numbered 6-7, 6-9, 6-11, and 6-12 in the IERA report) and, if photocopied will be totally illegible; Holloman AFB has created spreadsheets with the information from these tables and included the tables below.

* As explained in Sections 3 and 10 the German AFB is no longer at Holloman AFB and there are no plans at this time for their return. However, the Jet engine test cell remains, and will likely be used again in the future. For this reason, no change are being made to the emission calculations for the test cell at this time. The current emission will serve as a placeholder until the type and number of engines to be tested in the future are known. At that time, any necessary permit modifications will be made (future engine testing may or may not fit within the current limits established for the test cell).

T-38 and F-117 Emission Factor Data.

IERA-RS-BR-SR-2001-0010

UNITED STATES AIR FORCE
IERA

Air Emissions Inventory Guidance Document for Mobile Sources at Air Force Installations

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distribution is unlimited.

Air Force Institute for Environment, Safety
and Occupational Health Risk Analysis
Risk Analysis Directorate
Environmental Analysis Division
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Brooks Air Force Base TX 78235-5116

Table 3-3. Criteria Pollutant Emission Factors for Aircraft Engines (Cont'd)

Aircraft Engine	Power Setting	Fuel Flowrate (lb/hr)	Emission Factors in lb pollutant per 1000 lb fuel burned (lb/1000 lb)			
			NO_X	CO	VOC [a]	PM_{10} [b]
F118-GE-100	Idle	1,097	4.30	20.98	0.59	1.25
	Approach	3,773	11.09	2.02	0.87	4.47
	Intermediate	6,350	18.01	0.84	ND	1.78
	Military	10,887	33.12	0.65	ND	1.64
	Notes: 1, 2B, 3, 11A, 19B					
F404-GE-400/FID2	Idle	654	1.43	123.75	54.82	4.48
	Approach	3,110	7.14	3.17	0.85	1.46
	Intermediate	6,503	15.92	1.32	0.27	1.57
	Military	7,617	22.27	1.33	0.24	1.61
	Notes: 1, 2A, 3, 8, 11A, 19B					
J69-25A	Idle	167	0.80	159.84	15.00	3.16
	Intermediate	872	2.92	38.25	0.07	0.93
	Military	1,085	4.52	32.85	0.20	0.66
	Notes: 1, 2A, 3, 11A, 19C					
J85-GE-5H	Idle	506	2.11	158.22	15.34	4.70
	Approach	1,071	2.86	93.67	3.04	1.79
	Intermediate	2,155	5.67	28.38	0.64	1.13
	Military	2,815	4.66	28.98	0.52	1.13
	AB	8,138	2.09	14.19	2.29	0.25
	Notes: 1, 2A, 3, 8, 11A, 11B, 19A					

Table 3-5. Hazardous Air Pollutant Emission Factors for Aircraft Engines and Auxiliary Power Units (Cont'd)

Engine Model Number	Power Setting	Fuel Flowrate (lb/hr)	Emission Factors in pounds pollutant per 1000 pounds fuel burned (lb/1000 lb)									
			Acetaldehyde	Acrolein	Benzene	Ethylbenzene	Formaldehyde	Methyl Ethyl Ketone	Naphthalene	Styrene	Toluene	Xylenes
J85-GE-5H	Idle	434	1.0E-01	2.3E-01	1.3E-01	2.6E-02	1.9E-01	No Data	8.2E-02	3.5E-02	1.4E-01	1.2E-01
	Inter	950	No Data	No Data	1.6E-01	1.1E-02	6.5E-01	No Data	1.5E-02	1.5E-02	5.8E-02	4.3E-02
	Mil	2,740	No Data	No Data	1.3E-02	4.1E-04	8.2E-02	No Data	1.4E-03	5.6E-04	3.6E-03	1.6E-02
	Aftburn	8,138	No Data	No Data	7.2E-03	5.5E-04	2.5E-02	No Data	8.6E-04	3.0E-04	1.8E-03	2.9E-03
T700-GE-700	G Idle	134	1.8E-02	7.2E-03	4.9E-02	2.3E-03	2.2E-01	No Data	7.3E-03	5.2E-03	1.3E-02	7.2E-03
	F Idle	469	3.0E-04	9.7E-05	3.0E-04	4.7E-04	4.1E-03	No Data	1.6E-04	No Data	3.4E-04	6.8E-04
	F Max	626	No Data	No Data	3.1E-04	No Data	No Data	No Data	6.7E-05	No Data	0.0E+00	5.1E-04
	Over	725	No Data	No Data	3.0E-04	2.0E-04	4.8E-04	No Data	2.9E-05	No Data	2.9E-04	1.2E-03
F108-CF-100	Idle	1,136	0.0E+00	No Data	1.4E-02	1.0E-03	9.5E-02	5.5E-03	2.9E-03	1.5E-03	9.0E-03	1.7E-03
	Approach	2,547	No Data	No Data	3.4E-03	8.1E-04	1.5E-02	No Data	0.0E+00	No Data	6.2E-03	2.1E-03
	Inter	5,650	No Data	No Data	8.3E-04	No Data	5.6E-03	No Data	No Data	No Data	1.4E-03	6.3E-04
	Mil	6,458	No Data	No Data	5.9E-04	No Data	7.0E-03	No Data	No Data	No Data	1.1E-03	5.0E-04
TF33-P-7/7A	Idle	1,093	No Data	No Data	5.2E-01	2.0E-01	2.3E+00	No Data	3.7E-01	2.4E-01	3.7E-01	4.6E-01
	Approach	4,844	8.7E-03	No Data	2.9E-02	2.1E-03	1.3E-01	No Data	3.1E-03	3.5E-03	1.0E-02	4.9E-03
	Inter	6,356	No Data	No Data	6.5E-03	5.1E-04	2.8E-02	No Data	3.6E-04	7.5E-04	2.5E-03	1.5E-03
	Mil	8,264	No Data	No Data	1.5E-03	4.4E-04	5.3E-03	No Data	0.0E+00	No Data	2.3E-03	1.7E-03
F101-GE-102	Idle	1,117	No Data	No Data	1.2E-02	No Data	1.0E-01	No Data	1.8E-03	1.1E-03	5.6E-03	9.2E-04
	Approach	4,533	No Data	No Data	7.9E-04	No Data	5.1E-03	No Data	0.0E+00	No Data	1.5E-03	5.9E-04
	Inter	6,557	No Data	No Data	1.3E-03	No Data	4.6E-03	No Data	No Data	5.5E-03	1.7E-03	7.3E-04
	Mil	7,828	No Data	No Data	5.5E-03	No Data	4.4E-03	No Data	No Data	No Data	1.9E-03	2.5E-03
	Aftburn	15,314	1.8E-02	8.2E-02	2.3E-01	8.6E-02	3.9E-02	1.5E-02	1.3E-01	1.2E-02	1.3E-01	2.2E-01

Table 3-5. Hazardous Air Pollutant Emission Factors for Aircraft Engines and Auxiliary Power Units (Cont'd)

Engine Model Number	Power Setting	Fuel Flowrate (lb/hr)	Emission Factors in pounds pollutant per 1000 pounds fuel burned (lb/1000 lb)									
			Acetaldehyde	Acrolein	Benzene	Ethylbenzene	Formaldehyde	Methyl Ethyl Ketone	Naphthalene	Styrene	Toluene	Xylenes
TF33-P-102	Idle	1,114	1.0E-02	No Data	7.1E-01	8.7E-02	9.4E-01	No Data	2.1E-01	1.1E-01	2.7E-01	2.0E-01
	Approach	4,737	0.0E+00	No Data	1.1E-02	8.2E-04	6.6E-01	No Data	1.1E-03	1.2E-03	2.3E-03	2.4E-03
	Inter	5,782	No Data	No Data	4.1E-03	6.2E-04	2.3E-02	No Data	7.4E-04	5.8E-04	2.7E-03	1.4E-03
	Mil	7,561	No Data	No Data	9.6E-04	No Data	No Data	No Data	1.3E-04	No Data	9.5E-04	1.2E-03
F110-GE-100	Idle	1,111	6.6E-03	No Data	2.9E-02	2.0E-03	1.0E-01	No Data	2.4E-03	3.7E-03	1.1E-02	4.2E-03
	Approach	5,080	No Data	No Data	1.8E-03	4.6E-04	1.0E-02	No Data	0.0E+00	4.3E-04	1.3E-03	1.3E-03
	Inter	7,332	1.7E-04	No Data	1.6E-03	4.9E-04	1.9E-02	No Data	0.0E+00	6.1E-04	1.9E-03	1.2E-03
	Mil	11,358	1.5E-04	No Data	1.6E-03	2.5E-04	1.5E-02	No Data	3.3E-04	3.1E-04	7.4E-04	5.9E-04
	Aftburn	18,088	1.2E-02	3.9E-02	1.9E-01	4.5E-02	1.5E-02	5.5E-03	9.7E-02	5.7E-03	1.4E-01	8.9E-02
F117-PW-100	Idle	978	1.2E-02	No Data	2.2E-02	3.0E-03	2.3E-01	No Data	2.4E-03	1.5E-03	6.6E-03	3.2E-03
	Approach	4,645	No Data	No Data	8.9E-04	No Data	1.7E-02	No Data	No Data	No Data	1.4E-03	7.0E-04
	Inter	10,408	No Data	No Data	6.3E-04	No Data	9.5E-03	No Data	No Data	No Data	1.1E-03	5.5E-04
F-118-GE-100	Idle	1,097	7.9E-03	No Data	2.7E-02	1.2E-03	1.8E-01	No Data	0.0E+00	2.3E-03	9.9E-03	5.3E-03
	Approach	3,773	No Data	No Data	8.6E-04	5.0E-04	1.2E-02	No Data	No Data	No Data	1.3E-03	2.1E-03
	Inter	6,350	No Data	No Data	3.7E-04	No Data	1.2E-02	No Data	No Data	No Data	3.0E-04	3.3E-04
	Mil	10,887	No Data	No Data	3.4E-04	No Data	6.6E-03	No Data	No Data	No Data	3.8E-04	2.4E-04
F404-GE-F1D2/400	Idle	685	5.7E-02	1.7E-01	5.2E-01	7.5E-02	1.1E+00	No Data	1.3E-01	8.7E-02	2.6E-01	2.5E-01
	Approach	3,111	No Data	No Data	7.6E-04	4.8E-04	1.7E-02	No Data	3.1E-04	No Data	8.7E-04	2.6E-03
	Inter	6,464	No Data	No Data	6.4E-04	4.0E-04	2.3E-02	No Data	7.0E-05	No Data	1.1E-03	2.0E-03
	Mil	7,739	No Data	No Data	7.4E-04	No Data	9.0E-03	No Data	1.0E-04	No Data	6.6E-04	1.1E-03
	AB	15,851	3.4E-02	1.5E-01	3.7E-01	4.9E-02	3.7E-02	2.2E-02	7.3E-02	5.9E-03	1.8E-01	1.4E-01

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Tornado Emission Factor Data.

MTU München

NATO- RESTRICTED

Deutsche Aerospace

EXHAUST EMISSIONS RB199 MK103

PRESSURE RATIO π_{SO} (AT 100%) : 20.3

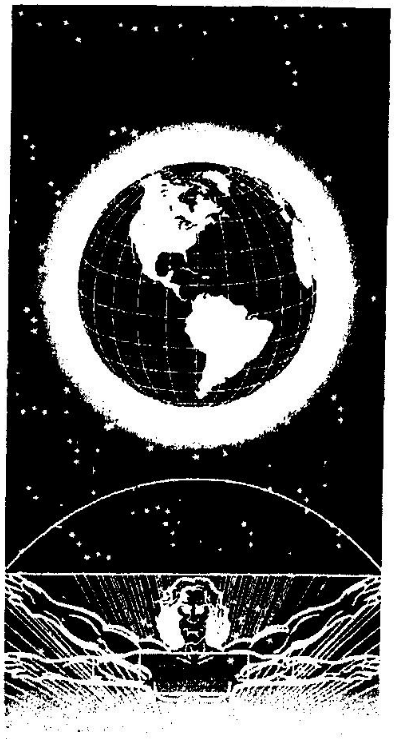
RATED DRY OUTPUT F_{G0} : 31.6 KN

MODE	POWER SETTING : F_{G0}	TIME MINS	FUEL FLOW KG/S	EMISSION INDICES EI (G/KG)			SMOKE NUMBER
				HC	CO	NO_X	
TAKE OFF MAX REHEAT	165	0.8	3.87	2.8	9.3	5.2	26
CLIMB OUT	75	2.2	0.530	0.12	4.1	13	26
CRUISE							
HIGH: M = 0.7 , H = 20 KFT	78	22	0.394	0.27	4	12.5	28
LOW : M = 0.5 , H = 0	43	5	0.553	0.11	4	19	29
APPROACH	30	4	0.261	1.13	12.1	7.3	16
IDLE	8.3	26	0.091	7	35.5	2.2	8
G/KN CYCLE OR SMOKE NUMBER MAX				55	567	480	29

ETWV
23.02.94

F-22 Emission Factor Data.

IERA-RS-BR-SR-2002-0006



UNITED STATES AIR FORCE
IERA

Aircraft Engine and Auxiliary Power Unit Emissions Testing: Final Report Addendum F119-PW-100 Engine Emissions Testing Report

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June 2002

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TABLE 6-7.
F119-PW-100
SLIPSTREAM RAKE
EMISSION FACTOR SUMMARY

	Idle				Approach				Intermediate				Military				Afterburner			
Flow Rate, dscfm	289029				663582				1458213				1823426				1832439			
Analyte	ppmvd	lb/hr	lbs/1,000 lbs fuel		ppmvd	lb/hr	lbs/1,000 lbs fuel		ppmvd	lb/hr	lbs/1,000 lbs fuel		ppmvd	lb/hr	lbs/1,000 lbs fuel		ppmvd	lb/hr	lbs/1,000 lbs fuel	
Nitrogen Oxide (NO)	0.5	0.68	0.49		2.4	7.44	2.72		10.4	70.86	7.01		33.9	230.98	12.41		28.0	190.78	3.80	
Nitrogen Dioxide (NO_2)	1.4	2.90	2.11		1.4	6.66	2.43		1.6	16.71	1.65		1.4	14.63	0.79		7.7	80.44	1.60	
Nitrogen Oxides (NO_X)	2	4.14	3.01		3.8	18.06	6.59		12.0	125.36	12.40		35.3	368.76	19.81		35.4	369.80	7.37	
Carbon Monoxide (CO)	52.6	66.30	48.15		7.5	21.71	7.92		3.4	21.62	2.14		2.2	13.99	0.75		127.0	807.67	16.10	
Net NMHC (as C_3H_8)	4.6	9.41	6.83		0.2	0.94	0.34		0.5	5.35	0.53		0.0	0.00	0.00	ND	0.7	9.27	0.18	ND
Carbon Dioxide (CO_2), a	0.5	4662	3386		0.5	9387	3426		0.4	36208	3581		0.6	54312	2918		1.4	126728	2526	
Sulfur Dioxide (SO_2)	NA	0.52	0.38		NA	1.04	0.38		NA	3.84	0.38		NA	7.07	0.38		NA	19.06	0.38	

ND - Value represents method detection limit. Compound may be present at a value less than the detection limit.
NA - SO2 rates determined from fuel sulfur content.
a - CO2 data based on carbon balance flow determination.

(Flow By Tracer)

TABLE 6-9.
F119-PW-100
EMISSIONS FACTOR SUMMARY
VOLATILE ORGANIC COMPOUNDS (VOCs)
Idle
(Flow by Tracer)

		Run Number																
		1					2					3						
Flow Rate, dscfm																	Average	
		lb/hr		lbs/1,000 lbs fuel			lb/hr		lbs/1,000 lbs fuel			lb/hr		lbs/1,000 lbs fuel				
Analyte	**CAS Number**	Detected	Detection Limit	Detected	Detection Limit		Detected	Detection Limit	Detected	Detection Limit		Detected	Detection Limit	Detected	Detection Limit		lb/hr	lbs/1,000 lbs fuel
Chloromethane [H]	74-87-3	0.00E+00		0.00E+00		J		0.00E+00		0.00E+00	UJ	0.00E+00		0.00E+00		J	0.00E+00	0.00E+00
Vinyl Chloride [H]	75-01-4		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
Bromomethane [H]	74-83-9		2.56E-03		2.33E-03	UJ		2.40E-03		2.18E-03	UJ		2.63E-03		3.40E-03	UJ	ND	ND
Chloroethane [H]	75-00-3		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
Freon 11 (Trichlorofluoromethane)	75-69-4	1.89E-03		1.73E-03		J	2.31E-03		2.30E-03		J	3.47E-03		3.18E-03		J	2.56E-03	2.33E-03
1,1-Dichloroethene [H]	75-35-4		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
Methylene Chloride [H]	75-09-2	9.29E-04		8.48E-04		J	0.00E+00		0.00E+00		J	1.15E-03		1.06E-03		J	6.33E-04	6.32E-04
1,1-Dichloroethane [H]	75-34-3		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
Chloroform [H]	67-66-3		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
1,1,1-Trichloroethane [H]	71-55-6		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
Carbon Tetrachloride [H]	56-23-5	4.40E-04		4.01E-04		J	3.75E-04		3.42E-04		J	5.15E-04		4.70E-04		J	4.13E-04	4.04E-04
Benzene [H]	71-43-2	1.54E-01		1.40E-01		J	1.30E-01		1.18E-01		J	1.52E-01		1.39E-01		J	1.45E-01	1.32E-01
1,2-Dichloroethane [H]	107-06-2		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
Trichloroethene [H]	79-01-6		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
1,2-Dichloropropane [H]	78-87-5		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
trans-1,3-Dichloropropene [H]	10061-02-6		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
Toluene [H]	108-88-3	9.21E-02		8.40E-02		J	8.17E-02		7.45E-02		J	8.94E-02		8.15E-02		J	8.77E-02	8.00E-02
cis-1,3-Dichloropropene [H]	10061-01-5		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
1,1,2-Trichloroethane [H]	79-00-5		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
Tetrachloroethene [H]	127-18-4	7.17E-04		6.53E-04		J	2.68E-04		2.45E-04		J		5.26E-04		4.79E-04	UJ	5.04E-04	4.59E-04
Chlorobenzene [H]	108-90-7		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
Ethyl benzene [H]	100-41-4	2.35E-02		2.15E-02		J	2.21E-02		2.01E-02		J	2.21E-02		2.01E-02		J	2.20E-02	2.06E-02
m,p-Xylene [H]	108-38-3	6.83E-02		5.13E-02			5.29E-02		4.82E-02			5.26E-02		4.79E-02			5.30E-02	4.91E-02
o-Xylene [H]	95-47-6	3.84E-02		3.50E-02			3.84E-02		3.50E-02			3.84E-02		3.50E-02			3.84E-02	3.50E-02
Styrene [H]	100-42-5	4.40E-02		4.01E-02		J	4.19E-02		3.81E-02		J	4.31E-02		3.90E-02		J	4.30E-02	3.92E-02
1,1,2,2-Tetrachloroethane [H]	79-34-5		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
Acetone	67-64-1	0.00E+00		0.00E+00		J	0.00E+00		0.00E+00		J	0.00E+00		0.00E+00		J	0.00E+00	0.00E+00
Carbon Disulfide [H]	75-15-0		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
trans-1,2-Dichloroethene	156-60-5		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
Vinyl Acetate [H]	108-05-4		2.56E-03		2.33E-03	UJ		2.40E-03		2.18E-03	UJ		2.63E-03		3.40E-03	UJ	ND	ND
2-Butanone (MEK) [H]	78-93-3	0.00E+00		0.00E+00		J	0.00E+00		0.00E+00		J	0.00E+00		0.00E+00		J	0.00E+00	0.00E+00
Bromodichloromethane	75-27-4		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
4-Methyl-2-pentanone (MIBK) [H]	108-10-1		2.56E-03		2.33E-03	UJ		2.40E-03		2.18E-03	UJ		2.63E-03		3.40E-03	UJ	ND	ND
2-Hexanone	591-78-6		2.56E-03		2.33E-03	UJ		2.40E-03		2.18E-03	UJ		2.63E-03		3.40E-03	UJ	ND	ND
Dibromochloromethane (Chlorodibromomethane)	124-48-1		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
Bromoform [H]	75-25-2		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
cis-1,2-Dichloroethene	156-59-2		5.12E-04		4.67E-04	UJ		4.80E-04		4.36E-04	UJ		5.26E-04		4.79E-04	UJ	ND	ND
1,3-Butadiene [H]	106-99-0	3.99E-02		3.61E-02		J	7.68E-02		7.01E-02		J	8.94E-02		8.15E-02		J	6.87E-02	6.26E-02
HAP Total		**4.50E-01**		**4.10E-01**			**4.44E-01**		**4.05E-01**			**4.85E-01**		**4.44E-01**			**4.61E-01**	**4.29E-01**

ND - Comound not detected at this detection limit. Compound may be present at a value less than the detection limit.
B - Compound present in the laboratory blank greater than reporting limit.
E - Results are estimated, value reported is outside linear working range.
Q - Exceeds quality control limits. (An example of this is the % spike recovery limit was not met.)
J - The associated numberical value is an estimated quantity because the reported concentrations were less than the required detection limits or quality control criteria were not met.
UJ - The analyte was not detected above the reported sample quantitation limit (reporting limit for the analytical method). However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. This is due to the quality criteria not being met.
bb - The sample media blank and/or sample field blank value with two times the sample value. Sample result should be considered suspect due to contamination.
H - This compound is listed as a hazardous air pollutant (HAP).

Results reported as 0.00 indicate a detected ambient pollutant concentration greater than the detected pollutant concentration in the exhaust stream.
Note: Compounds analyzed in this pollutant group are a standard compound target list for the analytical methaod and are not necessarily combustion by-products from this engine.

TABLE 6-11.
F119-PW-100
EMISSIONS FACTOR SUMMARY
VOLATILE ORGANIC COMPOUNDS (VOCs)
Intermediate
(Flow by Tracer)

		Run Number 1					Run Number 2						
Flow Rate, dscfm												Average	
		lb/hr		lbs/1,000 lbs fuel			lb/hr		lbs/1,000 lbs fuel				
Analyte	**CAS Number**	Detected	Detection Limit	Detected	Detection Limit		Detected	Detection Limit	Detected	Detection Limit		lb/hr	lbs/1,000 lbs fuel
Chloromethane [H]	74-87-3	0.00E+00		0.00E+00			0.00E+00		0.00E+00			0.00E+00	0.00E+00
Vinyl Chloride [H]	75-01-4		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
Bromomethane [H]	74-83-9		1.23E-02		1.21E-03	ND		1.39E-02		1.38E-03	ND	ND	ND
Chloroethane [H]	75-00-3		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
Freon 11 (Trichlorofluoromethane)	75-69-4	0.00E+00		0.00E+00			0.00E+00		0.00E+00			0.00E+00	0.00E+00
1,1-Dichloroethene [H]	75-35-4		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
Methylene Chloride [H]	75-09-2	0.00E+00		0.00E+00			0.00E+00		0.00E+00			0.00E+00	0.00E+00
1,1-Dichloroethane [H]	75-34-3		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
Chloroform [H]	67-66-3		2.45E-03		2.43E-04	ND	8.64E-04		8.54E-05		J	1.66E-03	1.64E-04
1,1,1-Trichloroethane [H]	71-55-6		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
Carbon Tetrachloride [H]	56-23-5	2.36E-03		2.33E-04		J	2.79E-03		2.76E-04			2.57E-03	2.54E-04
Benzene [H]	71-43-2	6.63E-03		6.56E-04			7.25E-03		7.17E-04			6.94E-03	6.86E-04
1,2-Dichloroethane [H]	107-06-2		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
Trichloroethene [H]	79-01-6		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
1,2-Dichloropropane [H]	78-87-5		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
trans-1,3-Dichloropropene [H]	10061-02-6		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
Toluene [H]	108-88-3	0.00E+00		0.00E+00			0.00E+00		0.00E+00			0.00E+00	0.00E+00
cis-1,3-Dichloropropene [H]	10061-01-5		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
1,1,2-Trichloroethane [H]	79-00-5		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
Tetrachloroethene [H]	127-18-4		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
Chlorobenzene [H]	108-90-7		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
Ethyl benzene [H]	100-41-4	3.68E-03		3.64E-04			6.41E-03		6.34E-04			5.05E-03	4.99E-04
m,p-Xylene [H]	108-38-3	0.00E+00		0.00E+00			0.00E+00		0.00E+00			0.00E+00	0.00E+00
o-Xylene [H]	95-47-6	3.19E-03		3.16E-04			6.69E-03		6.62E-04			4.94E-03	4.89E-04
Styrene [H]	100-42-5		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
1,1,2,2-Tetrachloroethane [H]	79-34-5		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
Acetone	67-64-1	0.00E+00		0.00E+00		J	0.00E+00		0.00E+00		J	0.00E+00	0.00E+00
Carbon Disulfide [H]	75-15-0		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
trans-1,2-Dichloroethene	156-60-5		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
Vinyl Acetate [H]	108-05-4		1.23E-02		1.21E-03	ND		1.39E-02		1.38E-03	ND	ND	ND
2-Butanone (MEK) [H]	78-93-3	0.00E+00		0.00E+00		B	0.00E+00		0.00E+00		J	0.00E+00	0.00E+00
Bromodichloromethane	75-27-4		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
4-Methyl-2-pentanone (MIBK) [H]	108-10-1		1.23E-02		1.21E-03	ND		1.39E-02		1.38E-03	ND	ND	ND
2-Hexanone	591-78-6		1.23E-02		1.21E-03	ND		1.39E-02		1.38E-03	ND	ND	ND
Dibromochloromethane (Chlorodibromomethane)	124-48-1		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
Bromoform [H]	75-25-2		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
cis-1,2-Dichloroethene	156-59-2		2.45E-03		2.43E-04	ND		2.79E-03		2.76E-04	ND	ND	ND
1,3-Butadiene [H]	106-99-0	4.17E-03		4.13E-04		J	4.46E-03		4.41E-04		J	4.32E-03	4.27E-04
HAP Total		**2.00E-02**		**1.98E-03**			**2.85E-02**		**2.81E-03**			**2.55E-02**	**2.52E-03**

ND - Comound not detected at this detection limit. Compound may be present at a value less than the detection limit.
B - Compound present in the laboratory blank greater than reporting limit.
E - Results are estimated, value reported is outside linear working range.
Q - Exceeds quality control limits. (An example of this is the % spike recovery limit was not met.)
J - The associated numberical value is an estimated quantity because the reported concentrations were less than the required detection limits or quality control criteria were not met.
UJ - The analyte was not detected above the reported sample quantitation limit (reporting limit for the analytical method). However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. This is due to the quality criteria not being met.
bb - The sample media blank and/or sample field blank value with two times the sample value. Sample result should be considered suspect due to contamination.
H - This compound is listed as a hazardous air pollutant (HAP).

Results reported as 0.00 indicate a detected ambient pollutant concentration greater than the detected pollutant concentration in the exhaust stream.
Note: Compounds analyzed in this pollutant group are a standard compound target list for the analytical methaod and are not necessarily combustion by-products from this engine.

TABLE 6-12.
F119-PW-100
EMISSIONS FACTOR SUMMARY
VOLATILE ORGANIC COMPOUNDS (VOCs)
Military
(Flow by Tracer)

		Run Number											
		1					2						
Flow Rate, dscfm												Average	
		lb/hr		lbs/1,000 lbs fuel			lb/hr		lbs/1,000 lbs fuel				
Analyte	**CAS Number**	Detected	Detection Limit	Detected	Detection Limit		Detected	Detection Limit	Detected	Detection Limit		lb/hr	lbs/1,000 lbs fuel
Chloromethane [H]	74-87-3	0.00E+00		0.00E+00			0.00E+00		0.00E+00		J	0.00E+00	0.00E+00
Vinyl Chloride [H]	75-01-4		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
Bromomethane [H]	74-83-9		1.61E-02		8.67E-04	ND		1.81E-02		9.72E-04	ND	ND	ND
Chloroethane [H]	75-00-3		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
Freon 11 (Trichlorofluoromethane)	75-69-4	1.94E-02		1.04E-03			2.24E-02		1.21E-03			2.09E-02	1.12E-03
1,1-Dichloroethene [H]	75-35-4		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
Methylene Chloride [H]	75-09-2	0.00E+00		0.00E+00			0.00E+00		0.00E+00			0.00E+00	0.00E+00
1,1-Dichloroethane [H]	75-34-3		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
Chloroform [H]	67-66-3		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
1,1,1-Trichloroethane [H]	71-55-6		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
Carbon Tetrachloride [H]	56-23-5	2.62E-03		1.41E-04		J	3.40E-03		1.83E-04		J	3.01E-03	1.62E-04
Benzene [H]	71-43-2	1.13E-02		6.07E-04			6.88E-03		3.70E-04			9.09E-03	4.88E-04
1,2-Dichloroethane [H]	107-06-2		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
Trichloroethene [H]	79-01-6		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
1,2-Dichloropropane [H]	78-87-5		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
trans-1,3-Dichloropropene [H]	10061-02-6		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
Toluene [H]	108-88-3	0.00E+00		0.00E+00			0.00E+00		0.00E+00			0.00E+00	0.00E+00
cis-1,3-Dichloropropene [H]	10061-01-5		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
1,1,2-Trichloroethane [H]	79-00-5		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
Tetrachloroethene [H]	127-18-4		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
Chlorobenzene [H]	108-90-7		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
Ethyl benzene [H]	100-41-4	3.16E-03		1.70E-04		J		3.62E-03		1.94E-04	ND	3.39E-03	1.82E-04
m,p-Xylene [H]	108-38-3	7.75E-03		4.16E-04				3.62E-03		1.94E-04	ND	5.68E-03	3.05E-04
o-Xylene [H]	95-47-6	2.65E-03		1.42E-04				3.62E-03		1.94E-04	ND	3.13E-03	1.68E-04
Styrene [H]	100-42-5		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
1,1,2,2-Tetrachloroethane [H]	79-34-5		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
Acetone	67-64-1	0.00E+00		0.00E+00		J	0.00E+00		0.00E+00		J	0.00E+00	0.00E+00
Carbon Disulfide [H]	75-15-0	1.23E-03		6.59E-05		J	1.38E-03		7.39E-05		J	1.30E-03	6.99E-05
trans-1,2-Dichloroethene	156-60-5		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
Vinyl Acetate [H]	108-05-4		1.61E-02		8.67E-04	ND		1.81E-02		9.72E-04	ND	ND	ND
2-Butanone (MEK) [H]	78-93-3	0.00E+00		0.00E+00		B	0.00E+00		0.00E+00		B	0.00E+00	0.00E+00
Bromodichloromethane	75-27-4		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
4-Methyl-2-pentanone (MIBK) [H]	108-10-1		1.61E-02		8.67E-04	ND		1.81E-02		9.72E-04	ND	ND	ND
2-Hexanone	591-78-6		1.61E-02		8.67E-04	ND		1.81E-02		9.72E-04	ND	ND	ND
Dibromochloromethane (Chlorodibromomethane)	124-48-1		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
Bromoform [H]	75-25-2		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
cis-1,2-Dichloroethene	156-59-2		3.23E-03		1.73E-04	ND		3.62E-03		1.94E-04	ND	ND	ND
1,3-Butadiene [H]	106-99-0		1.61E-02		8.67E-04	UJ		1.81E-02		9.72E-04	UJ	1.71E-02	9.20E-04
HAP Total		**2.87E-02**		**1.54E-03**			**1.17E-02**		**6.26E-04**			**4.27E-02**	**2.30E-03**

ND - Comound not detected at this detection limit. Compound may be present at a value less than the detection limit.
B - Compound present in the laboratory blank greater than reporting limit.
E - Results are estimated, value reported is outside linear working range.
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bb - The sample media blank and/or sample field blank value with two times the sample value. Sample result should be considered suspect due to contamination.
H - This compound is listed as a hazardous air pollutant (HAP).

Results reported as 0.00 indicate a detected ambient pollutant concentration greater than the detected pollutant concentration in the exhaust stream.
Note: Compounds analyzed in this pollutant group are a standard compound target list for the analytical methaod and are not necessarily combustion by-products from this engine.

TABLE 6-17.
F119-PW-100
EMISSIONS FACTOR SUMMARY
PARTICULATES
Idle
(Flow by Tracer)

	Run Number							
	1		2		3		Average	
Flow Rate, dscfm	289029		289029		289029			
Analyte	lb/hr	lbs/1,000 lbs fuel	lb/hr	lbs/1,000 lbs fuel	lb/hr	lbs/1,000 lbs fuel	lb/hr	lbs/1,000 lbs fuel
Particulate (total)	3.999	2.904	3.216	2.336	3.082	2.238	3.433	2.493

TABLE 6-19.
F119-PW-100
EMISSIONS FACTOR SUMMARY
PARTICULATES
Intermediate
(Flow by Tracer)

	Run Number					
	1		2		Average	
Flow Rate, dscfm	1458213		1458213			
Analyte	lb/hr	lbs/1,000 lbs fuel	lb/hr	lbs/1,000 lbs fuel	lb/hr	lbs/1,000 lbs fuel
Particulate (total)	15.091	1.493	13.387	1.324	14.239	1.408

TABLE 6-20.
F119-PW-100
EMISSIONS FACTOR SUMMARY
PARTICULATES
MILITARY
(Flow by Tracer)

	Run Number					
	1		2		Average	
Flow Rate, dscfm	1823426		1823426			
Analyte	lb/hr	lbs/1,000 lbs fuel	lb/hr	lbs/1,000 lbs fuel	lb/hr	lbs/1,000 lbs fuel
Particulate (total)	15.686	0.843	26.157	1.405	20.921	1.124

P:\030000\030414\030414.008C.5.060\SEC6.doc

7.8 Surface Coating

MSDSs and SDSs for materials used in each of the surface coating operations addressed in this application were provided on the compact disc submittals with the Construction Permit applications for Permit Nos. 1508A and 1508B. Holloman AFB estimates that hard copies of all MSDSs would be approximately 3,000 to 4,000 pages. NMED AQB staff confirmed during preparation of previous Title V permit applications that hard copies of the MSDS were not desired. The MSDSs at Holloman AFB are managed electronically using an Air Force database called EESOH-MIS. The original NSR permit application included the MSDSs for all relevant materials. However, over time some new/updated paints have been used and some older paints retired. In total, across all paint booths, there were about 100 paints added. None of these material changes have caused any of the limits in the NSR permit to be exceeded. MSDS/SDS can be provided upon request.

Included in this section are copies of the test reports and/or manufacturer specifications for the filters used in the permitted paint booths at Holloman AFB. For the paint booths in buildings 830 and 898 the test report shows an average paint overspray removal efficiency of 99.91%; Holloman AFB has used a more conservative value of 99% control in calculating emissions from these units. The test reports for the remaining paint booths show an average paint overspray removal efficiency of 98.66 to 99.1%; Holloman AFB has used a more conservative value of 90% control in calculating emissions from these units.

Bldg 830 Paint Booth Filter

AIR FILTER TESTING LABORATORIES, INC.

4632 Old LaGrange Road Crestwood, Kentucky 40014

REPORT NO. 6821 TEST NO. 1

PAINT ARRESTOR FILTER PERFORMANCE TEST
REMOVAL EFFICIENCY AND PAINT HOLDING CAPACITY

DEVICE TESTED

TEST REQUESTED BY	A.J. DRALLE, INC. MFG. DIV.
MANUFACTURER	A.J. DRALLE, INC. MFG. DIV.
PRODUCT NAME	CPA PAD
HOW LABORATORY PROCURED TEST SAMPLE	FURNISHED BY MANUFACTURER
MODEL NO.	
DIMENSIONS	20 IN. H 20 IN. W 1 IN. D
PRODUCT DESCRIPTION:	NONWOVEN SYNTHETIC

TEST CONDITIONS

AIRFLOW RATE	150	FPM
PAINT APPLICATION RATE	1	QT/40 MIN
AIR TEMPERATURE	70-75	DEGREE F
DESCRIPTION OF PAINT USED	62% HIGH SOLIDS STEELCASE	

TEST RESULTS

INITIAL RESISTANCE CLEAN PAINT ARRESTOR FILTER	0.08	IN. W.G.
WEIGHT GAIN PAINT ARRESTOR FILTER	2773.2	GRAMS
FINAL ARRESTANCE FILTERS WEIGHT GAIN	2.58	GRAMS
TOTAL WEIGHT PAINT FED (DRY BASES)	2775.78	GRAMS
FINAL RESISTANCE PAINT LOADED PAINT ARRESTOR FILTER	1.38	IN. W.G.
PERFORMANCE TO CHANGE OUT RESISTANCE	-	IN. W.G.
AVERAGE PAINT OVER SPRAY REMOVAL EFFICIENCY	99.91	%
PAINT HOLDING CAPACITY 2773.2 GRAMS OR	6.08	POUNDS

DATES OF TEST	9-25-1992
TEST SUPERVISOR	W.T.S.
ENGINEERING APPROVAL	David J Murphy Jr

STATE OF KENTUCKY DAVID J. MURPHY JR. 6035 REGISTERED PROFESSIONAL ENGINEER

OCT-23-01 TUE 12:51 PM SPRAY SHIELD IND 618 684 8822 P.01

Air Filter Testing Laboratories, Inc.
4632 Old LaGrange Road • Crestwood, Kentucky 40014 • Phone (502) 222-5720

REPORT NO. 5359
TEST NO. 1A

PAINT ARRESTOR PAD PERFORMANCE TEST

TEST REQUESTED BY. SPRAY SHIELD INDUSTRIES
MANUFACTURER: SPRAY SHIELD INDUSTRIES
PRODUCT NAME: PREBOND PAD (Poly backed)
HOW LABORATORY PROCURED TEST SAMPLE: FURNISHED BY MANUFACTURER
MODEL NO.: 2020 PB DIMENSIONS: 20in. H 20in. W 2in. L
PRODUCT DESCRIPTION: FIBER GLASS WITH NONWOVEN SYNTHETIC ON AIR LEAVING SIDE

TEST CONDITIONS:
TEST AIR FLOW RATE 200 FPM
PAINT APPLICATION RATE 1 QT./40 MIN.
DESCRIPTION OF PAINT USED HIGH SOLIDS POLYESTER

RESULTS:
WEIGHT GAIN PAINT ARRESTOR PAD 2316.8 GM. 81.72 OZ 5.107 lbs
FINAL ARRESTANCE FILTERS WEIGHT GAIN 20.88 GM.
TOTAL WEIGHT PAINT FED (DRY BASES) 2337.68 GM.
FINAL RESISTANCE PAINT LOADED FILTER 0.70 IN. W.C.
PERFORMANCE TO CHANGE OUT RESISTANCE 0.50 IN. W.G.
AVERAGE PAINT REMOVAL EFFICIENCY 99.1 %
PAINT HOLDING CAPACITY 2121 GM. OR 4.68 LBS.

DATE 8-23-1989

ENGINEERING APPROVAL [signature]

STATE OF KENTUCKY
DAVID J. MURPHY JR.
6035
REGISTERED
PROFESSIONAL ENGINEER

INDEPENDENT FILTER TEST REPORT
Performed By
LMS Technologies, Inc.

Filter Name/Model:	Duo Pad
Filter Supplier:	CHEMCO Mfg. Co. Inc.
Report No./Test No.	R 040 T 076
Report Date:	Dec. 5, 1996

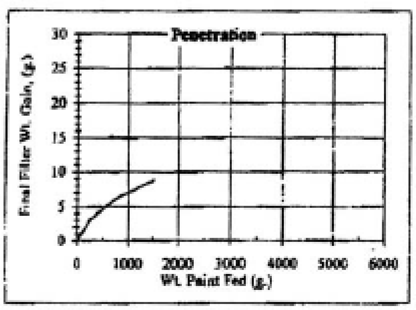
Filter Performance Summary

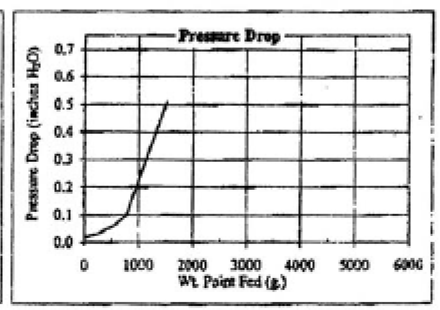
Total Penetration:	8.8 Grams
Average Arrestance Efficiency:	98.66%
Holding Capacity:	0.41 Lbs/Ft^2
For a 20" x 20" Pad:	1.14 Lbs

Test Information

Filter Description:			Green & white spun fiberglass w/ thin fiberglass backing
Test Paint:			Quick Air-Dry Solvent-based Alkyd Enamel (S.W. F77R14)
Paint Feed Rate (by Weight):	122 Gr./Min.	(by Volume):	130 CC/Min.
Paint Atomization Technology:			Conventional Air at 40 PSI
Pressure Drop (Clean Filter):	0.02 In. W.C.	(Loaded Filter):	0.51 In. W.C.
Test Air Velocity:			150 FPM

Additional Filter Performance Information





Test Engineer: P. Tuzinski

Supervising Engineer: K. C. Kwok, Ph.D.

Tel.: (612) 832-5353
LMS Technologies, Inc.
P. O. Box 24185, Edina, MN 55424
Fax: (612) 832-5354

Manufacturer specifications for the filters used in Paint Booths emission unit numbers 21007 and 21008

Printed: 12:30:48 PM
Date: 07-17-2008

SPRINGER INDUSTRIAL

3164 NORTH COLORADO STREET CHANDLER, ARIZONA 85225

PACKING SLIP

Toll Free: (800) 388-3144
Phone: (480) 898-3144
Fax: (480) 898-3192

**** PICK LIST ****

Bill To: 4508

HOLLOMAN AFB (MRS MESA)
M1 SUPPORT SERCIVES
1150 RESCUE ROAD BLDG 578
HOLLOMAN AFB, NM 88330

Ship To: 4508

HOLLOMAN AFB (MRS MESA)
M1 SUPPORT SERCIVES
1150 RESCUE ROAD BLDG 578
HOLLOMAN AFB, NM 88330

Salesperson	: HS HOUSE
Ship Method	: UPS/FED-EX GROUND
Order #	: 78530
P.O. #	: M1-08-41
Taken By	: TAK
Picked By	: RAUL

Order Date	: 07/17/2008
Ship Date	:
Deadline Date	:
Open/Closed	: O
Customer Phone #	: 575-572-3110
Customer Fax #	:

Inventory Reference	Description	Loc	Shelf Location	Quantity Ordered	Qty Shipped	Qty Cancel	Qty B.O.'d
3331(60)	20"x25"x1" SPRA-GARD H/E NEED TO RUN 1 FILTER DEEP	1	8	10	6	Ø	[redacted] 4

MRS MESA,

LEAD-TIME ON THE BACK ORDER, WILL BE 3~4 WEEKS

CHARGE CREDIT CARD FOR WHOLE ORDER, TAK

THANK YOU FOR YOUR ORDER

*RECEIVED BY:*______________________ *DATE:*______________________

RETURNED GOODS WILL NOT BE ACCEPTED WITHOUT PRIOR AUTHORIZATION, RETURN TRANSPORTATION CHARGES MUST BE PREPAID ALL OTHERS WILL BE REFUSED. CLAIMS MUST BE MADE WITHIN 10 DAYS OF RECEIPT OF GOODS.

INVOICE(S) NOT PAID WITHIN TERMS ARE SUBJECT TO A SERVICE CHARGE OF 1.5% PER MONTH OR 18% ANNUALLY.

Paint Arrestors®

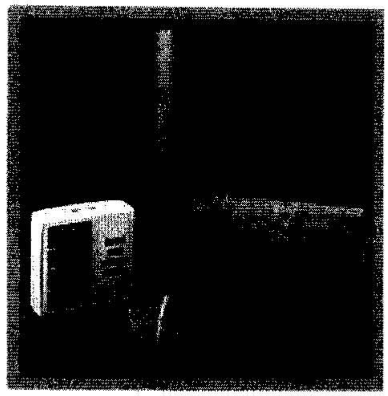
Home

Series 3000-3600

Contact Us

Overview
Features & Benefits
Arresting Facts: Filter vs. Arrestors Comparison
Collection Brochure

First and still the best!
RP Paint Arresters are disposable paint overspray collectors that efficiently trap paint solids before they reach the exhaust stack. These were the first dry filters specifically designed to control paint overspray. Through the years, the RP family of standard, high efficiency and high capacity Paint Arresters has proven to be a cost effective, efficient way to handle virtually every overspray requirement. Fabricated of slit and expanded paper, or slit and expanded paper with polyester, the multiple layers of RP Paint Arrestors are assembled so the intake side has larger openings than the exhaust side. This provides depth loading for maximum service life. Please explore the product link to the left to learn more including ASHRAE test results!



Return to top.

Features & Benefits
Every RP Paint Arrestor including the prefilter series has a new, patented face sheet design. It produces a unique airflow pattern which traps more overspray using less material than previously. You save by reducing:

- volume of stored material
- number of change-outs
- down time
- amount of material to dispose

Return to top.

Arresting Facts: Filter vs. Arrestors Comparison
Overview - Page 1
Fiberglass Filters vs. RP Paint Arrestors - Page 2
Pleated Filters vs. RP Paint Arrestors - Page 3
Polyester Filters vs. RP Paint Arrestors - Page 4
Cardboard Filters vs. RP Paint Arrestors - Page 5
Water Wash Systems vs. RP Paint Arrestors - Page 6
Return to top.

Collection Brochure
Click below for a pdf of a brochure that provides an overview of Paint Arrestors and offers some detail on product series 3000, 3100, 3200, 3300, 3400 and 3500.
Paint Overspray Collection: Customized to your needs
Return to top.

About Us | Contact Us

EZ KLEEN Coolpad Paint Arrestors NEOTEX

STANDARD PAINT ARRESTORS 3000 SERIES

3031	20" x 25" Standard	70 Pieces/Ctn.	17
3032	20" x 20" Standard	70 Pieces/Ctn.	15
3051	6' x 45" Standard	6 Pieces/Bag	9
3052	7' x 45" Standard	5 Pieces/Bag	8
3053	8' x 45" Standard	4 Pieces/Bag	8
3020	40' x 22½" Standard	2 Pieces/Bag	8
3039	40' x 45" Standard	1 Piece /Bag	8

http://www.rppaintarrestors.com/images/patech3000.jpg 10/28/2008

RESEARCH PRODUCTS PAINT ARRESTOR TEST SUMMARY

Test Number: 2056 Date: 12-9-96

Purpose of Test: For Research Products Corp., Standard Product Evaluation

Paint Arrestor Identification

PA Model: 3000 Series RP Standard Paint Arrestor
Manufacturer: Research Products Corporation
Number of Pads in Series: 2
Pad Type (Production, Experimental) Production

Paint Identification

Paint Type: High Solids
Manufacturer ID:63-3864
Color: Gray
Density (lb/gal): 12.8

Manufacturer: Lilly Industries
User ID: RP
Thinner Used: Xylol
Viscosity (Ford #4 - sec): 50

Test Conditions

Duct Velocity (fpm): 150
Gun Manufacturer & Model: DeVilbiss JGA-502
Tank Pressure (psi): 10
Gun Distance from PA (ft): 6

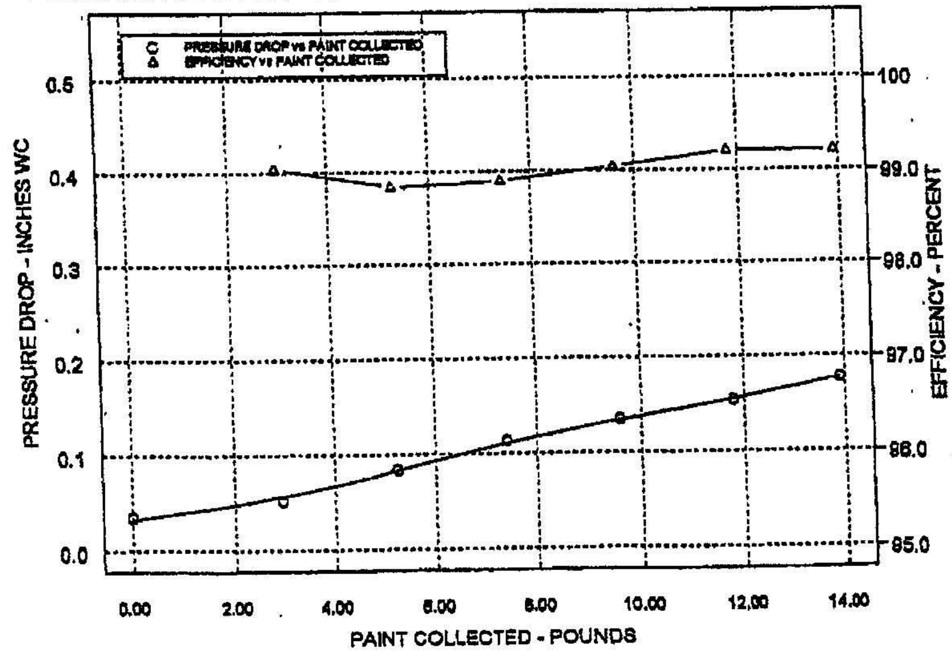
Paint Feedrate (gal/hr): 1
Nozzle and Air Cap: 54FX
Atomization Pressure (psi): 20

Test Summary

Pressure Drop (" w.c.) Initial	Final	Efficiency (%) Initial	Average	Paint Collection (lbm) Total	Run Off
0.035	0.100	99.04	98.94	6.3	0.0

Face Velocity (fpm)	50	100	150	200
Initial Pressure Drop (" w.c.)	0.005	0.018	0.035	0.061

GRAPH
PRESSURE DROP AND EFFICIENCY vs PAINT COLLECTED



3300 Series Spra-Gard High Efficiency

- Made of Slit and Expanded Kraft Paper and 1 layer of "heavy" polyester.
- Similar to 3000, with an added layer of a "heavy" polyester to provide maximum efficiency.
- Maximum Efficiency of 99.5 to 99.9% on High Solids Bake Enamels.
- Maximum efficiency provides significantly less booth and stack cleaning as well as less coating particulate introduced into the environment.

HIGH EFFICIENCY PAINT ARRESTORS 3300 SERIES

3331	20" x 25" High Efficiency	80 Pieces/Ctn.	18
3332	20" x 20" High Efficiency	80 Pieces/Ctn.	15
3351	6' x 45" High Efficiency	5 Pieces/Bag	8
3352	7' x 45" High Efficiency	4 Pieces/Bag	8
3353	8' x 45" High Efficiency	4 Pieces/Bag	9
3366	30' x 45" High Efficiency	1 Piece /Bag	8

RESEARCH PRODUCTS PAINT ARRESTOR TEST SUMMARY

Test Number: 2047 Date: 11-8-96

Purpose of Test: For Research Products Corp., Standard Product Evaluation

Paint Arrestor Identification

PA Model: 3300 Series Spra-Gard High Efficiency Paint Arrestor

Manufacturer: Research Products Corporation

Number of Pads in Series: 1

Pad Type (Production, Experimental):Production

Paint Identification

Paint Type: High Solids

Manufacturer ID:63-3864

Color: Gray

Density (lb/gal): 12.9

Manufacturer: Lilly Industries

User ID: RP

Thinner Used: Xylol

Viscosity (Ford #4 - sec): 51

Test Conditions

Duct Velocity (fpm): 150

Gun Manufacturer & Model:DeVilbiss JGA-502

Tank Pressure (psi): 10

Gun Distance from PA (ft): 6

Paint Feedrate (gal/hr):1

Nozzle and Air Cap:54FX

Atomization Pressure (psi):20

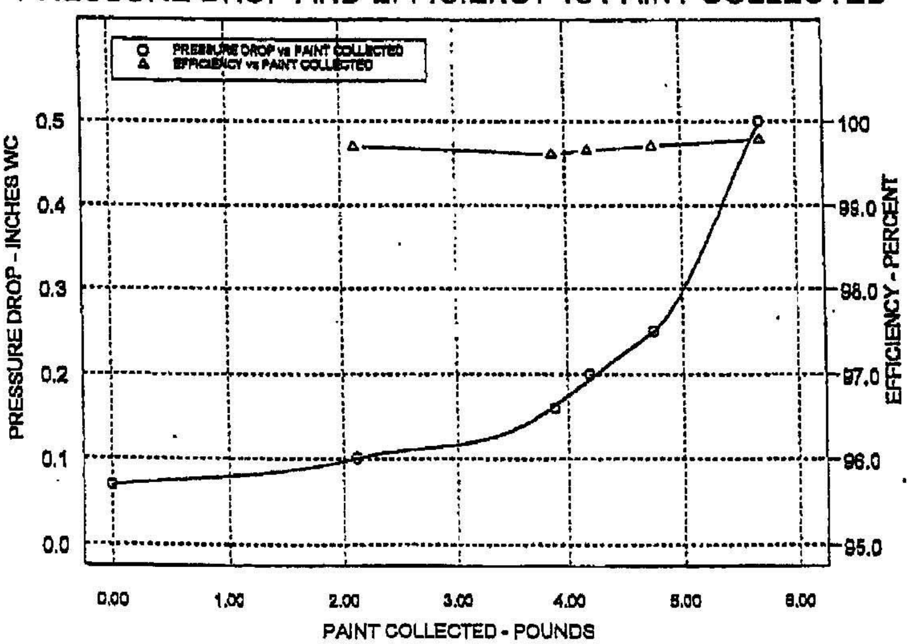
Test Summary

Pressure Drop (" w.c.)		Efficiency (%)		Paint Collection (lbm)	
Initial	Final	Initial	Average	Total	Run Off
0.067	0.200	99.70	99.66	4.2	0.0
0.067	0.500	99.70	99.70	5.7	0.0

Face Velocity (fpm)	50	100	150	200
Initial Pressure Drop (" w.c.)	0.016	0.039	0.067	0.107

GRAPH

PRESSURE DROP AND EFFICIENCY vs PAINT COLLECTED



7.9 Storage Tanks Emission Calculation References

Table 7.1-7 (cont.).

Location	Property: Symbol	Property: Units	Monthly Averages: Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Average
Roswell, NM	T_{AX}	°F	55.4	60.4	67.7	76.9	85.0	93.1	93.7	91.3	84.9	75.8	63.1	56.7	75.3
	T_{AN}	°F	27.4	31.4	37.9	46.8	55.6	64.8	69.0	67.0	59.6	47.5	35.0	28.2	47.5
	I	Btu/ft^2·d	1047	1373	1807	2218	2459	2610	2441	2242	1913	1527	1131	952	1810
Buffalo, NY	T_{AX}	°F	30.0	31.4	40.4	54.4	65.9	75.6	80.2	78.2	71.4	60.2	47.0	35.0	55.8
	T_{AN}	°F	17.0	17.5	25.6	36.3	46.3	56.4	61.2	59.6	52.7	42.7	33.6	22.5	39.3
	I	Btu/ft^2·d	349	546	889	1315	1597	1804	1776	1513	1152	784	403	283	1034
New York, NY (LaGuardia Airport)	T_{AX}	°F	37.4	39.2	47.3	59.6	69.7	78.7	83.9	82.3	75.2	64.5	52.9	41.5	61.0
	T_{AN}	°F	26.1	27.3	34.6	44.2	53.7	63.2	68.9	68.2	61.2	50.5	41.2	30.8	47.5
	I	Btu/ft^2·d	548	795	1118	1457	1690	1802	1784	1583	1280	951	593	457	1171
Cleveland, OH	T_{AX}	°F	32.5	34.8	44.8	57.9	68.5	78.0	81.7	80.3	74.2	62.7	49.3	37.5	58.5
	T_{AN}	°F	18.5	19.9	28.4	38.3	47.9	57.2	61.4	60.5	54.0	43.6	34.3	24.6	40.7
	I	Btu/ft^2·d	388	601	922	1350	1681	1843	1828	1583	1240	867	466	318	1091
Columbus, OH	T_{AX}	°F	34.7	38.1	49.3	62.3	72.6	81.3	84.4	83.0	76.9	65.0	50.7	39.4	61.5
	T_{AN}	°F	19.4	21.5	30.6	40.5	50.2	59.0	63.2	61.7	54.6	42.8	33.5	24.7	41.8
	I	Btu/ft^2·d	459	677	980	1353	1647	1813	1755	1641	1282	945	538	387	1123
Toledo, OH	T_{AX}	°F	30.7	34.0	44.6	59.1	70.5	79.9	83.4	81.8	75.1	63.3	47.9	35.5	58.8
	T_{AN}	°F	15.5	17.5	26.1	36.5	46.6	56.0	60.2	58.4	51.2	40.1	30.6	20.6	38.3
	I	Btu/ft^2·d	435	680	997	1384	1717	1878	1849	1616	1276	911	498	355	1133
Oklahoma City, OK	T_{AX}	°F	46.6	52.2	61.0	71.7	79.0	87.6	93.5	92.8	84.7	74.3	59.9	50.7	71.2
	T_{AN}	°F	25.2	29.4	37.1	48.6	57.7	66.3	70.6	69.4	61.9	50.2	37.6	29.1	48.6
	I	Btu/ft^2·d	801	1055	1400	1725	1918	2144	2128	1950	1554	1233	901	725	1461
Tulsa, OK	T_{AX}	°F	45.6	51.9	60.8	72.4	79.7	87.9	93.9	93.0	85.0	74.9	60.2	50.3	71.3
	T_{AN}	°F	24.8	29.5	37.7	49.5	58.5	67.5	72.4	70.3	62.5	50.3	38.1	29.3	49.2
	I	Btu/ft^2·d	732	978	1306	1603	1822	2021	2031	1865	1473	1164	827	659	1373
Astoria, OR	T_{AX}	°F	46.8	50.6	51.9	55.5	60.2	63.9	67.9	68.6	67.8	61.4	53.5	48.8	58.1
	T_{AN}	°F	35.4	37.1	36.9	39.7	44.1	49.2	52.2	52.6	49.2	44.3	39.7	37.3	43.1
	I	Btu/ft^2·d	315	545	866	1253	1608	1626	1746	1499	1183	713	387	261	1000
Portland, OR	T_{AX}	°F	44.3	50.4	54.5	60.2	66.9	72.7	79.5	78.6	74.2	63.9	52.3	46.4	62.0
	T_{AN}	°F	33.5	36.0	37.4	40.6	46.4	52.2	55.8	55.8	51.1	44.6	38.6	35.4	44.0
	I	Btu/ft^2·d	310	554	895	1308	1663	1773	2037	1674	1217	724	388	260	1067
Philadelphia, PA	T_{AX}	°F	38.6	41.1	50.5	63.2	73.0	81.7	86.1	84.6	77.8	66.5	54.5	43.0	63.4
	T_{AN}	°F	23.8	25.0	33.1	42.6	52.5	61.5	66.8	66.0	58.6	46.5	37.1	28.0	45.1
	I	Btu/ft^2·d	555	795	1108	1434	1660	1811	1758	1575	1281	959	619	470	1169

7.10 Woodworking Cyclone Efficiency Reference

B.2.3 How To Use The Generalized Particle Size Distributions For Controlled Processes

To calculate the size distribution and the size-specific emissions for a source with a particulate control device, the user first calculates the uncontrolled size-specific emissions. Next, the fractional control efficiency for the control device is estimated using Table B.2-3. The Calculation Sheet provided (Figure B.2-2) allows the user to record the type of control device and the collection efficiencies from Table B.2-3, the mass in the size range before and after control, and the cumulative mass. The user will note that the uncontrolled size data are expressed in cumulative fraction less than the stated size. The control efficiency data apply only to the size range indicated and are not cumulative. These data do not include results for the greater than 10 μm particle size range. In order to account for the total controlled emissions, particles greater than 10 μm in size must be included.

B.2.4 Example Calculation

An example calculation of uncontrolled total particulate emissions, uncontrolled size-specific emissions, and controlled size specific emission is shown in Figure B.2-1. A blank Calculation Sheet is provided in Figure B.2-2.

Table B.2-3. TYPICAL COLLECTION EFFICIENCIES OF VARIOUS PARTICULATE CONTROL DEVICES[a]
(%)

AIRS Code[b]	Type Of Collector	Particle Size (μm)		
		0 - 2.5	2.5 - 6	6 - 10
001	Wet scrubber - hi-efficiency	90	95	99
002	Wet scrubber - med-efficiency	25	85	95
003	Wet scrubber - low-efficiency	20	80	90
004	Gravity collector - hi-efficiency	3.6	5	6
005	Gravity collector - med-efficiency	2.9	4	4.8
006	Gravity collector - low-efficiency	1.5	3.2	3.7
007	Centrifugal collector - hi-efficiency	80	95	95
008	Centrifugal collector - med-efficiency	50	75	85
009	Centrifugal collector - low-efficiency	10	35	50
010	Electrostatic precipitator - hi-efficiency	95	99	99.5
011	Electrostatic precipitator - med-efficiency			
	boilers	50	80	94
	other	80	90	97
012	Electrostatic precipitator - low-efficiency			
	boilers	40	70	90
	other	70	80	90
014	Mist eliminator - high velocity >250 FPM	10	75	90
015	Mist eliminator - low velocity <250 FPM	5	40	75

Table B.2-3 (cont.).

AIRS Code[b]	Type Of Collector	Particle Size (μm)		
		0 - 2.5	2.5 - 6	6 - 10
016	Fabric filter - high temperature	99	99.5	99.5
017	Fabric filter - med temperature	99	99.5	99.5
018	Fabric filter - low temperature	99	99.5	99.5
046	Process change	NA	NA	NA
049	Liquid filtration system	50	75	85
050	Packed-gas absorption column	90	95	99
051	Tray-type gas absorption column	25	85	95
052	Spray tower	20	80	90
053	Venturi scrubber	90	95	99
054	Process enclosed	1.5	3.2	3.7
055	Impingement plate scrubber	25	95	99
056	Dynamic separator (dry)	90	95	99
057	Dynamic separator (wet)	50	75	85
058	Mat or panel filter - mist collector	92	94	97
059	Metal fabric filter screen	10	15	20
061	Dust suppression by water sprays	40	65	90
062	Dust suppression by chemical stabilizer or wetting agents	40	65	90
063	Gravel bed filter	0	5	80
064	Annular ring filter	80	90	97
071	Fluid bed dry scrubber	10	20	90
075	Single cyclone	10	35	50
076	Multiple cyclone w/o fly ash reinjection	80	95	95
077	Multiple cyclone w/fly ash reinjection	50	75	85
085	Wet cyclonic separator	50	75	85
086	Water curtain	10	45	90

[a] Data represent an average of actual efficiencies. Efficiencies are representative of well designed and well operated control equipment. Site-specific factors (e. g., type of particulate being collected, varying pressure drops across scrubbers, maintenance of equipment, etc.) will affect collection efficiencies. Efficiencies shown are intended to provide guidance for estimating control equipment performance when source-specific data are not available. NA = not applicable.

[b] Control codes in Aerometric Information Retrieval System (AIRS), formerly National Emissions Data Systems.

7.11 Natural gas fuel sulfur content record – purchase agreement

NEW MEXICO GAS COMPANY

NEW MEXICO PUBLIC REGULATION COMMISSION FILED

2009 NOV 16 PM 4 27

FIRST REVISED SAMPLE FORM NO. 31
CANCELLING ORIGINAL SAMPLE FORM NO. 31

ON-SYSTEM STANDARD TRANSPORTATION CONTRACT

Page 1 of 1

Please see attached On-System Standard Transportation Contract Form.

Advice Notice No.5

John M. Fernald
Director, Regulatory Affairs

EFFECTIVE
DEC 15 2009
REPLACED BY NMPRC Operation of Law
BY

FIRST REVISED SAMPLE FORM NO. 31
CANCELLING ORIGINAL SAMPLE FORM NO. 31
ON-SYSTEM STANDARD TRANSPORTATION CONTRACT

4.5 Transportation Customer shall have the right, at its option and expense, to install and operate check meter(s) downstream of the Delivery Point(s), as long as the installation, operation, and maintenance of said equipment does not interfere with the operation of the Company's equipment.

V. QUALITY

5.1 All Gas Tendered at Receipts Points shall be of merchantable pipeline quality. Gas Tendered through interstate pipelines and at tailgates of cryogenic or lean oil processing plants shall be deemed to be of merchantable pipeline quality. Currently, the cryogenic or lean oil processing plants located in New Mexico on Company's system are the Williams Kutz 1, Kutz 2 and Lybrook plants; Duke's Artesia and Eunice plants and Frontier's Maljamar and ABO plants. All Gas Tendered from other sources shall be reasonably free of objectionable material, and commercially free of dust, gums or gumforming constituents, liquids or solid matter and any other substance which interferes with the intended purpose of Merchantability of gas, or causes interference with the proper and safe operation of the lines, meters, regulators, or other appliances through which it may flow; and which must conform to the following specifications:

(a) Shall not contain more than a trace indication of oils and other liquids that are employed in the operation of Gas processing and/or compression facilities.

(b) Shall be commercially free of water in their liquid state at the temperature and pressure at which delivered, and in no event contain water vapor in excess of seven (7) pounds per million cubic feet. The water vapor content shall be determined by use of dew-point apparatus approved by the Bureau of Mines, or by any other method that is deemed appropriate for the conditions.

(c) Shall not contain more than three quarters (3/4) grains of total sulfur per one hundred (100) standard cubic feet, which includes hydrogen sulfide, carbonyl sulfide, carbon disulfide, mercaptans, and mono- di- and poly-sulfides. The Gas shall also meet the following individual specifications for hydrogen sulfide (H_2S) and mercaptans:

i. Hydrogen sulfide: The Gas shall not contain more than one-quarter (1/4) grain per one hundred (100) standard cubic feet.

EFFECTIVE

DEC 15 2009

REPLACED BY NMPRC
BY Operation of Law

7.12 Greenhouse Gas Reference Tables from 40 CFR 98

ELECTRONIC CODE OF FEDERAL REGULATIONS

e-CFR data is current as of May 4, 2015

Title 40 → Chapter I → Subchapter C → Part 98 → Subpart A → Appendix

Title 40: Protection of Environment
PART 98—MANDATORY GREENHOUSE GAS REPORTING
Subpart A—General Provision

TABLE A-1 TO SUBPART A OF PART 98—GLOBAL WARMING POTENTIALS

[100-Year Time Horizon]

Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
Chemical-Specific GWPs			
Carbon dioxide	124-38-9	CO_2	1
Methane	74-82-8	CH_4	a25
Nitrous oxide	10024-97-2	N_2O	a298
Fully Fluorinated GHGs			
Sulfur hexafluoride	2551-62-4	SF_6	a22,800
Trifluoromethyl sulphur pentafluoride	373-80-8	SF_5CF_3	17,700
Nitrogen trifluoride	7783-54-2	NF_3	17,200
PFC-14 (Perfluoromethane)	75-73-0	CF_4	a7,390
PFC-116 (Perfluoroethane)	76-16-4	C_2F_6	a12,200
PFC-218 (Perfluoropropane)	76-19-7	C_3F_8	a8,830
Perfluorocyclopropane	931-91-9	$C\text{-}C_3F_6$	17,340
PFC-3-1-10 (Perfluorobutane)	355-25-9	C_4F_{10}	a8,860
PFC-318 (Perfluorocyclobutane)	115-25-3	$C\text{-}C_4F_8$	a10,300
PFC-4-1-12 (Perfluoropentane)	678-26-2	C_5F_{12}	a9,160
PFC-5-1-14 (Perfluorohexane, FC-72)	355-42-0	C_6F_{14}	a9,300
PFC-6-1-12	335-57-9	C_7F_{16}; $CF_3(CF_2)_5CF_3$	b7,820
PFC-7-1-18	307-34-6	C_8F_{18}; $CF_3(CF_2)_6CF_3$	b7,620
PFC-9-1-18	306-94-5	$C_{10}F_{18}$	7,500
PFPMIE (HT-70)	NA	$CF_3OCF(CF_3)CF_2OCF_2OCF_3$	10,300
Perfluorodecalin (cis)	60433-11-6	$Z\text{-}C_{10}F_{18}$	b7,236
Perfluorodecalin (trans)	60433-12-7	$E\text{-}C_{10}F_{18}$	b6,288
Saturated Hydrofluorocarbons (HFCs) With Two or Fewer Carbon-Hydrogen Bonds			
HFC-23	75-46-7	CHF_3	a14,800
HFC-32	75-10-5	CH_2F_2	a675
HFC-125	354-33-6	C_2HF_5	a3,500
HFC-134	359-35-3	$C_2H_2F_4$	a1,100
HFC-134a	811-97-2	CH_2FCF_3	a1,430
HFC-227ca	2252-84-8	$CF_3CF_2CHF_2$	b2640
HFC-227ea	431-89-0	C_3HF_7	a3,220
HFC-236cb	677-56-5	$CH_2FCF_2CF_3$	1,340
HFC-236ea	431-63-0	CHF_2CHFCF_3	1,370
HFC-236fa	690-39-1	$C_3H_2F_6$	a9,810
HFC-329p	375-17-7	$CHF_2CF_2CF_2CF_3$	b2360
HFC-43-10mee	138495-42-8	$CF_3CFHCFHCF_2CF_3$	a1,640
Saturated Hydrofluorocarbons (HFCs) With Three or More Carbon-Hydrogen Bonds			
HFC-41	593-53-3	CH_3F	a92
HFC-143	430-66-0	$C_2H_3F_3$	a353
HFC-143a	420-46-2	$C_2H_3F_3$	a4,470

HFC-152	624-72-6	CH_2FCH_2F	53
HFC-152a	75-37-6	CH_3CHF_2	a124
HFC-161	353-36-6	CH_3CH_2F	12
HFC-245ca	679-86-7	$C_3H_3F_5$	a693
HFC-245cb	1814-88-6	$CF_3CF_2CH_3$	b4620
HFC-245ea	24270-66-4	$CHF_2CHFCHF_2$	b235
HFC-245eb	431-31-2	$CH_2FCHFCF_3$	b290
HFC-245fa	460-73-1	$CHF_2CH_2CF_3$	1,030
HFC-263fb	421-07-8	$CH_3CH_2CF_3$	b76
HFC-272ca	420-45-1	$CH_3CF_2CH_3$	b144
HFC-365mfc	406-58-6	$CH_3CF_2CH_2CF_3$	794
Saturated Hydrofluoroethers (HFEs) and Hydrochlorofluoroethers (HCFEs) With One Carbon-Hydrogen Bond			
HFE-125	3822-68-2	CHF_2OCF_3	14,900
HFE-227ea	2356-62-9	$CF_3CHFOCF_3$	1,540
HFE-329mcc2	134769-21-4	$CF_3CF_2OCF_2CHF_2$	919
HFE-329me3	428454-68-6	$CF_3CFHCF_2OCF_3$	b4,550
1,1,1,2,2,3,3-Heptafluoro-3-(1,2,2,2-tetrafluoroethoxy)-propane	3330-15-2	$CF_3CF_2CF_2OCHFCF_3$	b6,490
Saturated HFEs and HCFEs With Two Carbon-Hydrogen Bonds			
HFE-134 (HG-00)	1691-17-4	CHF_2OCHF_2	6,320
HFE-236ca	32778-11-3	$CHF_2OCF_2CHF_2$	b4,240
HFE-236ca12 (HG-10)	78522-47-1	$CHF_2OCF_2OCHF_2$	2,800
HFE-236ea2 (Desflurane)	57041-67-5	$CHF_2OCHFCF_3$	989
HFE-236fa	20193-67-3	$CF_3CH_2OCF_3$	487
HFE-338mcf2	156053-88-2	$CF_3CF_2OCH_2CF_3$	552
HFE-338mmz1	26103-08-2	$CHF_2OCH(CF_3)_2$	380
HFE-338pcc13 (HG-01)	188690-78-0	$CHF_2OCF_2CF_2OCHF_2$	1,500
HFE-43-10pccc (H-Galden 1040x, HG-11)	E1730133	$CHF_2OCF_2OC_2F_4OCHF_2$	1,870
HCFE-235ca2 (Enflurane)	13838-16-9	CHF_2OCF_2CHFCl	b583
HCFE-235da2 (Isoflurane)	26675-46-7	$CHF_2OCHClCF_3$	350
HG-02	205367-61-9	$HF_2C\text{-}(OCF_2CF_2)_2\text{-}OCF_2H$	b3,825
HG-03	173350-37-3	$HF_2C\text{-}(OCF_2CF_2)_3\text{-}OCF_2H$	b3,670
HG-20	249932-25-0	$HF_2C\text{-}(OCF_2)_2\text{-}OCF_2H$	b5,300
HG-21	249932-26-1	$HF_2C\text{-}OCF_2CF_2OCF_2OCF_2O\text{-}CF_2H$	b3,890
HG-30	188690-77-9	$HF_2C\text{-}(OCF_2)_3\text{-}OCF_2H$	b7,330
1,1,3,3,4,4,6,6,7,7,9,9,10,10,12,12,13,13,15,15-eicosafluoro-2,5,8,11,14-Pentaoxapentadecane	173350-38-4	$HCF_2O(CF_2CF_2O)_4CF_2H$	b3,630
1,1,2-Trifluoro-2-(trifluoromethoxy)-ethane	84011-06-3	$CHF_2CHFOCF_3$	b1,240
Trifluoro(fluoromethoxy)methane	2261-01-0	CH_2FOCF_3	b751
Saturated HFEs and HCFEs With Three or More Carbon-Hydrogen Bonds			
HFE-143a	421-14-7	CH_3OCF_3	756
HFE-245cb2	22410-44-2	$CH_3OCF_2CF_3$	708
HFE-245fa1	84011-15-4	$CHF_2CH_2OCF_3$	286
HFE-245fa2	1885-48-9	$CHF_2OCH_2CF_3$	659
HFE-254cb2	425-88-7	$CH_3OCF_2CHF_2$	359
HFE-263fb2	460-43-5	$CF_3CH_2OCH_3$	11
HFE-263m1; R-E-143a	690-22-2	$CF_3OCH_2CH_3$	b29
HFE-347mcc3 (HFE-7000)	375-03-1	$CH_3OCF_2CF_2CF_3$	575
HFE-347mcf2	171182-95-9	$CF_3CF_2OCH_2CHF_2$	374
HFE-347mmy1	22052-84-2	$CH_3OCF(CF_3)_2$	343
HFE-347mmz1 (Sevoflurane)	28523-86-6	$(CF_3)_2CHOCH_2F$	c216
HFE-347pcf2	406-78-0	$CHF_2CF_2OCH_2CF_3$	580
HFE-356mec3	382-34-3	$CH_3OCF_2CHFCF_3$	101
HFE-356mff2	333-36-8	$CF_3CH_2OCH_2CF_3$	b17
HFE-356mmz1	13171-18-1	$(CF_3)_2CHOCH_3$	27

HFE-356pcc3	160620-20-2	$CH_3OCF_2CF_2CHF_2$	110
HFE-356pcf2	50807-77-7	$CHF_2CH_2OCF_2CHF_2$	265
HFE-356pcf3	35042-99-0	$CHF_2OCH_2CF_2CHF_2$	502
HFE-365mcf2	22052-81-9	$CF_3CF_2OCH_2CH_3$	b58
HFE-365mcf3	378-16-5	$CF_3CF_2CH_2OCH_3$	11
HFE-374pc2	512-51-6	$CH_3CH_2OCF_2CHF_2$	557
HFE-449s1 (HFE-7100) Chemical blend	163702-07-6	$C_4F_9OCH_3$	297
	163702-08-7	$(CF_3)_2CFCF_2OCH_3$	
HFE-569sf2 (HFE-7200) Chemical blend	163702-05-4	$C_4F_9OC_2H_5$	59
	163702-06-5	$(CF_3)_2CFCF_2OC_2H_5$	
HG'-01	73287-23-7	$CH_3OCF_2CF_2OCH_3$	b222
HG'-02	485399-46-0	$CH_3O(CF_2CF_2O)_2CH_3$	b236
HG'-03	485399-48-2	$CH_3O(CF_2CF_2O)_3CH_3$	b221
Difluoro(methoxy)methane	359-15-9	CH_3OCHF_2	b144
2-Chloro-1,1,2-trifluoro-1-methoxyethane	425-87-6	CH_3OCF_2CHFCl	b122
1-Ethoxy-1,1,2,2,3,3,3-heptafluoropropane	22052-86-4	$CF_3CF_2CF_2OCH_2CH_3$	b61
2-Ethoxy-3,3,4,4,5-pentafluorotetrahydro-2,5-bis[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]-furan	920979-28-8	$C_{12}H_5F_{19}O_2$	b56
1-Ethoxy-1,1,2,3,3,3-hexafluoropropane	380-34-7	$CF_3CHFCF_2OCH_2CH_3$	b23
Fluoro(methoxy)methane	460-22-0	CH_3OCH_2F	b13
1,1,2,2-Tetrafluoro-3-methoxy-propane; Methyl 2,2,3,3-tetrafluoropropyl ether	60598-17-6	$CHF_2CF_2CH_2OCH_3$	b0.5
1,1,2,2-Tetrafluoro-1-(fluoromethoxy)ethane	37031-31-5	$CH_2FOCF_2CF_2H$	b871
Difluoro(fluoromethoxy)methane	461-63-2	CH_2FOCHF_2	b617
Fluoro(fluoromethoxy)methane	462-51-1	CH_2FOCH_2F	b130
Fluorinated Formates			
Trifluoromethyl formate	85358-65-2	$HCOOCF_3$	b588
Perfluoroethyl formate	313064-40-3	$HCOOCF_2CF_3$	b580
1,2,2,2-Tetrafluoroethyl formate	481631-19-0	$HCOOCHFCF_3$	b470
Perfluorobutyl formate	197218-56-7	$HCOOCF_2CF_2CF_2CF_3$	b392
Perfluoropropyl formate	271257-42-2	$HCOOCF_2CF_2CF_3$	b376
1,1,1,3,3,3-Hexafluoropropan-2-yl formate	856766-70-6	$HCOOCH(CF_3)_2$	b333
2,2,2-Trifluoroethyl formate	32042-38-9	$HCOOCH_2CF_3$	b33
3,3,3-Trifluoropropyl formate	1344118-09-7	$HCOOCH_2CH_2CF_3$	b17
Fluorinated Acetates			
Methyl 2,2,2-trifluoroacetate	431-47-0	CF_3COOCH_3	b52
1,1-Difluoroethyl 2,2,2-trifluoroacetate	1344118-13-3	$CF_3COOCF_2CH_3$	b31
Difluoromethyl 2,2,2-trifluoroacetate	2024-86-4	$CF_3COOCHF_2$	b27
2,2,2-Trifluoroethyl 2,2,2-trifluoroacetate	407-38-5	$CF_3COOCH_2CF_3$	b7
Methyl 2,2-difluoroacetate	433-53-4	HCF_2COOCH_3	b3
Perfluoroethyl acetate	343269-97-6	$CH_3COOCF_2CF_3$	b2.1
Trifluoromethyl acetate	74123-20-9	CH_3COOCF_3	b2.0
Perfluoropropyl acetate	1344118-10-0	$CH_3COOCF_2CF_2CF_3$	b1.8
Perfluorobutyl acetate	209597-28-4	$CH_3COOCF_2CF_2CF_2CF_3$	b1.6
Ethyl 2,2,2-trifluoroacetate	383-63-1	$CF_3COOCH_2CH_3$	b1.3
Carbonofluoridates			
Methyl carbonofluoridate	1538-06-3	$FCOOCH_3$	b95
1,1-Difluoroethyl carbonofluoridate	1344118-11-1	$FCOOCF_2CH_3$	b27
Fluorinated Alcohols Other Than Fluorotelomer Alcohols			
Bis(trifluoromethyl)-methanol	920-66-1	$(CF_3)_2CHOH$	195

(Octafluorotetramethy-lene) hydroxymethyl group	NA	X-$(CF_2)_4CH(OH)$-X	73
2,2,3,3,3-Pentafluoropropanol	422-05-9	$CF_3CF_2CH_2OH$	42
2,2,3,3,4,4,4-Heptafluorobutan-1-ol	375-01-9	C_3F_7CH2OH	[b]25
2,2,2-Trifluoroethanol	75-89-8	CF_3CH_2OH	[b]20
2,2,3,4,4,4-Hexafluoro-1-butanol	382-31-0	$CF_3CHFCF_2CH_2OH$	[b]17
2,2,3,3-Tetrafluoro-1-propanol	76-37-9	$CHF_2CF_2CH_2OH$	[b]13
2,2-Difluoroethanol	359-13-7	CHF_2CH2OH	[b]3
2-Fluoroethanol	371-62-0	CH_2FCH_2OH	[b]1.1
4,4,4-Trifluorobutan-1-ol	461-18-7	$CF_3(CH_2)_2CH_2OH$	[b]0.05
Unsaturated Perfluorocarbons (PFCs)			
PFC-1114; TFE	116-14-3	$CF_2=CF_2$; C_2F_4	[b]0.004
PFC-1216; Dyneon HFP	116-15-4	C_3F_6; $CF_3CF=CF_2$	[b]0.05
PFC C-1418	559-40-0	c-C_5F_8	[b]1.97
Perfluorobut-2-ene	360-89-4	$CF_3CF=CFCF_3$	[b]1.82
Perfluorobut-1-ene	357-26-6	$CF_3CF_2CF=CF_2$	[b]0.10
Perfluorobuta-1,3-diene	685-63-2	$CF_2=CFCF=CF_2$	[b]0.003
Unsaturated Hydrofluorocarbons (HFCs) and Hydrochlorofluorocarbons (HCFCs)			
HFC-1132a; VF2	75-38-7	$C_2H_2F_2$, $CF_2=CH_2$	[b]0.04
HFC-1141; VF	75-02-5	C_2H_3F, $CH_2=CHF$	[b]0.02
(E)-HFC-1225ye	5595-10-8	$CF_3CF=CHF(E)$	[b]0.06
(Z)-HFC-1225ye	5528-43-8	$CF_3CF=CHF(Z)$	[b]0.22
Solstice 1233zd(E)	102687-65-0	$C_3H_2ClF_3$; $CHCl=CHCF_3$	[b]1.34
HFC-1234yf; HFO-1234yf	754-12-1	$C_3H_2F_4$; $CF_3CF=CH_2$	[b]0.31
HFC-1234ze(E)	1645-83-6	$C_3H_2F_4$; trans-$CF_3CH=CHF$	[b]0.97
HFC-1234ze(Z)	29118-25-0	$C_3H_2F_4$; cis-$CF_3CH=CHF$; $CF_3CH=CHF$	[b]0.29
HFC-1243zf; TFP	677-21-4	$C_3H_3F_3$, $CF_3CH=CH_2$	[b]0.12
(Z)-HFC-1336	692-49-9	$CF_3CH=CHCF_3(Z)$	[b]1.58
HFC-1345zfc	374-27-6	$C_2F_5CH=CH_2$	[b]0.09
Capstone 42-U	19430-93-4	$C_6H_3F_9$, $CF_3(CF_2)_3CH=CH_2$	[b]0.16
Capstone 62-U	25291-17-2	$C_8H_3F_{13}$, $CF_3(CF_2)_5CH=CH_2$	[b]0.11
Capstone 82-U	21652-58-4	$C_{10}H_3F_{17}$, $CF_3(CF_2)_7CH=CH_2$	[b]0.09
Unsaturated Halogenated Ethers			
PMVE; HFE-216	1187-93-5	$CF_3OCF=CF_2$	[b]0.17
Fluoroxene	406-90-6	$CF_3CH_2OCH=CH_2$	[b]0.05
Fluorinated Aldehydes			
3,3,3-Trifluoro-propanal	460-40-2	CF_3CH_2CHO	[b]0.01
Fluorinated Ketones			
Novec 1230 (perfluoro (2-methyl-3-pentanone))	756-13-8	$CF_3CF_2C(O)CF(CF3)_2$	[b]0.1
Fluorotelomer Alcohols			
3,3,4,4,5,5,6,6,7,7,7-Undecafluoroheptan-1-ol	185689-57-0	$CF_3(CF_2)_4CH_2CH_2OH$	[b]0.43
3,3,3-Trifluoropropan-1-ol	2240-88-2	$CF_3CH_2CH_2OH$	[b]0.35
3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-Pentadecafluorononan-1-ol	755-02-2	$CF_3(CF_2)_6CH_2CH_2OH$	[b]0.33
3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,11-Nonadecafluoroundecan-1-ol	87017-97-8	$CF_3(CF_2)_8CH_2CH_2OH$	[b]0.19
Fluorinated GHGs With Carbon-Iodine Bond(s)			
Trifluoroiodomethane	2314-97-8	CF_3I	[b]0.4
Other Fluorinated Compounds			
Dibromodifluoromethane (Halon 1202)	75-61-6	CBR_2F_2	[b]231
2-Bromo-2-chloro-1,1,1-trifluoroethane (Halon-2311/Halothane)	151-67-7	$CHBrClF_3$	[b]41

Fluorinated GHG Group[d]	Global warming potential (100 yr.)
Default GWPs for Compounds for Which Chemical-Specific GWPs Are Not Listed Above	
Fully fluorinated GHGs	10,000
Saturated hydrofluorocarbons (HFCs) with 2 or fewer carbon-hydrogen bonds	3,700
Saturated HFCs with 3 or more carbon-hydrogen bonds	930
Saturated hydrofluoroethers (HFEs) and hydrochlorofluoroethers (HCFEs) with 1 carbon-hydrogen bond	5,700
Saturated HFEs and HCFEs with 2 carbon-hydrogen bonds	2,600

Saturated HFEs and HCFEs with 3 or more carbon-hydrogen bonds	270
Fluorinated formates	350
Fluorinated acetates, carbonofluoridates, and fluorinated alcohols other than fluorotelomer alcohols	30
Unsaturated perfluorocarbons (PFCs), unsaturated HFCs, unsaturated hydrochlorofluorocarbons (HCFCs), unsaturated halogenated ethers, unsaturated halogenated esters, fluorinated aldehydes, and fluorinated ketones	1
Fluorotelomer alcohols	1
Fluorinated GHGs with carbon-iodine bond(s)	1
Other fluorinated GHGs	2,000

[a]The GWP for this compound was updated in the final rule published on November 29, 2013 [78 FR 71904] and effective on January 1, 2014.

[b]This compound was added to Table A-1 in the final rule published on December 11, 2014, and effective on January 1, 2015.

[c]The GWP for this compound was updated in the final rule published on December 11, 2014, and effective on January 1, 2015 .

[d]For electronics manufacturing (as defined in §98.90), the term “fluorinated GHGs” in the definition of each fluorinated GHG group in §98.6 shall include fluorinated heat transfer fluids (as defined in §98.98), whether or not they are also fluorinated GHGs.

[79 FR 73779, Dec. 11, 2014]

Need assistance?

Table A-2 to Subpart A of Part 98—Units of Measure Conversions

To convert from	To	Multiply by
Kilograms (kg)	Pounds (lbs)	2.20462
Pounds (lbs)	Kilograms (kg)	0.45359
Pounds (lbs)	Metric tons	4.53592×10^{-4}
Short tons	Pounds (lbs)	2,000
Short tons	Metric tons	0.90718
Metric tons	Short tons	1.10231
Metric tons	Kilograms (kg)	1,000
Cubic meters (m^3)	Cubic feet (ft^3)	35.31467
Cubic feet (ft^3)	Cubic meters (m^3)	0.028317
Gallons (liquid, US)	Liters (l)	3.78541
Liters (l)	Gallons (liquid, US)	0.26417
Barrels of Liquid Fuel (bbl)	Cubic meters (m^3)	0.15891
Cubic meters (m^3)	Barrels of Liquid Fuel (bbl)	6.289
Barrels of Liquid Fuel (bbl)	Gallons (liquid, US)	42
Gallons (liquid, US)	Barrels of Liquid Fuel (bbl)	0.023810
Gallons (liquid, US)	Cubic meters (m^3)	0.0037854
Liters (l)	Cubic meters (m^3)	0.001
Feet (ft)	Meters (m)	0.3048
Meters (m)	Feet (ft)	3.28084
Miles (mi)	Kilometers (km)	1.60934
Kilometers (km)	Miles (mi)	0.62137
Square feet (ft^2)	Acres	2.29568×10^{-5}
Square meters (m^2)	Acres	2.47105×10^{-4}
Square miles (mi^2)	Square kilometers (km^2)	2.58999
Degrees Celsius (°C)	Degrees Fahrenheit (°F)	°C = (5/9) × (°F −32)
Degrees Fahrenheit (°F)	Degrees Celsius (°C)	°F = (9/5) × °C + 32
Degrees Celsius (°C)	Kelvin (K)	K = °C + 273.15
Kelvin (K)	Degrees Rankine (°R)	1.8
Joules	Btu	9.47817×10^{-4}
Btu	MMBtu	1×10^{-6}
Pascals (Pa)	Inches of Mercury (in Hg)	2.95334×10^{-4}
Inches of Mercury (inHg)	Pounds per square inch (psi)	0.49110
Pounds per square inch (psi)	Inches of Mercury (in Hg)	2.03625

§98.33 Calculating GHG emissions.

You must calculate CO_2 emissions according to paragraph (a) of this section, and calculate CH_4 and N_2O emissions according to paragraph (c) of this section.

(a) *CO_2 emissions from fuel combustion.* Calculate CO_2 mass emissions by using one of the four calculation methodologies in paragraphs (a)(1) through (a)(4) of this section, subject to the applicable conditions, requirements, and restrictions set forth in paragraph (b) of this section. Alternatively, for units that meet the conditions of paragraph (a)(5) of this section, you may use CO_2 mass emissions calculation methods from part 75 of this chapter, as described in paragraph (a)(5) of this section. For units that combust both biomass and fossil fuels, you must calculate and report CO_2 emissions from the combustion of biomass separately using the methods in paragraph (e) of this section, except as otherwise provided in paragraphs (a)(5)(iv) and (e) of this section and in §98.36(d).

(1) *Tier 1 Calculation Methodology.* Calculate the annual CO_2 mass emissions for each type of fuel by using Equation C-1, C-1a, or C-1b of this section (as applicable).

(i) Use Equation C-1 except when natural gas billing records are used to quantify fuel usage and gas consumption is expressed in units of therms or million Btu. In that case, use Equation C-1a or C-1b, as applicable.

$$CO_2 = 1 x 10^{-3} * Fuel * HHV * EF \qquad \text{(Eq. C-1)}$$

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where:

CO_2 = Annual CO_2 mass emissions for the specific fuel type (metric tons).

Fuel = Mass or volume of fuel combusted per year, from company records as defined in §98.6 (express mass in short tons for solid fuel, volume in standard cubic feet for gaseous fuel, and volume in gallons for liquid fuel).

HHV = Default high heat value of the fuel, from Table C-1 of this subpart (mmBtu per mass or mmBtu per volume, as applicable).

EF = Fuel-specific default CO_2 emission factor, from Table C-1 of this subpart (kg CO_2/mmBtu).

1×10^{-3} = Conversion factor from kilograms to metric tons.

Table C-1 to Subpart C of Part 98—Default CO_2 Emission Factors and High Heat Values for Various Types of Fuel

DEFAULT CO_2 EMISSION FACTORS AND HIGH HEAT VALUES FOR VARIOUS TYPES OF FUEL

Fuel type	Default high heat value	Default CO_2 emission factor
Coal and coke	mmBtu/short ton	kg CO_2/mmBtu
Anthracite	25.09	103.69
Bituminous	24.93	93.28
Subbituminous	17.25	97.17
Lignite	14.21	97.72
Coal Coke	24.80	113.67
Mixed (Commercial sector)	21.39	94.27
Mixed (Industrial coking)	26.28	93.90
Mixed (Industrial sector)	22.35	94.67
Mixed (Electric Power sector)	19.73	95.52
Natural gas	mmBtu/scf	kg CO_2/mmBtu
(Weighted U.S. Average)	1.026×10^{-3}	53.06
Petroleum products	mmBtu/gallon	kg CO_2/mmBtu
Distillate Fuel Oil No. 1	0.139	73.25
Distillate Fuel Oil No. 2	0.138	73.96
Distillate Fuel Oil No. 4	0.146	75.04
Residual Fuel Oil No. 5	0.140	72.93
Residual Fuel Oil No. 6	0.150	75.10
Used Oil	0.138	74.00
Kerosene	0.135	75.20
Liquefied petroleum gases (LPG)[1]	0.092	61.71
Propane[1]	0.091	62.87
Propylene[2]	0.091	67.77
Ethane[1]	0.068	59.60
Ethanol	0.084	68.44
Ethylene[2]	0.058	65.96
Isobutane[1]	0.099	64.94
Isobutylene[1]	0.103	68.86
Butane[1]	0.103	64.77
Butylene[1]	0.105	68.72
Naphtha (<401 deg F)	0.125	68.02
Natural Gasoline	0.110	66.88
Other Oil (>401 deg F)	0.139	76.22
Pentanes Plus	0.110	70.02
Petrochemical Feedstocks	0.125	71.02
Petroleum Coke	0.143	102.41

Special Naphtha	0.125	72.34
Unfinished Oils	0.139	74.54
Heavy Gas Oils	0.148	74.92
Lubricants	0.144	74.27
Motor Gasoline	0.125	70.22
Aviation Gasoline	0.120	69.25
Kerosene-Type Jet Fuel	0.135	72.22
Asphalt and Road Oil	0.158	75.36
Crude Oil	0.138	74.54
Other fuels—solid	mmBtu/short ton	kg CO_2/mmBtu
Municipal Solid Waste	9.95[3]	90.7
Tires	28.00	85.97
Plastics	38.00	75.00
Petroleum Coke	30.00	102.41
Other fuels—gaseous	mmBtu/scf	kg CO_2/mmBtu
Blast Furnace Gas	0.092×10^{-3}	274.32
Coke Oven Gas	0.599×10^{-3}	46.85
Propane Gas	2.516×10^{-3}	61.46
Fuel Gas[4]	1.388×10^{-3}	59.00
Biomass fuels—solid	mmBtu/short ton	kg CO_2/mmBtu
Wood and Wood Residuals (dry basis)[5]	17.48	93.80
Agricultural Byproducts	8.25	118.17
Peat	8.00	111.84
Solid Byproducts	10.39	105.51
Biomass fuels—gaseous	mmBtu/scf	kg CO_2/mmBtu
Landfill Gas	0.485×10^{-3}	52.07
Other Biomass Gases	0.655×10^{-3}	52.07
Biomass Fuels—Liquid	mmBtu/gallon	kg CO_2/mmBtu
Ethanol	0.084	68.44
Biodiesel (100%)	0.128	73.84
Rendered Animal Fat	0.125	71.06
Vegetable Oil	0.120	81.55

[1]The HHV for components of LPG determined at 60 °F and saturation pressure with the exception of ethylene.

[2]Ethylene HHV determined at 41 °F (5 °C) and saturation pressure.

[3]Use of this default HHV is allowed only for: (a) Units that combust MSW, do not generate steam, and are allowed to use Tier 1; (b) units that derive no more than 10 percent of their annual heat input from MSW and/or tires; and (c) small batch incinerators that combust no more than 1,000 tons of MSW per year.

[4]Reporters subject to subpart X of this part that are complying with §98.243(d) or subpart Y of this part may only use the default HHV and the default CO_2 emission factor for fuel gas combustion under the conditions prescribed in §98.243(d)(2)(i) and (d)(2)(ii) and §98.252(a)(1) and (a)(2), respectively. Otherwise, reporters subject to subpart X or subpart Y shall use either Tier 3 (Equation C-5) or Tier 4.

[5]Use the following formula to calculate a wet basis HHV for use in Equation C-1: HHV_w = ((100 −

M)/100)*HHV_d where HHV_w = wet basis HHV, M = moisture content (percent) and HHV_d = dry basis HHV from Table C-1.

[78 FR 71950, Nov. 29, 2013]

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Table C-2 to Subpart C of Part 98—Default CH_4 and N_2O Emission Factors for Various Types of Fuel

Fuel type	Default CH_4 emission factor (kg CH_4/mmBtu)	Default N_2O emission factor (kg N_2O/mmBtu)
Coal and Coke (All fuel types in Table C-1)	1.1×10^{-02}	1.6×10^{-03}
Natural Gas	1.0×10^{-03}	1.0×10^{-04}
Petroleum (All fuel types in Table C-1)	3.0×10^{-03}	6.0×10^{-04}
Fuel Gas	3.0×10^{-03}	6.0×10^{-04}
Municipal Solid Waste	3.2×10^{-02}	4.2×10^{-03}
Tires	3.2×10^{-02}	4.2×10^{-03}
Blast Furnace Gas	2.2×10^{-05}	1.0×10^{-04}
Coke Oven Gas	4.8×10^{-04}	1.0×10^{-04}
Biomass Fuels—Solid (All fuel types in Table C-1, except wood and wood residuals)	3.2×10^{-02}	4.2×10^{-03}
Wood and wood residuals	7.2×10^{-03}	3.6×10^{-03}
Biomass Fuels—Gaseous (All fuel types in Table C-1)	3.2×10^{-03}	6.3×10^{-04}
Biomass Fuels—Liquid (All fuel types in Table C-1)	1.1×10^{-03}	1.1×10^{-04}

Note: Those employing this table are assumed to fall under the IPCC definitions of the "Energy Industry" or "Manufacturing Industries and Construction". In all fuels except for coal the values for these two categories are identical. For coal combustion, those who fall within the IPCC "Energy Industry" category may employ a value of 1g of CH_4/mmBtu.

[78 FR 71952, Nov. 29, 2013]

7.13 EPA TANKS Detailed Emissions Report

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification	
User Identification:	H22002
City:	Roswell
State:	New Mexico
Company:	Holloman
Type of Tank:	Horizontal Tank
Description:	Holloman Gasoline Tank
Tank Dimensions	
Shell Length (ft):	32.00
Diameter (ft):	8.00
Volume (gallons):	12,000.00
Turnovers:	8.33
Net Throughput(gal/yr):	100,000.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N
Paint Characteristics	
Shell Color/Shade:	Gray/Light
Shell Condition	Good
Breather Vent Settings	
Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Roswell, New Mexico (Avg Atmospheric Pressure = 12.73 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

H22002 - Horizontal Tank
Alamogordo, New Mexico

		Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp	Vapor Pressure (psia)			Vapor Mol.	Liquid Mass	Vapor Mass	Mol.	Basis for Vapor Pressure
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min.	Max.	Weight.	Fract.	Fract.	Weight	Calculations
Gasoline (RVP 10)	All	69.79	57.58	82.00	63.06	6.2483	4.9470	7.8093	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
2,2,4-Trimethylpentane (isooctane)						0.7849	0.5554	1.0886	114.2300	1.4056	0.0071	114.23	Option 2: A=6.8118, B=1257.84, C=220.74
Benzene						1.5229	1.0917	2.0864	78.1100	0.6297	0.0062	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.1514	0.0997	0.2246	106.1700	0.4786	0.0005	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.4547	1.7961	3.2991	86.1700	0.3521	0.0056	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Isopropyl benzene						0.0688	0.0439	0.1051	120.2000	0.1756	0.0001	120.20	Option 2: A=6.93666, B=1460.793, C=207.78
Naphthalene						0.0038	0.0022	0.0063	128.2000	0.0630	0.0000	128.20	Option 2: A=7.3729, B=1968.36, C=222.61
Toluene						0.4448	0.3060	0.6333	92.1300	2.4596	0.0071	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						7.9248	7.8598	7.8598	65.4343	-7.5449	0.9711	89.72	
Xylenes (mixed isomers)						0.1265	0.0830	0.1884	106.1700	2.9806	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

H22002 - Horizontal Tank
Alamogordo, INew Mexico

Annual Emission Calcaulations	
Standing Losses (lb):	6,124.3179
Vapor Space Volume (cu ft):	1,024.5194
Vapor Density (lb/cu ft):	0.0726
Vapor Space Expansion Factor:	0.5245
Vented Vapor Saturation Factor:	0.4302
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,024.5194
Tank Diameter (ft):	8.0000
Effective Diameter (ft):	18.0586
Vapor Space Outage (ft):	4.0000
Tank Shell Length (ft):	32.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0726
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.2483
Daily Avg. Liquid Surface Temp. (deg. R):	529.4625
Daily Average Ambient Temp. (deg. F):	60.8167
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	522.7267
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,810.0000
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.5245
Daily Vapor Temperature Range (deg. R):	48.8472
Daily Vapor Pressure Range (psia):	2.8623
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.2483
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.9470
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	7.8093
Daily Avg. Liquid Surface Temp. (deg R):	529.4625
Daily Min. Liquid Surface Temp. (deg R):	517.2507
Daily Max. Liquid Surface Temp. (deg R):	541.6743
Daily Ambient Temp. Range (deg. R):	29.8333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.4302
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	6.2483
Vapor Space Outage (ft):	4.0000
Working Losses (lb):	981.8730
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.2483
Annual Net Throughput (gal/yr.):	100,000.0000
Annual Turnovers:	8.3333
Turnover Factor:	1.0000
Tank Diameter (ft):	8.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	7,106.1908

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

H22002 - Horizontal Tank
Alamogordo, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 10)	981.87	6,124.32	7,106.19
Benzene	6.07	37.85	43.92
Ethylbenzene	0.46	2.86	3.32
Hexane (-n)	5.47	34.11	39.58
Naphthalene	0.00	0.01	0.01
Unidentified Components	953.51	5,947.41	6,900.92
Toluene	6.92	43.18	50.10
Xylenes (mixed isomers)	2.39	14.88	17.27
Isopropyl benzene	0.08	0.48	0.55
2,2,4-Trimethylpentane (isooctane)	6.98	43.54	50.53

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification	
User Identification:	H22014R
City:	Alamogorgo
State:	New Mexico
Company:	Holloman
Type of Tank:	Horizontal Tank
Description:	Holloman horizontal Tank
Tank Dimensions	
Shell Length (ft):	11.30
Diameter (ft):	5.00
Volume (gallons):	1,000.00
Turnovers:	50.00
Net Throughput(gal/yr):	50,001.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N
Paint Characteristics	
Shell Color/Shade:	Gray/Light
Shell Condition	Good
Breather Vent Settings	
Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Roswell, New Mexico (Avg Atmospheric Pressure = 12.73 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

H22014R - Horizontal Tank
Alamogordo, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Gasoline (RVP 10)	All	69.79	57.58	82.00	63.06	6.2483	4.9470	7.8093	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
2,2,4-Trimethylpentane (isooctane)						0.7849	0.5554	1.0886	114.2300	1.4056	0.0071	114.23	Option 2: A=6.8118, B=1257.84, C=220.74
Benzene						1.5229	1.0917	2.0864	78.1100	0.6297	0.0062	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.1514	0.0997	0.2246	106.1700	0.4786	0.0005	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.4547	1.7961	3.2991	86.1700	0.3521	0.0056	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Isopropyl benzene						0.0688	0.0439	0.1051	120.2000	0.1756	0.0001	120.20	Option 2: A=6.93666, B=1460.793, C=207.78
Naphthalene						0.0038	0.0022	0.0063	128.2000	0.0630	0.0000	128.20	Option 2: A=7.3729, B=1968.36, C=222.61
Toluene						0.4448	0.3060	0.6333	92.1300	2.4596	0.0071	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						7.9248	7.8518	7.8598	65.4343	-7.5449	0.9711	89.72	
Xylenes (mixed isomers)						0.1265	0.0830	0.1884	106.1700	2.9806	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

H22014R - Horizontal Tank
Alamogordo, New Mexico

Annual Emission Calcaulations	
Standing Losses (lb):	1,074.3588
Vapor Space Volume (cu ft):	141.3216
Vapor Density (lb/cu ft):	0.0726
Vapor Space Expansion Factor:	0.5245
Vented Vapor Saturation Factor:	0.5471
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	141.3216
Tank Diameter (ft):	5.0000
Effective Diameter (ft):	8.4838
Vapor Space Outage (ft):	2.5000
Tank Shell Length (ft):	11.3000
Vapor Density	
Vapor Density (lb/cu ft):	0.0726
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.2483
Daily Avg. Liquid Surface Temp. (deg. R):	529.4625
Daily Average Ambient Temp. (deg. F):	60.8167
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	522.7267
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,810.0000
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.5245
Daily Vapor Temperature Range (deg. R):	48.8472
Daily Vapor Pressure Range (psia):	2.8623
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.2483
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.9470
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	7.8093
Daily Avg. Liquid Surface Temp. (deg R):	529.4625
Daily Min. Liquid Surface Temp. (deg R):	517.2507
Daily Max. Liquid Surface Temp. (deg R):	541.6743
Daily Ambient Temp. Range (deg. R):	29.8333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.5471
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	6.2483
Vapor Space Outage (ft):	2.5000
Working Losses (lb):	376.3922
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.2483
Annual Net Throughput (gal/yr.):	50,001.0000
Annual Turnovers:	50.0000
Turnover Factor:	0.7667
Tank Diameter (ft):	5.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	1,450.7510

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

H22014R - Horizontal Tank
Alamogordo, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 10)	376.39	1,074.36	1,450.75
Benzene	2.33	6.64	8.97
Isopropyl benzene	0.03	0.08	0.11
Ethylbenzene	0.18	0.50	0.68
Naphthalene	0.00	0.00	0.00
Toluene	2.65	7.57	10.23
Xylenes (mixed isomers)	0.91	2.61	3.53
Unidentified Components	365.52	1,043.32	1,408.84
Hexane (-n)	2.10	5.98	8.08
2,2,4-Trimethylpentane (isooctane)	2.68	7.64	10.31

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	H22054
City:	Alamogordo
State:	New Mexico
Company:	Holloman
Type of Tank:	Vertical Fixed Roof Tank
Description:	Holloman Vertical Tank Bldg. 136

Tank Dimensions

Shell Height (ft):	21.00
Diameter (ft):	13.00
Liquid Height (ft) :	20.14
Avg. Liquid Height (ft):	19.00
Volume (gallons):	20,000.00
Turnovers:	30.00
Net Throughput(gal/yr):	600,000.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition	Good
Roof Color/Shade:	Gray/Light
Roof Condition:	Good

Roof Characteristics

Type:	Dome
Height (ft)	21.00
Radius (ft) (Dome Roof)	13.00

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Roswell, New Mexico (Avg Atmospheric Pressure = 12.73 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

H22054 - Vertical Fixed Roof Tank
Alamagordo, New Mexico

		Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp	Vapor Pressure (psia)			Vapor Mol.	Liquid Mass	Vapor Mass	Mol.	Basis for Vapor Pressure
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min.	Max.	Weight.	Fract.	Fract.	Weight	Calculations
Gasoline (RVP 10)	All	69.79	57.58	82.00	63.06	6.2483	4.9470	7.8093	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
2,2,4-Trimethylpentane (isooctane)						0.7849	0.5554	1.0886	114.2300	1.4056	0.0071	114.23	Option 2: A=6.8118, B=1257.84, C=220.74
Benzene						1.5229	1.0917	2.0864	78.1100	0.6297	0.0062	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.1514	0.0997	0.2246	106.1700	0.4786	0.0005	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.4547	1.7961	3.2991	86.1700	0.3521	0.0056	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Isopropyl benzene						0.0688	0.0439	0.1051	120.2000	0.1756	0.0001	120.20	Option 2: A=6.93666, B=1460.793, C=207.78
Naphthalene						0.0038	0.0022	0.0063	128.2000	0.0630	0.0000	128.20	Option 2: A=7.3729, B=1968.36, C=222.61
Toluene						0.4448	0.3060	0.6333	92.1300	2.4596	0.0071	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						7.9248	7.8518	7.8598	65.4343	-7.5449	0.9711	89.72	
Xylenes (mixed isomers)						0.1265	0.0830	0.1884	106.1700	2.9806	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

H22054 - Vertical Fixed Roof Tank
Alamogordo, New Mexico

Annual Emission Calcaulations	
Standing Losses (lb):	5,246.5948
Vapor Space Volume (cu ft):	6,508.2019
Vapor Density (lb/cu ft):	0.0726
Vapor Space Expansion Factor:	0.5245
Vented Vapor Saturation Factor:	0.0580
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	6,508.2019
Tank Diameter (ft):	13.0000
Vapor Space Outage (ft):	49.0325
Tank Shell Height (ft):	21.0000
Average Liquid Height (ft):	19.0000
Roof Outage (ft):	47.0325
Roof Outage (Dome Roof)	
Roof Outage (ft):	47.0325
Dome Radius (ft):	13.0000
Shell Radius (ft):	6.5000
Vapor Density	
Vapor Density (lb/cu ft):	0.0726
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.2483
Daily Avg. Liquid Surface Temp. (deg. R):	529.4625
Daily Average Ambient Temp. (deg. F):	60.8167
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	522.7267
Tank Paint Solar Absorptance (Shell):	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,810.0000
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.5245
Daily Vapor Temperature Range (deg. R):	48.8472
Daily Vapor Pressure Range (psia):	2.8623
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.2483
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.9470
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	7.8093
Daily Avg. Liquid Surface Temp. (deg R):	529.4625
Daily Min. Liquid Surface Temp. (deg R):	517.2507
Daily Max. Liquid Surface Temp. (deg R):	541.6743
Daily Ambient Temp. Range (deg. R):	29.8333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.0580
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	6.2483
Vapor Space Outage (ft):	49.0325
Working Losses (lb):	5,891.2379
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.2483
Annual Net Throughput (gal/yr.):	600,000.0000
Annual Turnovers:	30.0000
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	20,000.0000
Maximum Liquid Height (ft):	20.1428
Tank Diameter (ft):	13.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	11,137.8327

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

H22054 - Vertical Fixed Roof Tank
Alamogordo, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 10)	5,891.24	5,246.59	11,137.83
Benzene	36.41	32.42	68.83
Ethylbenzene	2.75	2.45	5.20
Hexane (-n)	32.81	29.22	62.04
2,2,4-Trimethylpentane (isooctane)	41.89	37.30	79.19
Naphthalene	0.01	0.01	0.02
Toluene	41.53	36.99	78.52
Xylenes (mixed isomers)	14.32	12.75	27.06
Unidentified Components	5,721.06	5,095.04	10,816.10
Isopropyl benzene	0.46	0.41	0.87

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	H22058
City:	Alamogordo
State:	New Mexico
Company:	Holloman
Type of Tank:	Horizontal Tank
Description:	Holloman horizontal tank bldg. 12303

Tank Dimensions

Shell Length (ft):		10.00
Diameter (ft):		6.00
Volume (gallons):		1,661.00
Turnovers:		30.10
Net Throughput(gal/yr):		50,001.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Roswell, New Mexico (Avg Atmospheric Pressure = 12.73 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

H22058 - Horizontal Tank
Alamogordo, New Mexico

		Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp	Vapor Pressure (psia)			Vapor Mol.	Liquid Mass	Vapor Mass	Mol.	Basis for Vapor Pressure
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min.	Max.	Weight.	Fract.	Fract.	Weight	Calculations
Gasoline (RVP 10)	All	69.79	57.58	82.00	63.06	6.2483	4.9470	7.8093	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
2,2,4-Trimethylpentane (isooctane)						0.7849	0.5554	1.0886	114.2300	1.4056	0.0071	114.23	Option 2: A=6.8118, B=1257.84, C=220.74
Benzene						1.5229	1.0917	2.0864	78.1100	0.6297	0.0062	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.1514	0.0997	0.2246	106.1700	0.4786	0.0005	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.4547	1.7961	3.2991	86.1700	0.3521	0.0056	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Isopropyl benzene						0.0688	0.0439	0.1051	120.2000	0.1756	0.0001	120.20	Option 2: A=6.93666, B=1460.793, C=207.78
Naphthalene						0.0038	0.0022	0.0063	128.2000	0.0630	0.0000	128.20	Option 2: A=7.3729, B=1968.36, C=222.61
Toluene						0.4448	0.3060	0.6333	92.1300	2.4596	0.0071	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						7.9248	7.8518	7.8598	65.4343	-7.5449	0.9711	89.72	
Xylenes (mixed isomers)						0.1265	0.0830	0.1884	106.1700	2.9806	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

H22058 - Horizontal Tank
Alamogordo, New Mexico

Annual Emission Calcaulations	
Standing Losses (lb):	1,255.3765
Vapor Space Volume (cu ft):	180.0913
Vapor Density (lb/cu ft):	0.0726
Vapor Space Expansion Factor:	0.5245
Vented Vapor Saturation Factor:	0.5016
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	180.0913
Tank Diameter (ft):	6.0000
Effective Diameter (ft):	8.7426
Vapor Space Outage (ft):	3.0000
Tank Shell Length (ft):	10.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0726
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.2483
Daily Avg. Liquid Surface Temp. (deg. R):	529.4625
Daily Average Ambient Temp. (deg. F):	60.8167
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	522.7267
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,810.0000
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.5245
Daily Vapor Temperature Range (deg. R):	48.8472
Daily Vapor Pressure Range (psia):	2.8623
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.2483
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.9470
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	7.8093
Daily Avg. Liquid Surface Temp. (deg R):	529.4625
Daily Min. Liquid Surface Temp. (deg R):	517.2507
Daily Max. Liquid Surface Temp. (deg R):	541.6743
Daily Ambient Temp. Range (deg. R):	29.8333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.5016
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	6.2483
Vapor Space Outage (ft):	3.0000
Working Losses (lb):	490.9463
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.2483
Annual Net Throughput (gal/yr.):	50,001.0000
Annual Turnovers:	30.1023
Turnover Factor:	1.0000
Tank Diameter (ft):	6.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	1,746.3228

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

H22058 - Horizontal Tank
Alamagordo, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 10)	490.95	1,255.38	1,746.32
Isopropyl benzene	0.04	0.10	0.14
Ethylbenzene	0.23	0.59	0.82
Hexane (-n)	2.73	6.99	9.73
2,2,4-Trimethylpentane (isooctane)	3.49	8.93	12.42
Naphthalene	0.00	0.00	0.00
Toluene	3.46	8.85	12.31
Xylenes (mixed isomers)	1.19	3.05	4.24
Unidentified Components	476.76	1,219.11	1,695.88
Benzene	3.03	7.76	10.79

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification	
User Identification:	H22101
City:	Alamogordo
State:	New Mexico
Company:	Holloman
Type of Tank:	Horizontal Tank
Description:	Holloman horizontal tank bldg. 33
Tank Dimensions	
Shell Length (ft):	32.00
Diameter (ft):	8.00
Volume (gallons):	12,000.00
Turnovers:	208.33
Net Throughput(gal/yr):	2,500,000.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N
Paint Characteristics	
Shell Color/Shade:	White/White
Shell Condition	Good
Breather Vent Settings	
Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Roswell, New Mexico (Avg Atmospheric Pressure = 12.73 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

H22101 - Horizontal Tank
Alamogordo, New Mexico

		Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp	Vapor Pressure (psia)			Vapor Mol.	Liquid Mass	Vapor Mass	Mol.	Basis for Vapor Pressure
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min.	Max.	Weight.	Fract.	Fract.	Weight	Calculations
Gasoline (RVP 10)	All	63.26	55.73	70.78	60.84	5.5219	4.7708	6.3647	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
2,2,4-Trimethylpentane (isooctane)						0.6539	0.5261	0.8066	114.2300	1.4912	0.0071	114.23	Option 2: A=6.8118, B=1257.84, C=220.74
Benzene						1.2774	1.0363	1.5633	78.1100	0.6634	0.0062	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.1215	0.0934	0.1565	106.1700	0.5273	0.0005	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.0814	1.7106	2.5158	86.1700	0.3670	0.0056	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Isopropyl benzene						0.0543	0.0409	0.0713	120.2000	0.1967	0.0001	120.20	Option 2: A=6.93666, B=1460.793, C=207.78
Naphthalene						0.0029	0.0020	0.0040	128.2000	0.0737	0.0000	128.20	Option 2: A=7.3729, B=1968.36, C=222.61
Toluene						0.3651	0.2887	0.4580	92.1300	2.6479	0.0071	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						7.1773	7.1333	7.1418	65.4343	-8.2582	0.9711	89.43	
Xylenes (mixed isomers)						0.1013	0.0777	0.1308	106.1700	3.2911	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

H22101 - Horizontal Tank
Alamogordo, New Mexico

Annual Emission Calcaulations	
Standing Losses (lb):	3,024.5690
Vapor Space Volume (cu ft):	1,024.5194
Vapor Density (lb/cu ft):	0.0649
Vapor Space Expansion Factor:	0.2703
Vented Vapor Saturation Factor:	0.4607
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,024.5194
Tank Diameter (ft):	8.0000
Effective Diameter (ft):	18.0586
Vapor Space Outage (ft):	4.0000
Tank Shell Length (ft):	32.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0649
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.5219
Daily Avg. Liquid Surface Temp. (deg. R):	522.9287
Daily Average Ambient Temp. (deg. F):	60.8167
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	520.5067
Tank Paint Solar Absorptance (Shell):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,810.0000
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.2703
Daily Vapor Temperature Range (deg. R):	30.0956
Daily Vapor Pressure Range (psia):	1.5939
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.5219
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.7708
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	6.3647
Daily Avg. Liquid Surface Temp. (deg R):	522.9287
Daily Min. Liquid Surface Temp. (deg R):	515.4048
Daily Max. Liquid Surface Temp. (deg R):	530.4526
Daily Ambient Temp. Range (deg. R):	29.8333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.4607
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	5.5219
Vapor Space Outage (ft):	4.0000
Working Losses (lb):	6,739.2883
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.5219
Annual Net Throughput (gal/yr.):	2,500,000.0000
Annual Turnovers:	208.3333
Turnover Factor:	0.3107
Tank Diameter (ft):	8.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	9,763.8573

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

H22101 - Horizontal Tank
Alamogorodo, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 10)	6,739.29	3,024.57	9,763.86
Benzene	41.65	18.69	60.34
Isopropyl benzene	0.52	0.24	0.76
Ethylbenzene	3.15	1.41	4.56
Hexane (-n)	37.54	16.85	54.38
2,2,4-Trimethylpentane (isooctane)	47.92	21.50	69.42
Naphthalene	0.01	0.00	0.02
Toluene	47.51	21.32	68.84
Xylenes (mixed isomers)	16.38	7.35	23.73
Unidentified Components	6,544.61	2,937.20	9,481.81

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	H22101
City:	Alamogordo
State:	New Mexico
Company:	Holloman
Type of Tank:	Horizontal Tank
Description:	Holloman horizontal tank bldg. 33

Tank Dimensions

Shell Length (ft):	32.00
Diameter (ft):	8.00
Volume (gallons):	12,000.00
Turnovers:	75.00
Net Throughput(gal/yr):	900,000.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Roswell, New Mexico (Avg Atmospheric Pressure = 12.73 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

H22101 - Horizontal Tank
Alamogordo, New Mexico

		Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp	Vapor Pressure (psia)			Vapor Mol.	Liquid Mass	Vapor Mass	Mol.	Basis for Vapor Pressure
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min.	Max.	Weight.	Fract.	Fract.	Weight	Calculations
Gasoline (RVP 10)	All	63.26	55.73	70.78	60.84	5.5219	4.7708	6.3647	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
2,2,4-Trimethylpentane (isooctane)						0.6539	0.5261	0.8066	114.2300	1.4912	0.0071	114.23	Option 2: A=6.8118, B=1257.84, C=220.74
Benzene						1.2774	1.0363	1.5633	78.1100	0.6634	0.0062	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.1215	0.0934	0.1565	106.1700	0.5273	0.0005	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.0814	1.7106	2.5158	86.1700	0.3670	0.0056	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Isopropyl benzene						0.0543	0.0409	0.0713	120.2000	0.1967	0.0001	120.20	Option 2: A=6.93666, B=1460.793, C=207.78
Naphthalene						0.0029	0.0020	0.0040	128.2000	0.0737	0.0000	128.20	Option 2: A=7.3729, B=1968.36, C=222.61
Toluene						0.3651	0.2887	0.4580	92.1300	2.6479	0.0071	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						7.1773	7.1333	7.1418	65.4343	-8.2582	0.9711	89.43	
Xylenes (mixed isomers)						0.1013	0.0777	0.1308	106.1700	3.2911	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

H22101 - Horizontal Tank
Alamogordo, New Mexico

Annual Emission Calcaulations	
Standing Losses (lb):	3,024.5690
Vapor Space Volume (cu ft):	1,024.5194
Vapor Density (lb/cu ft):	0.0649
Vapor Space Expansion Factor:	0.2703
Vented Vapor Saturation Factor:	0.4607
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,024.5194
Tank Diameter (ft):	8.0000
Effective Diameter (ft):	18.0586
Vapor Space Outage (ft):	4.0000
Tank Shell Length (ft):	32.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0649
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.5219
Daily Avg. Liquid Surface Temp. (deg. R):	522.9287
Daily Average Ambient Temp. (deg. F):	60.8167
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	520.5067
Tank Paint Solar Absorptance (Shell):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,810.0000
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.2703
Daily Vapor Temperature Range (deg. R):	30.0956
Daily Vapor Pressure Range (psia):	1.5939
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.5219
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.7708
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	6.3647
Daily Avg. Liquid Surface Temp. (deg R):	522.9287
Daily Min. Liquid Surface Temp. (deg R):	515.4048
Daily Max. Liquid Surface Temp. (deg R):	530.4526
Daily Ambient Temp. Range (deg. R):	29.8333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.4607
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	5.5219
Vapor Space Outage (ft):	4.0000
Working Losses (lb):	4,425.3696
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.5219
Annual Net Throughput (gal/yr.):	900,000.0000
Annual Turnovers:	75.0000
Turnover Factor:	0.5667
Tank Diameter (ft):	8.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	7,449.9385

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

H22101 - Horizontal Tank
Alamogordo, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 10)	4,425.37	3,024.57	7,449.94
Benzene	27.35	18.69	46.04
Isopropyl benzene	0.34	0.24	0.58
Ethylbenzene	2.07	1.41	3.48
Xylenes (mixed isomers)	10.75	7.35	18.10
Unidentified Components	4,297.54	2,937.20	7,234.74
Hexane (-n)	24.65	16.85	41.50
2,2,4-Trimethylpentane (isooctane)	31.46	21.50	52.97
Naphthalene	0.01	0.00	0.01
Toluene	31.20	21.32	52.52

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification	
User Identification:	H22101
City:	Alamogordol
State:	New Mexico
Company:	Holloman
Type of Tank:	Horizontal Tank
Description:	Holloman horizontal tank bldg. 33
Tank Dimensions	
Shell Length (ft):	32.00
Diameter (ft):	8.00
Volume (gallons):	12,000.00
Turnovers:	62.50
Net Throughput(gal/yr):	750,000.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N
Paint Characteristics	
Shell Color/Shade:	White/White
Shell Condition	Good
Breather Vent Settings	
Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Roswell, New Mexico (Avg Atmospheric Pressure = 12.73 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

H22101 - Horizontal Tank
Alamogordo, New Mexico

		Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp	Vapor Pressure (psia)			Vapor Mol.	Liquid Mass	Vapor Mass	Mol.	Basis for Vapor Pressure
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min.	Max.	Weight.	Fract.	Fract.	Weight	Calculations
Gasoline (RVP 10)	All	63.26	55.73	70.78	60.84	5.5219	4.7708	6.3647	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
2,2,4-Trimethylpentane (isooctane)						0.6539	0.5261	0.8066	114.2300	1.4912	0.0071	114.23	Option 2: A=6.8118, B=1257.84, C=220.74
Benzene						1.2774	1.0363	1.5633	78.1100	0.6634	0.0062	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.1215	0.0934	0.1565	106.1700	0.5273	0.0005	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.0814	1.7106	2.5158	86.1700	0.3670	0.0056	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Isopropyl benzene						0.0543	0.0409	0.0713	120.2000	0.1967	0.0001	120.20	Option 2: A=6.93666, B=1460.793, C=207.78
Naphthalene						0.0029	0.0020	0.0040	128.2000	0.0737	0.0000	128.20	Option 2: A=7.3729, B=1968.36, C=222.61
Toluene						0.3651	0.2887	0.4580	92.1300	2.6479	0.0071	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						7.1773	7.1333	7.1418	65.4343	-8.2582	0.9711	89.43	
Xylenes (mixed isomers)						0.1013	0.0777	0.1308	106.1700	3.2911	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

H22101 - Horizontal Tank
Alamogordo, New Mexico

Annual Emission Calcaulations	
Standing Losses (lb):	3,024.5690
Vapor Space Volume (cu ft):	1,024.5194
Vapor Density (lb/cu ft):	0.0649
Vapor Space Expansion Factor:	0.2703
Vented Vapor Saturation Factor:	0.4607
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,024.5194
Tank Diameter (ft):	8.0000
Effective Diameter (ft):	18.0586
Vapor Space Outage (ft):	4.0000
Tank Shell Length (ft):	32.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0649
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.5219
Daily Avg. Liquid Surface Temp. (deg. R):	522.9287
Daily Average Ambient Temp. (deg. F):	60.8167
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	520.5067
Tank Paint Solar Absorptance (Shell):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,810.0000
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.2703
Daily Vapor Temperature Range (deg. R):	30.0956
Daily Vapor Pressure Range (psia):	1.5939
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.5219
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.7708
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	6.3647
Daily Avg. Liquid Surface Temp. (deg R):	522.9287
Daily Min. Liquid Surface Temp. (deg R):	515.4048
Daily Max. Liquid Surface Temp. (deg R):	530.4526
Daily Ambient Temp. Range (deg. R):	29.8333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.4607
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	5.5219
Vapor Space Outage (ft):	4.0000
Working Losses (lb):	4,208.4397
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.5219
Annual Net Throughput (gal/yr.):	750,000.0000
Annual Turnovers:	62.5000
Turnover Factor:	0.6467
Tank Diameter (ft):	8.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	7,233.0086

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

H22101 - Horizontal Tank
Alamogordo, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 10)	4,208.44	3,024.57	7,233.01
Benzene	26.01	18.69	44.70
Isopropyl benzene	0.33	0.24	0.56
Ethylbenzene	1.97	1.41	3.38
Hexane (-n)	23.44	16.85	40.29
2,2,4-Trimethylpentane (isooctane)	29.92	21.50	51.43
Naphthalene	0.01	0.00	0.01
Toluene	29.67	21.32	50.99
Xylenes (mixed isomers)	10.23	7.35	17.58
Unidentified Components	4,086.87	2,937.20	7,024.07

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	H22103_2020
City:	Alamogordo
State:	New Mexico
Company:	Holloman AFB
Type of Tank:	Horizontal Tank
Description:	Holloman tank 22103 avgas Title V 2020.

Tank Dimensions

Shell Length (ft):	18.00
Diameter (ft):	6.00
Volume (gallons):	3,000.00
Turnovers:	13.33
Net Throughput(gal/yr):	40,000.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Roswell, New Mexico (Avg Atmospheric Pressure = 12.73 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

H22103_2020 - Horizontal Tank
Alamogordo, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Gasoline (RVP 10)	All	69.79	57.58	82.00	63.06	6.2483	4.9470	7.8093	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Benzene						1.5229	1.0917	2.0864	78.1100	0.1269	0.0016	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.1514	0.0997	0.2246	106.1700	1.1969	0.0015	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.4547	1.7961	3.2991	86.1700	1.0336	0.0210	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.4448	0.3060	0.6333	92.1300	2.4991	0.0092	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						8.6112	8.5051	8.5189	65.3365	-7.4857	0.9629	89.32	
Xylenes (mixed isomers)						0.1265	0.0830	0.1884	106.1700	3.6292	0.0038	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

H22103_2020 - Horizontal Tank
Alamogordo, New Mexico

Annual Emission Calcaulations	
Standing Losses (lb):	2,259.6777
Vapor Space Volume (cu ft):	324.1643
Vapor Density (lb/cu ft):	0.0726
Vapor Space Expansion Factor:	0.5245
Vented Vapor Saturation Factor:	0.5016
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	324.1643
Tank Diameter (ft):	6.0000
Effective Diameter (ft):	11.7294
Vapor Space Outage (ft):	3.0000
Tank Shell Length (ft):	18.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0726
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.2483
Daily Avg. Liquid Surface Temp. (deg. R):	529.4625
Daily Average Ambient Temp. (deg. F):	60.8167
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	522.7267
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,810.0000
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.5245
Daily Vapor Temperature Range (deg. R):	48.8472
Daily Vapor Pressure Range (psia):	2.8623
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.2483
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.9470
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	7.8093
Daily Avg. Liquid Surface Temp. (deg R):	529.4625
Daily Min. Liquid Surface Temp. (deg R):	517.2507
Daily Max. Liquid Surface Temp. (deg R):	541.6743
Daily Ambient Temp. Range (deg. R):	29.8333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.5016
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	6.2483
Vapor Space Outage (ft):	3.0000
Working Losses (lb):	392.7492
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.2483
Annual Net Throughput (gal/yr.):	40,000.0000
Annual Turnovers:	13.3333
Turnover Factor:	1.0000
Tank Diameter (ft):	6.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	2,652.4269

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

H22103_2020 - Horizontal Tank
Alamogordo, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 10)	392.75	2,259.68	2,652.43
Benzene	0.63	3.62	4.24
Ethylbenzene	0.59	3.39	3.98
Hexane (-n)	8.25	47.45	55.70
Toluene	3.61	20.79	24.40
Xylenes (mixed isomers)	1.49	8.59	10.08
Unidentified Components	378.18	2,175.84	2,554.02

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification	
User Identification:	H22105_TV_2020
City:	Alamogordo
State:	New Mexico
Company:	Hollman AFB
Type of Tank:	Horizontal Tank
Description:	Holloman avgas tank 22105 Title V 2020
Tank Dimensions	
Shell Length (ft):	11.00
Diameter (ft):	5.00
Volume (gallons):	1,000.00
Turnovers:	0.00
Net Throughput(gal/yr):	60,000.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N
Paint Characteristics	
Shell Color/Shade:	White/White
Shell Condition	Good
Breather Vent Settings	
Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Roswell, New Mexico (Avg Atmospheric Pressure = 12.73 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

H22105_TV_2020 - Horizontal Tank
Alamogordo, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Gasoline (RVP 10)	All	63.26	55.73	70.78	60.84	5.5219	4.7708	6.3647	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Benzene						1.2774	1.0363	1.5633	78.1100	0.1337	0.0016	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.1215	0.0934	0.1565	106.1700	1.3186	0.0015	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.0814	1.7106	2.5158	86.1700	1.0773	0.0210	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.3651	0.2887	0.4580	92.1300	2.6904	0.0092	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						7.8916	7.8258	7.8405	65.3365	-8.2272	0.9629	88.90	
Xylenes (mixed isomers)						0.1013	0.0777	0.1308	106.1700	4.0071	0.0038	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

H22105_TV_2020 - Horizontal Tank
Alamogordo, New Mexico

Annual Emission Calcaulations	
Standing Losses (lb):	509.0889
Vapor Space Volume (cu ft):	137.5697
Vapor Density (lb/cu ft):	0.0649
Vapor Space Expansion Factor:	0.2703
Vented Vapor Saturation Factor:	0.5775
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	137.5697
Tank Diameter (ft):	5.0000
Effective Diameter (ft):	8.3704
Vapor Space Outage (ft):	2.5000
Tank Shell Length (ft):	11.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0649
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.5219
Daily Avg. Liquid Surface Temp. (deg. R):	522.9287
Daily Average Ambient Temp. (deg. F):	60.8167
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	520.5067
Tank Paint Solar Absorptance (Shell):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,810.0000
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.2703
Daily Vapor Temperature Range (deg. R):	30.0956
Daily Vapor Pressure Range (psia):	1.5939
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.5219
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.7708
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	6.3647
Daily Avg. Liquid Surface Temp. (deg R):	522.9287
Daily Min. Liquid Surface Temp. (deg R):	515.4048
Daily Max. Liquid Surface Temp. (deg R):	530.4526
Daily Ambient Temp. Range (deg. R):	29.8333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.5775
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	5.5219
Vapor Space Outage (ft):	2.5000
Working Losses (lb):	520.6317
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.5219
Annual Net Throughput (gal/yr.):	60,000.0000
Annual Turnovers:	0.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	5.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	1,029.7206

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

H22105_TV_2020 - Horizontal Tank
Alamogordo, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 10)	520.63	509.09	1,029.72
Benzene	0.83	0.81	1.65
Ethylbenzene	0.78	0.76	1.54
Hexane (-n)	10.93	10.69	21.62
Toluene	4.79	4.68	9.47
Xylenes (mixed isomers)	1.98	1.93	3.91
Unidentified Components	501.32	490.20	991.52

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	H22110
City:	Alamogordo
State:	New Mexico
Company:	Holloman
Type of Tank:	Horizontal Tank
Description:	Holloman horizontal tank bldg. 906

Tank Dimensions

Shell Length (ft):		8.00
Diameter (ft):		5.00
Volume (gallons):		750.00
Turnovers:		66.67
Net Throughput(gal/yr):		50,001.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Roswell, New Mexico (Avg Atmospheric Pressure = 12.73 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

H22110 - Horizontal Tank
Alamogordo, New Mexico

		Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp	Vapor Pressure (psia)			Vapor Mol.	Liquid Mass	Vapor Mass	Mol.	Basis for Vapor Pressure
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min.	Max.	Weight.	Fract.	Fract.	Weight	Calculations
Gasoline (RVP 10)	All	63.26	55.73	70.78	60.84	5.5219	4.7708	6.3647	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
2,2,4-Trimethylpentane (isooctane)						0.6539	0.5261	0.8066	114.2300	1.4912	0.0071	114.23	Option 2: A=6.8118, B=1257.84, C=220.74
Benzene						1.2774	1.0363	1.5633	78.1100	0.6634	0.0062	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.1215	0.0934	0.1565	106.1700	0.5273	0.0005	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.0814	1.7106	2.5158	86.1700	0.3670	0.0056	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Isopropyl benzene						0.0543	0.0409	0.0713	120.2000	0.1967	0.0001	120.20	Option 2: A=6.93666, B=1460.793, C=207.78
Naphthalene						0.0029	0.0020	0.0040	128.2000	0.0737	0.0000	128.20	Option 2: A=7.3729, B=1968.36, C=222.61
Toluene						0.3651	0.2887	0.4580	92.1300	2.6479	0.0071	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						7.1773	7.1333	7.1418	65.4343	-8.2582	0.9711	89.43	
Xylenes (mixed isomers)						0.1013	0.0777	0.1308	106.1700	3.2911	0.0024	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

H22110 - Horizontal Tank
Alamogordo, New Mexico

Annual Emission Calcaulations	
Standing Losses (lb):	370.2464
Vapor Space Volume (cu ft):	100.0507
Vapor Density (lb/cu ft):	0.0649
Vapor Space Expansion Factor:	0.2703
Vented Vapor Saturation Factor:	0.5775
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	100.0507
Tank Diameter (ft):	5.0000
Effective Diameter (ft):	7.1383
Vapor Space Outage (ft):	2.5000
Tank Shell Length (ft):	8.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0649
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.5219
Daily Avg. Liquid Surface Temp. (deg. R):	522.9287
Daily Average Ambient Temp. (deg. F):	60.8167
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	520.5067
Tank Paint Solar Absorptance (Shell):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,810.0000
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.2703
Daily Vapor Temperature Range (deg. R):	30.0956
Daily Vapor Pressure Range (psia):	1.5939
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.5219
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.7708
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	6.3647
Daily Avg. Liquid Surface Temp. (deg R):	522.9287
Daily Min. Liquid Surface Temp. (deg R):	515.4048
Daily Max. Liquid Surface Temp. (deg R):	530.4526
Daily Ambient Temp. Range (deg. R):	29.8333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.5775
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	5.5219
Vapor Space Outage (ft):	2.5000
Working Losses (lb):	267.5483
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.5219
Annual Net Throughput (gal/yr.):	50,001.0000
Annual Turnovers:	66.6680
Turnover Factor:	0.6167
Tank Diameter (ft):	5.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	637.7947

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

H22110 - Horizontal Tank
Alamogordo, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 10)	267.55	370.25	637.79
Naphthalene	0.00	0.00	0.00
Toluene	1.89	2.61	4.50
Xylenes (mixed isomers)	0.65	0.90	1.55
Unidentified Components	259.82	359.55	619.37
Benzene	1.65	2.29	3.94
Isopropyl benzene	0.02	0.03	0.05
Ethylbenzene	0.12	0.17	0.30
Hexane (-n)	1.49	2.06	3.55
2,2,4-Trimethylpentane (isooctane)	1.90	2.63	4.53

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Section 8

Map(s)

A map such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

The UTM or Longitudinal coordinate system on both axes	An indicator showing which direction is north
A minimum radius around the plant of 0.8km (0.5 miles)	Access and haul roads
Topographic features of the area	Facility property boundaries
The name of the map	The area which will be restricted to public access
A graphical scale	

Holloman AFB has provided a map showing its facility boundary, roads, topographic features, and the surrounding area, to a minimum distance of 0.5 miles from the boundary. All areas within the facility boundary are restricted to public access.

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Section 9

Proof of Public Notice

(for NSR applications submitting under 20.2.72 or 20.2.74 NMAC)
(This proof is required by: 20.2.72.203.A.14 NMAC "Documentary Proof of applicant's public notice")

☑ **N/A**

☐ **I have read the AQB "Guidelines for Public Notification for Air Quality Permit Applications"**
This document provides detailed instructions about public notice requirements for various permitting actions. It also provides public notice examples and certification forms. Material mistakes in the public notice will require a re-notice before issuance of the permit.

Unless otherwise allowed elsewhere in this document, the following items document proof of the applicant's Public Notification. Please include this page in your proof of public notice submittal with checkmarks indicating which documents are being submitted with the application.

New Permit and **Significant Permit Revision** public notices must include all items in this list.

Technical Revision public notices require only items 1, 5, 9, and 10.

Per the Guidelines for Public Notification document mentioned above, include:

1. ☐ A copy of the certified letter receipts with post marks (20.2.72.203.B NMAC)
2. ☐ A list of the places where the public notice has been posted in at least four publicly accessible and conspicuous places, including the proposed or existing facility entrance. (e.g.: post office, library, grocery, etc.)
3. ☐ A copy of the property tax record (20.2.72.203.B NMAC).
4. ☐ A sample of the letters sent to the owners of record.
5. ☐ A sample of the letters sent to counties, municipalities, and Indian tribes.
6. ☐ A sample of the public notice posted and a verification of the local postings.
7. ☐ A table of the noticed citizens, counties, municipalities and tribes and to whom the notices were sent in each group.
8. ☐ A copy of the public service announcement (PSA) sent to a local radio station and documentary proof of submittal.
9. ☐ A copy of the classified or legal ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
10. ☐ A copy of the display ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
11. ☐ A map with a graphic scale showing the facility boundary and the surrounding area in which owners of record were notified by mail. This is necessary for verification that the correct facility boundary was used in determining distance for notifying land owners of record.

Proof of public notice by the applicant is required for permit applications submitted under 20.2.72 or 20.2.74 NMAC.

Holloman AFB is submitting this application under 20.2.70 NMAC; therefore, this section has not been completed.

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Section 10

Written Description of the Routine Operations of the Facility

<u>A written description of the routine operations of the facility</u>. Include a description of how each piece of equipment will be operated, how controls will be used, and the fate of both the products and waste generated. For modifications and/or revisions, explain how the changes will affect the existing process. In a separate paragraph describe the major process bottlenecks that limit production. The purpose of this description is to provide sufficient information about plant operations for the permit writer to determine appropriate emission sources.

10.1 Remediation Activities

Remediation activities involve the treatment of contaminated soil or contaminated groundwater to remove pollutants. Remediation activities can produce air pollutant emissions through the treatment process when the contaminants are released from the soil and/or water and escape to the air. Remediation activities that involve thermal treatment operations also produce air pollutant emissions associated with combustion of fuels.

10.1.1 Remediation Activities General Description of Source Category and Equipment

Remediation activities potentially affecting air quality can be performed at two sites at Holloman AFB for purposes of environmental restoration. The environmental restoration projects at Holloman AFB sometimes involve the cleanup of soil and water contaminated with petroleum fuels, such as gasoline, diesel, and jet fuel. Holloman AFB currently employs bioventing and landfarming methods for the purpose of environmental restoration and proposes to employ thermal treatment in the future.

Bioventing involves aerating petroleum-contaminated soil in place. Injection wells are installed in the area of contamination and blowers supply air through these wells to the contaminant zone. Microbes in the soil digest the petroleum compounds present in the soil and produce carbon dioxide as a byproduct. No VOCs are normally generated from bioventing; therefore, the two bioventing systems at Holloman AFB are insignificant activities and are not discussed further.

Thermal treatment involves heating petroleum-contaminated soil that has been excavated. Vapors evolved from the heating of the soil are passed through a thermal oxidizer, catalytic oxidizer, or carbon adsorber to reduce the amount of VOC and HAP emitted. Holloman AFB is planning to install a thermal treatment system to treat excavated soils; this proposed unit was included in the significant revision application submitted by Holloman AFB in 2003 and is included in Permit P105-R3 as EU ID 12010. This unit may be installed within the next five years and Holloman AFB requests that EU ID 12010 remain in the Operating Permit. Holloman AFB will permit the new thermal treatment system in accordance with the requirements of 20.2.72 NMAC.

Landfarming involves excavation of petroleum-containing soil and spreading it into a bermed dedicated landfarm area. Natural microbes in the soil digest the petroleum compounds present and produce carbon dioxide as a byproduct. The soil is then tilled periodically to ensure that the microbes in the soil have sufficient oxygen to digest the petroleum. Under some conditions, amendments such as water and nutrients are added to the soil to enhance the biological digestion of petroleum in the soil. Some VOCs are emitted from landfarming activities, since some of the petroleum compounds in the material volatilize from the lifts before microbial digestion can occur. Holloman AFB conducts landfarming operations at one location, EU ID 12012, Environmental Restoration Program (ERP) Site SS-59. Holloman AFB did at one time operate two landfarms; however EU ID 12011, ERP Site FT-31, is closed and was removed from the permit during the 2015 renewal.

10.1.2 Remediation Activities Maximum and Standard Operating Procedures

Design Capacity/Maximum Operating Schedule. The planned thermal treatment unit at Holloman AFB will require operator attention and, therefore, will be operated only during normal Base operating hours. Release of volatile compounds in the landfarmed soil is a natural process and occurs continually once soil has been placed in the landfarms.

Actual Operating Schedule. The planned thermal treatment unit at Holloman AFB will operate during normal Base operating hours. The landfarms will operate continuously except when out of service for removal or placement of soil. Except for these brief interruptions, the systems run at their maximum operating schedules.

10.1.3 Remediation Activities Process Flow Diagram

The fate of both the products and waste generated by this source category is provided in the generalized process flow diagram for soil thermal treatment in Section 4 of this application, Figure 4-1. No diagram is provided for landfarming.

10.1.4 Remediation Activities Emission Control Equipment and Monitoring Equipment

The soil thermal treatment unit will be equipped with a thermal oxidation system to burn the vapors that are driven off of the treated soil. This oxidation system is an integral part of the treatment unit and is not considered an emissions control device. No emissions control or monitoring equipment is used in conjunction with the landfarming activities. No applicable requirements mandate the use of emission control or measurement equipment for these remediation activities.

10.2 Open Burning/Open Detonation (OB/OD)

Open Burning/Open Detonation (OB/OD) is a generic Air Force term used for the training activities conducted by the Explosive Ordnance Disposal (EOD) organization. This activity consists of detonating ordnance and munitions in order to train the EOD personnel. The detonation is performed in a remote area of the Base, far away from buildings or public access points. Pursuant to 20.2.60.108 NMAC, EOD training activities are not expressly allowed nor prohibited, so the applicability of NSR Construction Permitting must be determined and no further action is required under the NMAC for Open Burning. OB/OD is not included in one of Holloman AFB's NSR permits since it meets the exemption requirements under 20.2.72.202.A.5 NMAC. Holloman AFB will occasionally burn vehicles or structures to train its EOD staff; permits for these events are obtained on a case-by-case basis pursuant to 20.2.60 NMAC – Open Burning, as applicable. Additional activities include emergency OB/OD allowed for purposes of eliminating an imminent danger to public health, safety, or the environment, provided that the provisions of 20.2.60.114 NMAC are met.

10.2.1 OB/OD General Description of Source Category and Equipment

OB/OD operations at Holloman AFB are conducted at one location, the 50-pound (50lb) Site, designated EU ID 13002. Emissions occur from the combustion of munitions and ordnance that consist of criteria pollutant and HAPs, as well as particulate matter formed when the surrounding soil is entrained as a result of the force of the explosion.

10.2.2 OB/OD Maximum and Standard Operating Procedures

<u>Design Capacity/Maximum Operating Schedule</u>. There is a physical operating limitation at the OB/OD emission unit of 50 pounds of net explosive weight (NEW) detonated per day based primarily on the associated safety requirements that include the distances to the nearest buildings/structures. The requested annual operating rate is 18,250 pounds per year, which is equal to the maximum daily operating rate multiplied by 365 days per year. OB/OD activities occur only during normal operating hours.

<u>Actual Operating Schedule</u>. Over the years, the EOD mission has changed from a training and waste disposal activity to only a training activity. Under either type of activity, Holloman AFB has detonated significantly less than 18,250 pounds of NEW annually. However, Holloman AFB wishes to retain the ability to detonate at that level; therefore, allowable emissions have been established based on maximum operating schedules. Detonation occurs during normal Holloman AFB operating hours, which are approximately 6 a.m. to 5 p.m.

10.2.3 OB/OD Process Flow Diagram

Since there is no equipment associated with explosive ordnance disposal, no process flow diagram is provided. The process consists only of the material to be detonated and an ignition source. The end results are the emissions from soil being displaced and the combustion products of the material being detonated.

10.2.4 OB/OD Emission Control Equipment and Monitoring Equipment

No emissions control or monitoring equipment is used in conjunction with the OB/OD activities. No applicable requirements mandate the use of emission control or measurement equipment for OB/OD.

10.3 External Combustion

External combustion systems burn a fuel and transfer the heat of combustion to a working fluid that, typically, does not come into direct contact with the combustion products. The most common types of external combustion systems are water heaters, boilers, and forced air furnaces. External combustion systems have been designed to burn all types of fuels; typical sizes range from less than 100,000 Btu/hour to millions of Btu/hour.

10.3.1 External Combustion General Description of Source Category and Equipment

Holloman AFB uses external combustion systems to provide space heat and to produce hot water for individual buildings throughout the Base. These systems vary in heat input capacity from about 30,000 Btu/hour to just over 8 million Btu/hour. The Holloman AFB external combustion systems are all fueled by pipeline natural gas.

The AQB List of Insignificant Activities specifies that liquid fuel-fired boilers with a heat input capacity less than or equal to 1 million Btu/hour and gas-fired boilers with a heat input capacity less than or equal to 5 million Btu/hour are not subject to the 20.2.70 NMAC permitting requirements. Six of Holloman AFB's external combustion systems (five natural gas fired boilers, and one natural gas fired paint booth air make-up unit that was included in the 2003 Technical Permit Revision for the Building 195 Paint Booth replacement) do not meet the insignificant activity definition; these systems are listed in Table 10-1. The remaining external combustion systems at Holloman AFB are smaller systems with heat input capacities, fuel types, and functions that satisfy the criteria for insignificance.

The insignificant boilers are not permitted sources under 20.2.70 NMAC or 20.2.72 NMAC and are not addressed further in this application. Emissions from these boilers were included in the original Title V permit application when assessing whether Holloman AFB would be a major source with respect to PSD, Title III, and Title V. Emissions from these units will not be included in Holloman AFB's semiannual emission reports to the AQB. Procurement of new insignificant external combustion sources and relocation of existing sources will be reported to the AQB as required under 20.2.72 NMAC, Section 202.B.1. New units that are subject to the requirements of 20.2.72 NMAC will be permitted prior to installation.

Table 10-1
Nonexempt External Combustion Sources at Holloman AFB

Source Number	Building	Boiler/Heater Function	**Fuel Type**	**Heat Input Capacity (10^6 Btu/hr)**
14031	868	Comfort Heater	Natural Gas	8.4
14034	285	Comfort Heater	Natural Gas	5.4
14035	21295	Comfort Heater	Natural Gas	5.06
14036	21296	Comfort Heater	Natural Gas	5.06
14037	21297	Comfort Heater	Natural Gas	5.06
14038	195	Process Heater	Natural Gas	4.1

10.3.2 External Combustion Maximum and Standard Operating Procedures

Design Capacity/Maximum Operating Schedule. The design capacities of the nonexempt external combustion systems at Holloman AFB are listed in Table 10-1. Emissions from these systems with the exception of EU ID 14038 occur continuously when the boiler is being operated. The maximum operating schedule for most of Holloman AFB's boilers is 24 hours per day, 7 days per week, 26 weeks per year, as these units are used only for building heating and are operated only during cold weather months. EU ID 14038 is a process heater used at the building 195 transportation paint booth. The process heater is necessary to achieve the temperatures required for curing paints used for the Government Owned Vehicles. The maximum operating schedule for this process heater is limited by the number of painters available and curing time; the estimated maximum operating schedule is 12 hours per day, 3 days per week, 52 weeks per year. Holloman AFB has chosen to base allowable emissions on continuous operation (8,760 hours/year) of all external combustion systems.

Actual Operating Schedule. Most of the nonexempt boilers are used to provide building heat. These boilers are turned on in the fall and turned off again in the spring. During the period in which the boilers are operating, they are switched on and off automatically by a load demand sensor (e.g., a thermostat).

10.3.3 External Combustion Process Flow Diagram

The fate of both the products and waste generated by this source category is provided in the general flow diagram for external combustion processes in Section 4 of this application, Figure 4-2. Process inputs consist of the fuel to be burned, combustion air, and the working fluid. Process outputs consist of the heated working fluid (steam or hot water) and air pollutant emissions.

10.3.4 External Combustion Emission Control Equipment and Monitoring Equipment

The boilers at Holloman AFB are not equipped with emissions control or monitoring equipment. There are no specific or general applicable requirements that mandate emissions control or monitoring for gas-fired boilers.

10.4 Fuel Dispensing

Fuel dispensing is the act of transferring liquid fuel from a fixed or mobile storage tank to an end use (i.e., a vehicle or equipment fuel tank). Emissions occur as a result of fuel vapor displacement when the equipment/vehicle fuel tank is filled and as a result of fuel spillage.

10.4.1 Fuel Dispensing General Description of Source Category and Equipment

Fuel dispensing at Holloman AFB consists of dispensing gasoline, aviation gasoline (AVGAS), jet fuel, and diesel fuel into equipment and vehicles for use at Holloman AFB. Because jet fuel and diesel fuel have vapor pressures below 10 mm Hg, dispensing of these fuels is defined as an insignificant activity by the AQB.

Gasoline dispensing operations to motor vehicles are currently conducted at five central locations at Holloman AFB: the AAFES service station (EU ID 15001), the POL yard (EU ID 15004), the government service station (EU ID 15011), the Test Group service station (EU ID 15013), and the BEAR Base service station (EU ID 15014). Other gasoline dispensing operations may take place when refueler trucks transfer fuel to equipment at remote locations. AVGAS dispensing operations occur at the Aero Club (EU ID 15005) providing personal flight training and aircraft services and at Building 500 (EU ID 15012) in direct support of the Remotely Piloted Aircraft (RPA) assigned to Holloman AFB. The AVGAS fuel dispensing operation at Building 500 (EU 15012) has not been used in many years. However, the equipment remains in place and until a definitive decision is made on its future use the emission unit has been included in this permit renewal. If deemed necessary EU 15012 will be removed via NSR and Title V permitting programs at a future time. Procurement of new insignificant sources and relocation of existing sources will be reported to the AQB in accordance with the provisions of 20.2.72 NMAC, Section 202.B.1, as applicable. Emissions from new exempt or insignificant units will not be included in Holloman AFB's semiannual emission report to the AQB.

10.4.2 Fuel Dispensing Maximum and Standard Operating Procedures

Design Capacity/Maximum Operating Schedule. Gasoline and AVGAS dispensing operations occur whenever operations at Holloman AFB are ongoing. To maintain maximum flexibility, it is assumed that gasoline dispensing may occur any time, 24 hours per day, 7 days per week, 52 weeks per year. The design capacity of fuel dispensing operations is difficult to define. In general, each fuel dispensing nozzle can dispense approximately 10 gallons of gasoline per minute; however, the process capacity is limited by the requirement to move vehicles to and away from the dispenser and to prepare them for fueling.

Actual Operating Schedule. Holloman AFB's normal operating hours for fuel dispensing are approximately 6 a.m. to 5 p.m., 7 days per week. Exact hours cannot be specified because different organizations at Holloman AFB operate on different schedules. Occasionally, project demands result in operations at other hours of the day or night and on weekends. The AAFES service station is open 24 hours.

Holloman AFB has established throughput limits of 5,000,000 gallons of motor vehicle gasoline per year for basewide gasoline dispensing, EU ID 15001, 15004, 15011, 15013, and 15014, combined; 40,000 gallons of AVGAS per year for Aero Club AVGAS dispensing, EU ID 15005; and 60,000 gallons per year for RPA AVGAS dispensing, EU ID 15012; Holloman AFB requests that these limits remain unchanged.

10.4.3 Fuel Dispensing Process Flow Diagram

An overview of Holloman AFB's fuel distribution systems showing the fate of both the products and waste generated by this source category are provided in Section 4 of this application, Figures 4-3 and 4-4; the last step in each path of the diagram represents a fuel dispensing operation.

10.4.4 Fuel Dispensing Emission Control Equipment and Monitoring Equipment

The AAFES service station (EU ID 15001) is equipped with a vapor balance system meeting the requirements of 40 CFR 63.11118(b) – National Emission Standards for Hazardous Air Pollutants at Gasoline Dispensing Facilities. Emissions reduction resulting from the vapor balance system is not taken into account in the established permit emission limits nor the calculated actual emissions reported on a semi-annual and annual basis. The remaining fuel dispensing operations at Holloman AFB are not equipped with emissions control or monitoring equipment; no applicable requirements mandate the use of such equipment.

10.5 Fuel Loading Racks

Fuel loading rack operations consist of transferring liquid fuel from a fixed storage tank to a tanker truck for subsequent transport to other locations. Emissions occur as a result of fuel vapor displacement when the tanker truck is filled.

10.5.1 Fuel Loading Racks General Description of Source Category and Equipment

Fuel loading rack operations at Holloman AFB involve gasoline, jet fuel, and diesel fuel. Because jet fuel and diesel fuel have vapor pressures below 10 mm Hg, loading of these fuels is defined as an insignificant activity by the AQB. There are two permitted fuel loading activities at Holloman AFB; the motor vehicle gasoline loading rack located at the POL yard (EU ID 16004) and the AVGAS loading operation located near the flightline (EU ID 16005). Note that the storage tank that is associated with EU 16005 has been out of service for many years and as such EU 16005 may be removed at a future date. The NSR and Title V permits will be modified at that time.

10.5.2 Fuel Loading Racks Maximum and Standard Operating Procedures

Design Capacity/Maximum Operating Schedule. Fuel loading rack operations occur on an as needed basis. To maintain maximum flexibility, it is assumed that loading operations could occur any time, 24 hours per day, 7 days per week, 52 weeks per year.

Actual Operating Schedule. Holloman AFB's normal operating hours are currently approximately 6 a.m. to 5 p.m., 5 days per week. Exact hours cannot be specified because different organizations at Holloman AFB operate on different schedules. Occasionally, project demands result in operations at other hours of the day or night and on weekends.

Holloman AFB has established throughput limits of 150,000 gallons of motor vehicle gasoline per year for EU ID 16004 and 60,000 gallons per year of AVGAS for EU ID 16005; Holloman AFB requests that these limits remain unchanged noting that EU 16005 may be removed in the near future (also see 10.5.1 above).

10.5.3 Fuel Loading Racks Process Flow Diagram

An overview of Holloman AFB's fuel distribution systems showing the fate of both the products and waste generated by this source category are provided in Section 4 of this application, Figures 4-3 and 4-4; fuel loading rack operations are indicated on the diagram and occur when fuel is transferred from a storage tank to mobile fueling equipment.

10.5.4 Fuel Loading Racks Emission Control Equipment and Monitoring Equipment

The gasoline loading rack operations at Holloman AFB are not equipped with emissions control or monitoring equipment. No applicable requirements dictate the use of such equipment.

10.6 Internal Combustion

All reciprocating internal combustion engines operate by the same basic process. Air (or a combustible mixture of fuel and air) is first compressed in a small volume between the top of a piston and the head of its surrounding cylinder. Fuel is then injected into the hot air (or the existing fuel/air mixture is ignited), and the resulting high-pressure products of combustion push the piston through the cylinder. This movement is converted from linear to rotary motion by a crankshaft. The piston returns, pushing out the exhaust gases, and the cycle is repeated.

10.6.1 Internal Combustion General Description of Source Category and Equipment

In accordance with the AQB 24 March 2005 List of Insignificant Activities, the following portable engines are considered insignificant sources and do not need to be permitted under 20.2.70 NMAC:

- Diesel and natural gas engines ≤ 200 horsepower (hp);
- Gasoline engines ≤ 500 hp;
- JP-4 or JP-8/Jet A engines ≤ 650 hp; and
- Natural gas turbines ≤ 1,500 hp.

Additionally, all stationary and portable emergency generators are NSR exempt if they comply with the definition of standby equipment. Holloman AFB operates over 400 portable engines, all of which meet these exemption requirements.

Holloman AFB operates three different groups of emergency internal combustion engines (ICE): fire pump engines, emergency generators, and barrier rewind engines. This emergency equipment is subject to either the National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (40 CFR 63 Subpart ZZZZ) or the New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines (40 CFR 60 Subpart IIII). Two new propane generators are subject to 40 CFR 60 Subpart JJJJ. Even though this equipment complies with a definition from either the September 15, 2008 List of Trivial Activities or the March 24, 2005 List of Insignificant Activities, any activity for which applicable requirements apply, is not trivial or insignificant, regardless of whether the activity meets the criteria in one of the above mentioned lists. Following are the descriptions of each group of internal combustion emergency activities.

Holloman AFB operates one permitted fire pump engine, designated EU ID 19210, and nine exempt fire pump engines. The permitted fire pump engine is subject to 40 CFR 60 Subpart IIII. Holloman AFB has included in its permit fourteen (14) placeholders that serve as replacement units for the current permitted and exempt fire pump engines. These placeholders are designated EU IDs 19211 through 19224.

Holloman AFB operates fifty (50) permitted diesel emergency generators that provide back-up power to buildings and mission, security and safety essential equipment during power outages. These permitted emergency generators are subject to 40 CFR 60 Subpart IIII and are designated EU IDs 19300, 19302, and 19331 through 19380. Five permitted emergency generator, EU IDs 19363, 19370, 19371, 19372, and 19406, are subject to 40 CFR 63 Subpart ZZZZ. There are also two (2) new propane generators (EU IDs 19378 and 19379) that are subject to 40 CFR 60 Subpart JJJJ. Holloman AFB has included in its permit forty-three (25) placeholders that serve as replacement units for future permitted emergency generators. These placeholders are designated EU IDs 19381 through 19405.

Holloman AFB operates four (4) permitted rewind engines and fourteen (14) exempt rewind engines located on the flightline. Most military fighter aircraft have tailhooks that are used if there is a brake malfunction, an aborted takeoff, a tire explosion, or a related problem. A tailhook can stop the aircraft in a departure-end or approach-end cable arrestment. The barrier rewind engines are used to rewind the arresting cables after use during an emergency. Four (4) of these engines are subject to 40 CFR 63 Subpart ZZZZ and are designated EU IDs 19602, 19603, 19608, and 19609. The six (14) exempt barrier rewind engines at Holloman AFB are stationary emergency compression ignition ICE, manufactured by Deutz with model D2011L04I. These Deutz engines meet the definition of emergency engines and have received a National Security Exemption (NSE) from the Environmental Protection Agency (EPA) exempting them from the requirements of 40 CFR IIII; therefore, these engines are not included in this permit application. There is an Air Force wide replacement plan being implemented that will be exchange existing Wisconsin barrier rewind engines with diesel Deutz emergency engines. To date, four Wisconsin engines, EU IDs 19602, 19603, 19608, and 19609, have yet to be replaced with the NSE Deutz engines. All other Deutz engines have been removed from this Title V permit application.

10.6.2 Internal Combustion Maximum and Standard Operating Procedures

<u>Design Capacity/Maximum Operating Schedule</u>. The fire pump engine, emergency generators, and barrier rewind engines range in power size and may be operated 24 hours per day, 7 days per week.

Actual Operating Schedule. Actual operating hours for the fire pump engine and emergency generators are less than the design capacity and depend on the workload. These engines are only operated for maintenance purposes and during emergencies. The fire pump engines and emergency generators do not operate more than 100 hours per engine in one year for maintenance purposes except for emergencies. The barrier rewind engines do not operate more than 1500 hours combined in one year except for emergencies; each engine is exercised for 15 minutes per day, 365 days per year.

10.6.3 Internal Combustion Process Flow Diagram

The fate of both the products and waste generated by this source category is provided in a simplified process flow diagram for internal combustion engines in Section 4 of this application, Figure 4-5.

10.6.4 Internal Combustion Emission Control Equipment and Monitoring Equipment

The internal combustion engines operated at Holloman AFB are not equipped with emissions control or monitoring equipment. No applicable requirements mandate the use of such equipment.

10.7 Jet Engine Testing

Aircraft engine testing is conducted for various reasons at Holloman AFB. Engine runs are often required to isolate mechanical problems reported by pilots after their flights. Trim tests, analogous to an automobile tune-up, are required periodically to ensure that aircraft are operating according to specifications. Functional tests of aircraft components often require engine runs. After engine or system maintenance has been performed, engine tests may be required to ensure that aircraft are flightworthy.

Engine testing is sometimes conducted while the aircraft sits on the flight line or at an outdoor testing position commonly known as a trim pad; in this case, engine emissions are released directly to the ambient air. Some testing, however, is conducted in enclosed facilities specifically designed to accommodate such tests and to suppress the noise associated with testing. These facilities direct the engine exhaust emissions through a discrete discharge location. The AQB has determined that enclosed aircraft engine test facilities are subject to preconstruction and operating permit requirements. The engine test facilities at Holloman AFB are covered by NSR Permit No. 1508-M2R5. Although the following discussion describes the engine and/or aircraft types that are most often tested in a specific facility, Holloman AFB wishes to maintain flexibility to test any engine or aircraft in any facility, as long as the test does not result in emissions exceeding the permitted emission limits from NSR Permit No. 1508-M2R5. Also, some of the aircraft types have changed since the last Title V Permit was issued, but the existing emission limits remain applicable.

10.7.1 Jet Engine Testing General Description of Source Category and Equipment

Holloman AFB currently has seven jet engine test facilities consisting of two test cells, two sound suppressors, and three hush houses. The engine test facilities are designed to reduce noise impacts of jet engine testing. The test cells (EU ID 20007) are T-4 models used to test uninstalled T-38 aircraft engines. The sound suppressors (EU ID 20003) are A/F32A-18 models used to test T-38 engines while installed in the aircraft. The three hush houses are T-10 models. T-10 hush houses are sufficiently large to accommodate entire aircraft to allow testing engines without removing them from the aircraft; however, T-10s can also be used to test engines that have been removed from the aircraft and mounted in a test stand. The north hush house (EU ID 20006) is used primarily for testing F-16 aircraft engines that have been removed from the aircraft; the south hush house (EU ID 20001) is used for testing engines mounted on-aircraft. The north and south hush houses were used to test F-22s, but in 2014 Holloman AFB began replacing the F-22 Raptors with F-16 Fighting Falcons from Luke Air Force Base. The last T-10 hush house (EU ID 20009) is used to test Panavia Tornado aircraft that were flown by a detachment of the German Air Force assigned to Holloman AFB. The hush house is now managed by the 49th Maintenance Support Group."

The test bay of each T-10 hush house is 82 feet (ft) long, 136 ft wide, and 32 ft high. The swift-moving jet engine exhaust entrains ambient air from the hush house and carries it into the augmentor tube. The 20 ft diameter augmentor tube is approximately 80 ft long and channels the engine exhaust to a deflector that directs the combustion products upward.

The T-4 test cells each comprise a test bay, an augmentor system, an exhaust plenum, a primary and a secondary air intake silencer, and an exhaust silencer; a control room is shared by the two test cells. Each test cell is sufficiently large to accommodate "off-aircraft" jet engines only. The engine exhaust gases are mixed with cooling air at the augmentor tube inlet. These gases pass through the augmentor tube into the exhaust plenum and are released through an opening at the top of the plenum. The opening is approximately 8.5 feet square.

Each A/F32A-18 demountable ground run-up noise suppressor system (sound suppressor) comprises aircraft guide tracks, two primary air inlet silencers, a secondary air enclosure assembly, an exhaust suppressor assembly, and a control house. Dual augmentors and a constantly recirculating supply of cool water by way of water jackets and suppressor manifold are used to reduce exhaust gas temperature and also aid in sound attenuation.

The two test cells, two sound suppressors, and the German Air Force hush house are located in the same proximity, adjacent to a main aircraft taxiway, approximately 0.5 mile from the primary activity areas at Holloman AFB.

The other two hush houses are located directly adjacent to the west taxiway, approximately one mile west of the primary activity areas at Holloman AFB.

10.7.2 Jet Engine Testing Maximum and Standard Operating Procedures

In all of the jet engine test facilities, the engines are positioned with their exhaust nozzles directed toward the opening of the augmentor tube. Each engine test involves operating the engine over a range of power settings.

Design Capacity/Maximum Operating Schedule. Each T-10 hush house and each sound suppressor can accommodate one aircraft at a time. During testing in these hush houses and at the sound suppressors, either one or both of the engines on the aircraft are operated over a range of power settings. Each test cell can test only one jet engine at a time; the test engine operates over a range of power settings.

The long-term operating schedule of each jet engine test facility is dependent on the type of tests being conducted and the setup/breakdown time requirements of the test equipment being used. Holloman AFB has accepted annual emission restrictions that account for equipment, facility, and administrative limitations, but still allow sufficient capacity to ensure the readiness of the aircraft stationed there.

Actual Operating Schedule. The engine test facilities at Holloman AFB are used significantly less often than the emission limits accepted by Holloman AFB would allow. Based on current and projected needs, each test facility is used for one to two tests per day, 5 days per week. Although testing is cyclic, depending on the exercise schedule at Holloman AFB and whether any of the squadrons are being rotated to a remote assignment, there is no predictable monthly, seasonal, or annual cycle to engine testing.

10.7.3 Jet Engine Testing Process Flow Diagrams

The fate of both the products and waste generated by this source category is provided in a simplified flow diagram for jet engine testing in Section 4 of this application, Figure 4-6. As shown, the only process inputs are jet fuel and air and the only process outputs are combustion products and mechanical work (engine thrust).

10.7.4 Jet Engine Testing Emission Control Equipment and Monitoring Equipment

The Holloman AFB jet engine test facilities are not equipped with pollution control equipment. Holloman AFB’s initial NSR permit application for these jet engine test facilities, dated 1 June 1995, assessed potentially applicable control systems, including an analysis of controls on test facilities located at other USAF installations. Based on that analysis, it was determined that there are no technically and economically feasible pollution control systems available for aircraft engine test facilities.

10.8 Surface Coating – Paint Booths

Surface coating operations involve the application of protective coatings (e.g., primers, sealers, stains, topcoats) to various types of surfaces to improve their durability and/or appearance. Surface coatings can be applied by brushing, rolling, or spraying the coating on to the surface, or by immersing the surface in the coating. Spray application of coatings is the most common method used in industrial settings; this can involve spraying from an aerosol can, use of a conventional air atomized spray rig, or use of more advanced spray equipment (e.g., HVLP, airless, or air-assisted airless) designed to reduce the amount of paint required to coat a surface by reducing the amount of overspray (i.e., coating material that misses or bounces off the surface).

Coating operations can be conducted in a paint booth or can be unenclosed. Paint booths provide a better environment for painting by isolating the activity from wind, dust, and other external effects. Paint Booths are typically equipped with filters for particulate matter control. Emissions from surface coating include the VOCs and HAPs in the solvents that are part of the coatings (and the solvents used for thinning and for cleanup) and PM emissions from overspray.

10.8.1 Surface Coating – Paint Booths General Description of Source Category and Equipment

Holloman AFB conducts surface coating operations for mission support activities within its eleven existing paint booths designated EU IDs 21006 through 21011, 21018, 21019, and 21021 through 21023. One enclosed Teflon coating operation was conducted by the German Air Force in Building/Hangar 21295 and is designated EU ID 21020. With the departure of the German Air Force, this operation is now managed by the 49th Maintenance Support Group." Surface coating is also permitted to occur in Buildings/Hangarettes 21808, 21810 through 21819, designated EU ID 21024. Mission support activities primarily involve painting aircraft and other equipment prior to use. Holloman AFB's surface coating operations are listed in Table 10-2 and are covered by NSR Permit No. 1508C-M2R4; all of the paint booths are equipped with particulate control filters and the hangars have no emissions controls.

Table 10-2
Paint Booth Information

Source ID	Location	Type of Control	Control Efficiency (%)
21006	Bldg. 830	Particulate Filter	99
21007	Bldg. 282	Particulate Filter	90
21008	Bldg. 282	Particulate Filter	90
21009	Bldg. 1178	Particulate Filter	90
21010	Bldg. 856	Particulate Filter	90
21011R	Bldg. 195	Particulate Filter	90
21018	Bldg. 294	Particulate Filter	90
21019	Bldg. 903	Particulate Filter	90
21020	Bldg. 21295	None	0
21021	Bldg. 898	Particulate Filter	99
21022	Bldg. 898	Particulate Filter	99
21023	Bldg. 898	Particulate Filter	99
21024	Bldgs. 21808, 21810 to 21819	None	0

Holloman AFB's basewide allowable emission limit for VOCs and HAPs includes emissions from the NSR permitted surface coating operations. Holloman AFB tracks paint booth use and emissions through the use of paint booth operating logs. If Holloman AFB relocates an existing paint booth, the change will be reported to the AQB and Holloman AFB will continue to operate in compliance with the emissions limits. Holloman AFB will permit any new paint booths or changes to the current paint booth operations in accordance with the requirements of 20.2.72 NMAC.

10.8.2 Surface Coating – Paint Booths Maximum and Standard Operating Procedures

Design Capacity/Maximum Operating Schedule. The design capacity of Holloman AFB's paint booth surface coating operations is dependent on the design capacity of the paint application device (e.g., HVLP gun, sprayer). To maintain maximum operating flexibility, it is assumed that surface coating operations can be conducted any time, 24 hours per day, 7 days per week, 52 weeks per year.

Actual Operating Schedule. Surface coating operations at Holloman AFB are typically performed for several hours a day. Most surface coating occurs during Holloman AFB's regular operating hours, approximately 6 a.m. to 5 p.m., 5 days per week.

10.8.3 Surface Coating – Paint Booths Process Flow Diagram

The fate of both the products and waste generated by this source category is provided in a simplified process flow diagram for enclosed (paint booth) surface coating operations in Section 4 of this application, Figure 4-7. Process inputs include the paint to be applied, the part to be coated, and clean air flow. Process outputs consist of the coated part and the exhaust air stream that contains air pollutant emissions (including VOCs, PM, and HAPs).

10.8.4 Surface Coating – Paint Booths Emission Control Equipment and Monitoring Equipment

The enclosed surface coating operations conducted within a paint booth at Holloman AFB are equipped with fabric filters to control emissions of PM. The control efficiency for each booth is listed in Table 10-2 above. Each paint booth is equipped with a device to measure pressure drop across the filters (manometer) on the paint booth exhaust or a device to warn when the maximum allowable pressure drop has been reached. Filters are replaced when the pressure drop reaches the individual level set for each booth, or when the warning device indicates that the filter has reached the end of its useful life; these values are based on the acceptable operating range specified by the manufacturer of the filter material. The enclosed surface coating operations conducted within a hangar are not equipped with emissions control or monitoring equipment; no applicable requirements dictate the use of such equipment.

10.9 Storage Tanks

Fuels are routinely stored in steel or fiberglass tanks that can be either above or below the earth’s surface. Aboveground tanks can have fixed dimensions (fixed roof tanks) or can have a roof that floats on or above the liquid surface (internal or external floating roof tanks). Emissions from storage tanks occur when liquid is pumped into the tank due to vapor displacement and when diurnal temperature changes cause the tanks to "breathe."

10.9.1 Storage Tanks General Description of Source Category and Equipment

Holloman AFB stores gasoline, jet fuel, aviation gasoline, and diesel fuel in storage tanks. Most of the tanks at Holloman AFB are aboveground, fixed roof tanks. Because jet fuel and diesel fuel have vapor pressures below 10 mm Hg, storage of these fuels is defined as an insignificant activity by the AQB. Gasoline tanks smaller than 1,000-gallon capacity used for fleet vehicle refueling are defined as an insignificant activity by the AQB. In the past, several of the jet fuel storage tanks were subject to applicable requirements of 40 CFR 60 Subpart Kb; however, Subpart Kb was modified on October 15, 2003 (68 Federal Register, 59328-59333) to remove applicability of this regulation for these tanks. As a result, these jet fuel tanks no longer have any applicable requirements. The remainder of this section addresses only gasoline and aviation gasoline storage tanks.

Holloman AFB operates eight nonexempt gasoline storage tanks and two nonexempt AVGAS storage tanks used to support mission activities and to provide services to enlisted and civilian personnel at the base. These tanks are located at the AAFES service station (EU IDs 22100, 22101 and 22102), the POL yard (EU ID 22002), the government service station (EU ID 22054 and 22058), the Building 1166 Test Group storage tank (EU ID 22014R), the Aero Club AVGAS tank (EU ID 22103), the RPA AVGAS tank (EU ID 22105), and the BEAR Base gasoline tank (EU ID 22110). The RPA AVGAS tank (EU ID 22105) has not been used in many years but is being included in the permit renewal until it is removed.

10.9.2 Storage Tanks Maximum and Standard Operating Procedures

Design Capacity/Maximum Operating Schedule. There are two components of design capacity that impact emissions from fuel storage tanks; the storage capacity of the tank and the fuel throughput. The storage capacity of each tank sets the upper limit on the vapor space volume, which is a major factor in the standing storage loss portion of storage tank emissions. The fuel throughput is the primary determining factor in the working loss portion of storage tank emissions. Standing storage losses occur as the ambient temperature changes. Working losses occur when fuel is added to the tank; to maintain maximum operating flexibility, it is assumed that storage tanks can be filled any time, 24 hours per day, 365 days per year.

Actual Operating Schedule. Filling the gasoline storage tanks typically occurs only during Holloman AFB's normal operating hours, approximately 6 a.m. to 5 p.m. Tanks themselves are in operation 24 hours a day, 7 days per week, 365 days per year.

10.9.3 Storage Tanks Process Flow Diagram

The fate of both the products and waste generated by this source category is provided in an overview of Holloman AFB's fuel distribution system shown in Section 4 of this application, Figures 4-3 and 4-4. Process inputs for the fuel storage operations consist only of the fuel being stored. Process outputs include air pollutant emissions.

10.9.4 Storage Tanks Emission Control Equipment and Monitoring Equipment

The AAFES service station (EU IDs 22100, 22101 and 22102) is equipped with a vapor balance system meeting the requirements of 40 CFR 63.11118(b) – National Emission Standards for Hazardous Air Pollutants at Gasoline Dispensing Facilities. Emissions reduction resulting from the vapor balance system is not taken into account in the established permit emission limits nor the calculated actual emissions reported on a semi-annual and annual basis. The remaining fuel storage operations at Holloman AFB are not equipped with emissions control or monitoring equipment. No applicable requirements dictate the use of such equipment.

10.10 Woodworking

Woodworking involves the manufacturing of wooden objects (e.g., parts, assemblies, structures, or furniture). Woodworking activities that produce air pollutant emissions include cutting, drilling, sanding, and lathing wooden objects or wood stock.

10.10.1 Woodworking General Description of Source Category and Equipment

Woodworking is performed at various locations at Holloman AFB for building and housing maintenance, general carpentry, and to construct crates for shipment of materials. Woodworking operations that are conducted for building, grounds, or equipment maintenance are exempt from the operating permit, in accordance with Item No. 2 in the AQB’s September 15, 2008 List of Trivial Activities. Woodworking operations that exhaust to the indoor air are not sources of air pollutants; all except one woodworking operation satisfy the requirements to be considered insignificant activities and exhaust indoors.

Holloman AFB currently operates one nonexempt woodworking system that has a centralized sawdust collection and disposal system designated EU ID 29004. When the sawdust collection system is activated, an induced draft fan creates a vacuum that pneumatically conveys the sawdust through the collection device. The collection device dumps the sawdust into sealed drums or hoppers, which are emptied routinely and the dust disposed.

Holloman AFB may relocate any of the existing woodworking operations or may install new woodworking operations to meet mission requirements. Procurement of new insignificant sources will be reported to the AQB as required under 20.2.72 NMAC, Section 202.B.1 and nonexempt sources will be permitted in accordance with 20.2.72 NMAC.

10.10.2 Woodworking Maximum and Standard Operating Procedures

<u>Design Capacity/Maximum Operating Schedule</u>. The design capacity of Holloman AFB’s woodworking operations cannot be defined. As an indication of capacity, the nonexempt operation handled an average of 13.5 cubic feet per month over the past ten years. To maintain maximum operating flexibility, it is assumed that woodworking operations can be conducted anytime, 24 hours per day, 7 days per week, 52 weeks per year.

Actual Operating Schedule. Woodworking operations at Holloman AFB are typically performed intermittently for several hours per day, once or twice per week, on an as needed basis. Most woodworking occurs during Holloman AFB's regular operating hours, approximately 6 a.m. to 5 p.m., 5 days per week.

10.10.3 Woodworking Process Flow Diagram

The fate of both the products and waste generated by this source category is provided in a simplified process flow diagram for woodworking operations in Section 4 of this application, Figure 4-8. Process inputs consist only of the wood. Process outputs consist of the wood product and PM emissions.

10.10.4 Woodworking Emission Control Equipment and Monitoring Equipment

The permitted woodworking operation is equipped with a PM collection device; this collection device operates whenever the collection system's induced draft fan is activated. Operation of the control device is required when the permitted woodworking operation is active. This woodworking system is not equipped with monitoring equipment. No applicable requirements dictate the use of such equipment.

10.11 Miscellaneous Chemical Use

Various organizations at Holloman AFB use solvents, paints, and other chemicals for a variety of purposes, and many of these materials contain VOCs and/or HAPs. Those chemical uses that are not accounted for elsewhere in the permit (e.g., solvents and paints used in paint booths) are considered miscellaneous chemical use. In accordance with 20.2.72.401.B NMAC, Holloman AFB is an Existing Source, and its process or its mission is to keep aircraft combat ready. In accordance with 20.2.72.401.D NMAC the existing and new miscellaneous chemical usage are integrally related with and integrally connected to the process of an existing source (Holloman AFB). Therefore, the miscellaneous chemical usage and associated operations are not subject to 20.2.72.402.B NMAC. For this reason, Toxic Air Pollutants (TAPs) are not addressed for any activities conducted at Holloman AFB.

10.11.1 Miscellaneous Chemical Use General Description of Source Category and Equipment

Various organizations at Holloman AFB use paints, solvents, and other chemicals for facility maintenance and mission-related purposes in both enclosed and unenclosed areas. The use of paint included in this category are those operations that take place outside of permitted paint booths and most individual miscellaneous paint uses are small. Typical painting activities include stenciling numbers onto equipment, painting small electronic component boxes, and maintenance painting of fixed structures like buildings, tanks, and fences. Although some of these painting activities are exempt under Items 2 (activities that occur strictly for maintenance of grounds or buildings) and 13 (paint or non-paint materials dispensed from prepackaged aerosol cans of 16 ounce or less capacity) on the NMED List of Trivial Activities, it is easier for Holloman AFB to capture all of these activities rather than determine in each case which uses are exempt and which are nonexempt. Other chemicals are used for a wide variety of purposes in operations throughout Holloman AFB. For example, solvents are used for surface cleaning and other chemicals are used for photographic processing and chemical analyses. Most individual uses are small; miscellaneous chemical use is conducted by almost every organization at Holloman AFB.

10.11.2 Miscellaneous Chemical Use Maximum and Standard Operating Procedures

Design Capacity/Maximum Operating Schedule. There is no physical limitation on the quantity of miscellaneous chemical use that could occur. Since most (if not all) of the miscellaneous chemical use does not occur within specific equipment, there is no design capacity. Similarly, there is no set operating schedule for miscellaneous chemical use. To maintain maximum operating flexibility, it is assumed that miscellaneous chemical use could occur any time, 24 hours per day, 7 days per week, 52 weeks per year. Holloman AFB has established basewide allowable emission limits for HAPs and VOCs. No applicable requirements necessitate any specific emission limits for miscellaneous chemical use.

Actual Operating Schedule. Most operations at Holloman AFB occur during normal working hours, between approximately 6 a.m. and 5 p.m., 5 days per week. Most miscellaneous chemical use occurs in very discrete events, as opposed to continuous uses.

10.11.3 Miscellaneous Chemical Use Process Flow Diagram

Because of the variety of operations that occur, a process flow diagram for miscellaneous chemical use has not been provided. Process inputs consist only of the chemical and, perhaps, some part or equipment; process outputs include the chemical (all VOCs and HAPs in the chemical are assumed to be emitted) and the part or equipment. The process may involve cleaning or coating the part or equipment, or it may actually change its characteristics.

10.11.4 Miscellaneous Chemical Use Emission Control Equipment and Monitoring Equipment

No emission control or monitoring systems are used in conjunction with miscellaneous chemical use at Holloman AFB. No applicable requirements mandate the use of such equipment. All VOCs and HAPs contained in the miscellaneous chemicals are assumed to be emitted.

Section 11
Source Determination

Source submitting under 20.2.70, 20.2.72, and 20.2.74 NMAC

Sources applying for a construction permit, PSD permit, or operating permit shall evaluate surrounding and/or associated sources (including those sources directly connected to this source for business reasons) and complete this section. Responses to the following questions shall be consistent with the Air Quality Bureau's permitting guidance, Single Source Determination Guidance, which may be found on the Applications Page in the Permitting Section of the Air Quality Bureau website.

Typically, buildings, structures, installations, or facilities that have the same SIC code, that are under common ownership or control, and that are contiguous or adjacent constitute a single stationary source for 20.2.70, 20.2.72, and 20.2.74 NMAC applicability purposes. Submission of your analysis of these factors in support of the responses below is optional, unless requested by NMED.

A. Identify the emission sources evaluated in this section (list and describe)**:**

A.1 The equipment operated and the activities conducted within the Holloman AFB facility boundary were evaluated for this Title V Permit Renewal Application. The types of equipment evaluated fall into the following source categories:

- Remediation;
- Open Burning and Open Detonation;
- Fuel Combustion;
- Fuel Storage and Handling;
- Painting/Surface Coating and resurfacing;
- Research and Development;
- Construction;
- Facility Maintenance; and
- Chemical Use.

B. Apply the 3 criteria for determining a single source:

SIC Code: Surrounding or associated sources belong to the same 2-digit industrial grouping (2-digit SIC code) as this facility, OR surrounding or associated sources that belong to different 2-digit SIC codes are support facilities for this source.

☐ **Yes** ☑ **No**

Common Ownership or Control: Surrounding or associated sources are under common ownership or control as this source.

☐ **Yes** ☑ **No**

Contiguous or Adjacent: Surrounding or associated sources are contiguous or adjacent with this source.

☑ **Yes** ☐ **No**

C. Make a determination:

☐ The source, as described in this application, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes. If in "A" above you evaluated only the source that is the subject of this application, all "**YES**" boxes should be checked. If in "A" above you evaluated other sources as well, you must check **AT LEAST ONE** of the boxes "**NO**" to conclude that the source, as described in the application, is the entire source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes.

☒ The source, as described in this application, **does not** constitute the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes (A permit may be issued for a portion of a source). The entire source consists of the following facilities or emissions sources (list and describe):

C.1 Holloman AFB Single Source Determination: Activities Under USAF Common Control

Holloman AFB is owned and operated by the USAF. The 49th Wing is the command organization responsible for all mission and facility maintenance activities conducted at Holloman AFB whose mission is to deploy combat ready airpower in support of global operations and develop the world's best professional remotely piloted aircraft enterprise in addition to supporting Team Holloman Airman and their families. The Standard Industrial Classification (SIC) code for Holloman AFB is 9711 for establishments of the Armed Forces primarily engaged in military training schools, national security, and related activities. The organizations that support Holloman AFB's primary mission and those organizations that supply support functions that directly relate to the primary mission are all the various 49th operation and support groups and the 96th Test Group. A detailed description of these groups is provided in Section 3.1 of this application.

- SIC Code: The SIC code for the 49th Wing groups, and 96th Test Group is 9711, the same 2-digit industrial grouping as Holloman AFB.
- Common Ownership or Control: The 49th Wing groups and the 96th Test Group are under common control of the USAF based on their command structure.

- Contiguous or Adjacent: All the organizations discussed in this subsection are located within the Holloman AFB facility boundary.

The specific pieces of equipment and activities included in this review that constitute a single source for Holloman AFB are listed in Tables 2-A and 2-B of Section 2 of this application. The equipment and activities evaluated at Holloman AFB that do not constitute a single source with the Base are discussed in Subsections C.2, C.3 and C.4 below.

C.2 Holloman AFB Single Source Determination: DeCA (Commissary)

The Commissary is not a single source with Holloman AFB; two of the three criteria for a single source for Title V Permitting are not met. It is not required that the Commissary emissions units be included in the Holloman AFB Title V Permit.

- SIC Code: The SIC code for the Commissary is 5411 and 9711 for Holloman AFB. The Commissary is a supermarket primarily engaged in the retail sale of all sorts of canned foods, frozen foods, and dry goods, including some convenience store items like batteries and toiletries. The Commissary activities are not in support of the 49th Wing mission to maintain the combat readiness of military aircraft and crews and it does not belong to the same 2-digit industrial grouping as Holloman AFB.
- Common Ownership or Control: To date, the known emission sources located at the Commissary consist of one stationary Cummins emergency diesel internal combustion engine and multiple chillers for comfort and for the retail freezers. Holloman AFB owns the building that the Commissary operates out of and provides the natural gas and water/wastewater infrastructure. The Defense Commissary Agency (DeCA) has the responsibility of facility management, operations, and maintenance and owns/maintains its emission sources. DeCA is not an Air Force organization; the Commissary emission units are therefore not under common ownership or control with Holloman AFB.
- Contiguous or Adjacent: The Commissary is located within the Holloman AFB facility boundary at building 787 on New Mexico Avenue. The Commissary and its associated sources are therefore contiguous with Holloman AFB.

C.3 Holloman AFB Single Source Determination: Alamogordo Primate Facility

The Alamogordo Primate Facility (APF) is not a single source with Holloman AFB; two of the three criteria for a single source for Title V Permitting are not met. It is not required that the APF emissions units be included in the Holloman AFB Title V Permit.

- <u>SIC Code</u>: The SIC code for the APF is 8731 and 9711 for Holloman AFB. The APF medical monitoring and primate care activities are not in support of the 49th Wing mission to maintain the combat readiness of military aircraft and crews. The APF does not belong to the same 2-digit industrial grouping as Holloman AFB.
- <u>Common Ownership or Control</u>: To date, the known emission sources located at the APF consist of one stationary Caterpillar emergency diesel internal combustion engine rated one megawatt; two Kewanee steam boilers rated 13.394 MMBtu each; one 8,000-gallon diesel aboveground storage tank (AST); and two 125lb-charge R22 chillers. These emission sources were installed in 1990 when the new APF was built. The National Institutes of Health (NIH) owns this facility and its emission sources. The management of the APF is contracted out by the NIH to a private company, Massachusetts-based Charles River Laboratories (CRL). The APF emission units are therefore not under common ownership or control with Holloman AFB as there are no agreements in place that enable Holloman AFB to have influence over the management and policies at APF.
- <u>Contiguous or Adjacent</u>: The APF is located within the Holloman AFB facility boundary at building 1300 on Vandergrift Road, approximately 1 mile north of Douglas Road. The APF and its associated sources are therefore contiguous with Holloman AFB.

C.4 Holloman AFB Single Source Determination: Non-Contiguous Emission Units

There are several emergency generators and gasoline storage and dispensing activities whose equipment is inventoried and maintained by Holloman AFB organizations but physically reside outside of the Holloman AFB facility boundary. These non-contiguous sources do not constitute a single source with Holloman AFB; one of the three criteria for a single source for Title V Permitting is not met. It is not required that these emissions units be included in the Holloman AFB Title V Permit.

- <u>SIC Code</u>: The SIC code for the non-contiguous sources is 9711 for Holloman AFB since these emergency back-up power and gasoline service activities are in support of the 49th Wing mission to maintain the combat readiness of military aircraft and crews by supplying emergency power and fuel to critical military and support systems, facilities and/or equipment. These emission units belong to the same 2-digit industrial grouping as Holloman AFB.
- <u>Common Ownership or Control</u>: To date, the known emission sources managed by Holloman AFB organizations but located outside of the facility boundary are as follows:
    - One Cummins emergency diesel internal combustion engine rated 347 kilowatts (kW) maintained by the 49th Civil Engineering Squadron;
    - One Kohler emergency diesel internal combustion engine rated 66 kW maintained by the 49th Civil Engineering Squadron;

- One Cummins emergency diesel internal combustion engine rated 50 kW maintained by the 49th Civil Engineering Squadron;
- Two 2,000-gallon gasoline storage tanks and associated fuel dispensing operated by the 96th Test Group; and
- One 1,000-gallon gasoline storage tank and associated fuel dispensing operated by the 49th Operations Support Squadron.

The emission units identified above are owned/operated/maintained by organizations under the command structure of the 49th Wing and are therefore under common ownership and control with Holloman AFB.

- Contiguous or Adjacent: The emission sources discussed in this subsection are not located within the Holloman AFB facility boundary as presented in the list below and are therefore non-contiguous and not included in Holloman AFB's Title V permit.
    - The Cummins 347 kW engine is to drive a pump that transfers water from a well field to a holding tank and it is only needed during a prolonged power outage. The well field is located approximately 20 miles from the Holloman AFB facility boundary near Boles Wells, NM.
    - The Kohler 66 kW engine provides back-up power to a facility located on Tuley Peak.
    - The Cummins 50 kW engine provides back-up power to a facility located on Oscura Range and the 1,000-gallon gasoline storage tank and associated fuel dispensing is also located on Oscura Range.
    - The two 2,000-gallon gasoline storage tanks and associated fuel dispensing is located on White Sands Missile Range, who holds their own Title V Permit, separate from Holloman AFB's permit.

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Section 12

Section 12.A

PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

A PSD applicability determination for all sources. For sources applying for a significant permit revision, apply the applicable requirements of 20.2.74.AG and 20.2.74.200 NMAC and to determine whether this facility is a major or minor PSD source, and whether this modification is a major or a minor PSD modification. It may be helpful to refer to the procedures for Determining the Net Emissions Change at a Source as specified by Table A-5 (Page A.45) of the EPA New Source Review Workshop Manual to determine if the revision is subject to PSD review.

A. This facility is:

☒ **a minor PSD source before and after this modification (if so, delete C and D below).**

☐ **a major PSD source before this modification. This modification will make this a PSD minor source.**

☐ **an existing PSD Major Source that has never had a major modification requiring a BACT analysis.**

☐ **an existing PSD Major Source that has had a major modification requiring a BACT analysis**

☐ **a new PSD Major Source after this modification.**

B. This facility is not one of the listed 20.2.74.501 Table I – PSD Source Categories. The "project" emissions for this modification are not significant as presented in the list below. The proposed updates contained in this permit renewal application result in minor changes of emissions. The "project" emissions listed below only result from changes described in this permit application, thus no emissions from other revisions or modifications, past or future, apply to this evaluation. This project does not result in "de-bottlenecking."

- **a. NOx: +0.6 TPY**
- **b. CO: -0.10 TPY**
- **c. VOC: 0 TPY (No change in estimated emissions)**
- **d. SOx: -0.2 TPY**
- **e. TSP (PM): -0.3 TPY**
- **f. PM10 -0.3 TPY**
- **g. PM2.5: -0.3 TPY**
- **h. Fluorides: 0.0 (No change in estimated emissions)**
- **i. Lead: 0.0 (No change in estimated emissions)**
- **j. Sulfur compounds (listed in Table 2): -0.3 TPY**
- **k. GHG: -6,220.9 TPY CO_2e (Reduction); -6,199.2 TPY mass GHG**

E. If this is an existing PSD major source, or any facility with emissions greater than 250 TPY (or 100 TPY for 20.2.74.501 Table 1 – PSD Source Categories), determine whether any permit modifications are related, or could be considered a single project with this action, and provide an explanation for your determination whether a PSD modification is triggered.

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Section 13

Determination of State & Federal Air Quality Regulations

This section lists each state and federal air quality regulation that may apply to your facility and/or equipment that are stationary sources of regulated air pollutants.

Not all state and federal air quality regulations are included in this list. Go to the Code of Federal Regulations (CFR) or to the Air Quality Bureau's regulation page to see the full set of air quality regulations.

Required Information for Specific Equipment:
For regulations that apply to specific source types, in the 'Justification' column **provide any information needed to determine if the regulation does or does not apply**. **For example**, to determine if emissions standards at 40 CFR 60, Subpart IIII apply to your three identical stationary engines, we need to know the construction date as defined in that regulation; the manufacturer date; the date of reconstruction or modification, if any; if they are or are not fire pump engines; if they are or are not emergency engines as defined in that regulation; their site ratings; and the cylinder displacement.

Required Information for Regulations that Apply to the Entire Facility:
See instructions in the 'Justification' column for the information that is needed to determine if an 'Entire Facility' type of regulation applies (e.g., 20.2.70 or 20.2.73 NMAC).

Regulatory Citations for Regulations That Do Not, but Could Apply:
If there is a state or federal air quality regulation that does not apply, but you have a piece of equipment in a source category for which a regulation has been promulgated, you must **provide the low level regulatory citation showing why your piece of equipment is not subject to or exempt from the regulation. For example** if you have a stationary internal combustion engine that is not subject to 40 CFR 63, Subpart ZZZZ because it is an existing 2 stroke lean burn stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, your citation would be 40 CFR 63.6590(b)(3)(i). **We don't want a discussion of every non-applicable regulation, but if it is possible a regulation could apply, explain why it does not. For example,** if your facility is a power plant, you do not need to include a citation to show that 40 CFR 60, Subpart OOO does not apply to your non-existent rock crusher.

Regulatory Citations for Emission Standards:
For each unit that is subject to an emission standard in a source specific regulation, such as 40 CFR 60, Subpart OOO or 40 CFR 63, Subpart HH, include the low level regulatory citation of that emission standard. Emission standards can be numerical emission limits, work practice standards, or other requirements such as maintenance. **Here are examples:** a glycol dehydrator is subject to the general standards at 63.764C(1)(i) through (iii); an engine is subject to 63.6601, Tables 2a and 2b; a crusher is subject to 60.672(b), Table 3 and all transfer points are subject to 60.672(e)(1)

Federally Enforceable Conditions:
All federal regulations are federally enforceable. All Air Quality Bureau State regulations are federally enforceable except for the following: affirmative defense portions at 20.2.7.6.B, 20.2.7.110(B)(15), 20.2.7.11 through 20.2.7.113, 20.2.7.115, and 20.2.7.116; 20.2.37; 20.2.42; 20.2.43; 20.2.62; 20.2.63; 20.2.86; 20.2.89; and 20.2.90 NMAC. Federally enforceable means that EPA can enforce the regulation as well as the Air Quality Bureau and federally enforceable regulations can count toward determining a facility's potential to emit (PTE) for the Title V, PSD, and nonattainment permit regulations.

INCLUDE ANY OTHER INFORMATION NEEDED TO COMPLETE AN APPLICABILITY DETERMINATION OR THAT IS RELEVENT TO YOUR FACILITY'S NOTICE OF INTENT OR PERMIT.

EPA Applicability Determination Index for 40 CFR 60, 61, 63, etc.: http://cfpub.epa.gov/adi/

Table for Applicable STATE REGULATIONS:

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
20.2.1 – 20.2.2 NMAC	General Provisions/ Definitions	Yes	Facility	General Provisions apply to Title V permit applications.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	Compliance with the NMAAQS must be demonstrated by all NSR applicants through dispersion modeling analysis. 20.2.3 NMAC is a State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentration of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide. The requirements of this part are not applicable to 20.2.70 NMAC (Operating Permit). See exemption at 20.2.3.9 NMAC.
20.2.5 NMAC	Source Surveillance	Yes	Facility	N/A – no requirements
20.2.7 NMAC	Excess Emissions	Yes	Facility	All Title V major sources are subject to Air Quality Control Regulations, as defined in 20.2.7 NMAC, and are thus subject to the requirements of this regulation. Also 20.2.7 is listed as applicable in Permit No. NSR 1508C-M2R3.
20.2.8 NMAC	Emissions Leaving New Mexico	Yes	Facility	Holloman AFB dispersion modeling for their NSR Permit indicate emissions do not exceed NAAQS.
20.2.10 NMAC	Woodwaste Burners - Opacity	No	-	N/A – Holloman AFB has no affected facilities.
20.2.11 NMAC	Asphalt Plant – Particulate Matter	No	-	N/A – Holloman AFB has no affected facilities
20.2.12 NMAC	Cement Kilns – Particulate Matter	No	-	N/A – Holloman AFB has no affected facilities
20.2.13 NMAC	Gypsum Plants – Particulate Matter	No	-	N/A – Holloman AFB has no affected facilities
20.2.14 NMAC	Coal Burning Equipment – Particulate Matter	No	-	N/A – Holloman AFB has no affected facilities
20.2.15 NMAC	Pumice, Mica, Purlite Equipment – Particulate Matter	No	-	N/A – Holloman AFB has no affected facilities
20.2.16 NMAC	Nonferrous Smelters – Particulate Matter	No	-	N/A – Holloman AFB has no affected facilities
20.2.17 NMAC	Nonferrous Smelters – Particulate Matter	No	-	N/A – Holloman AFB has no affected facilities

STATE REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
20.2.18 NMAC	Oil Burning Equipment – Particulate Matter	No	-	N/A – Holloman AFB has no oil-fired boilers with a heat input of greater than 10.0 MMBtu/hr. As per 20.2.18.109 and 110 the rule standards are applicable to oil burning units having a rated heat capacity greater than 250 MMBtu/hr
20.2.19 NMAC	Potash, Salt Process Equipment – Particulate Matter	No	-	N/A – Holloman AFB has no affected facilities
20.2.20 NMAC	Lime Manufacturing – Particulate Matter	No	-	N/A – Holloman AFB has no affected facilities
20.2.21 NMAC	Nonferrous Smelters – Particulate Matter	No	-	N/A – Holloman AFB has no affected facilities
20.2.22 NMAC	Roads – Town of Hurley – Particulate Matter	No	-	N/A – Holloman AFB has no affected facilities
20.2.30 NMAC	Kraft Mills – Total Reduced Sulfur	No	-	N/A – Holloman AFB has no affected facilities
20.2.31 NMAC	Coal Burning Equipment – Sulfur Dioxide	No	-	N/A – Holloman AFB has no affected facilities
20.2.32 NMAC	Coal Burning Equipment - Nitrogen Dioxide	No	-	N/A – Holloman AFB has no affected facilities
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No	-	N/A – Holloman AFB does not have any gas burning equipment with a heat input of greater than 1,000,000 million British Thermal Units per year per unit. As per 20.2.33.108, the cited standards are applicable to gas burning equipment having a heat input of greater than 1,000,000 million British Thermal Units per unit.
20.2.34 NMAC	Oil Burning Equipment: NO_2	No	-	N/A – Holloman AFB does not have any gas burning equipment with a heat input of greater than 1,000,000 million British Thermal Units per year per unit. As per 20.2.34.108, the cited standards are applicable to gas burning equipment having a heat input of greater than 1,000,000 million British Thermal Units per unit.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No	-	N/A – Holloman AFB has no affected facilities
20.2.36 NMAC	Petroleum Processing – Sulfur	No	-	N/A – Holloman AFB has no affected facilities
20.2.37 NMAC	Petroleum Processing Facilities	No	-	N/A – Holloman AFB has no affected facilities
20.2.38 NMAC	Hydrocarbon	No	-	N/A – Holloman AFB has no affected facilities

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
	Storage Facilities			
20.2.39 NMAC	Hydrocarbon Storage Facilities	No	-	N/A – Holloman AFB has no affected facilities
20.2.40 NMAC	Sulfur Acid Production Unit – Sulfur Dioxide	No	-	N/A – Holloman AFB has no affected facilities
20.2.41 NMAC	Nonferrous Smelter - Sulfur	No	-	N/A – Holloman AFB has no affected facilities
20.2.42 NMAC	Coal Mining and Preparation – Particulate Matter	No	-	N/A – Holloman AFB has no affected facilities
20.2.43 NMAC	Gasification Plant	No	-	N/A – Holloman AFB has no affected facilities
20.2.60 NMAC	Open Burning	Yes	Facility	Holloman AFB occasionally burns wood pallets for fire training exercises; permits for these events are obtained on a case-by-case basis pursuant to 20.2.60 NMAC.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	12010, 14031, 14034-14038, 19210-19224, 19300, 19302, 19331- 19406, 19602, 19603, 19608, 19609 20001, 20003, 20006, 20007, 20009.	Listed as applicable in permit number NSR 1508C-M2R4 and Title V Operating Permit P105-R3. Listed emission units are Stationary Combustion Equipment that are not exempted by the rule. This regulation that limits opacity to 20%which applies to Stationary Combustion Equipment, such as engines, boilers, heaters, and flares unless your equipment is subject to another state regulation that limits particulate matter such as 20.2.19 NMAC (see 20.2.61.109 NMAC).
20.2.62 NMAC	Municipal Waste Combustors	No	-	N/A – Holloman AFB has no affected facilities
20.2.63 NMAC	Biomed Waste Combustors	No	-	N/A – Holloman AFB has no affected facilities
20.2.65 NMAC	Open Burning – Smoke and Visible Emissions	No	N/A	Holloman AFB occasionally burns wood pallets for fire training exercises; permits for these events are obtained on a case-by-case basis pursuant to 20.2.60 NMAC. No existing activities/operations on Holloman AFB trigger this requirement.
20.2.70 NMAC	Operating Permits	Yes	Facility	Holloman AFB is submitting this application in accordance with this regulation as a Title V source. Holloman AFB has the potential to emit (PTE) more than 100 tpy of CO and VOC.
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	As a major source under 20.2.70 NMAC, Holloman AFB is subject to 20.2.71 NMAC.
20.2.72 NMAC	Construction Permits	Yes	14031, 14034-14038,	This facility is subject to 20.2.72 NMAC. NSR Permit Nos. 1508C-M2R4 and 1508-M2R3.

STATE REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
			21006-21011R, 21018-21024, 22105, 21001, 21003, 20006 ,20007, 20009	
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	NOI: 20.2.73.200 NMAC does not apply. Holloman AFB is subject to both 20.2.72 and 20.2.70 NMAC. Emissions Inventory Reporting: 20.2.73.300 NMAC applies. All Title V major sources and facilities issued a Construction Permit meet the applicability requirements of 20.2.73.300 NMAC. All facilities that are a Title V Major Source as defined at 20.2.70.7.R NMAC, are subject to Emissions Inventory Reporting.
20.2.74 NMAC	Permits – PSD	No	-	This facility is a PSD minor source per the current and proposed Title V allowable emission limits.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	Holloman AFB is subject to 20.2.72 NMAC and is therefore subject to 20.2.75 NMAC. However, Holloman AFB pays annual fees under 20.2.71 NMAC and has not been issued an invoice from AQB for its construction permits.
20.2.77 NMAC	New Source Performance	Yes	19210 -19224, 19300, 19302, 19331 – 19362, 19364 – 19369, 19373 - 19405	This source has Stationary Compression Ignition Internal Combustion Engines, which are subject to the requirements of 40 CFR Part 60 Subpart IIII and 40 CFR 60 Subpart JJJJ.
20.2.78 NMAC	Emission Standards for HAPS	Yes	Facility	This facility emits hazardous air pollutants which are subject to the requirements of 40 CFR Part 61, as amended through January 28, 2021.
20.2.79 NMAC	Permits – Nonattainment Areas	No	-	N/A – Holloman AFB is in an attainment area.
20.2.80 NMAC	Stack Heights	No	-	N/A – Not listed as applicable in NSR Permit Nos. 1508C-M2R4 and 1508-M2R3, usually not applicable for Title V.
20.2.81 NMAC	Western Backstop Sulfur Dioxide Trading Program	No	-	N/A – Holloman AFB actual SO_2 emissions are below the applicable 100 tpy threshold (20.2.81.101). .
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	*Units Subject to 40 CFR 63 Subpart BBBBBB:* 16004, 22002 *Subpart*	In this application, Holloman AFB is requesting limits of 9.9 tpy of each individual HAP and 24.9 tpy of all HAPs combined. Therefore, Holloman AFB is an area source with respect to the NESHAP standards. Holloman AFB is subject to any applicable

STATE REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
			CCCCCC: 15001, 15004, 15011, 15013, 15014, 22100, 22101, 22102, 22110, 22054, 22014R *Subpart ZZZZ:* 19363, 19370, 19371, 19372, 19406, 19602, 19603, 19608, 19609	Area Source standards for HAPs. Holloman AFB is a stationary source that has: 1) Stationary Reciprocating Internal Combustion Engines (RICE) subject to 40 CFR Part 63 Subpart ZZZZ 2) Gasoline Dispensing Facilities & Associated Gasoline Storage Tanks subject to 40 CFR Part 63 Subpart CCCCCC 3) Gasoline Distribution & Associated Storage Tank subject to the requirements of 40 CFR Part 63 Subpart BBBBBB
20.2.84 NMAC	Acid Rain Permits	No	-	N/A – Holloman AFB has no affected facilities.
20.2.87 NMAC	Greenhouse Gas Reporting [REPEALED]	No	-	N/A – This rule has been repealed.
20.2.98 NMAC	Conformity of General Federal Actions to the SIP	No	-	N/A – Holloman AFB is in an attainment area.
20.2.99 NMAC	Conformity to the SIP of Transportation Plans, Programs, and Projects	No	-	N/A – Holloman AFB is in an attainment area.

Table for Applicable FEDERAL REGULATIONS (Note: This is not an exhaustive list):

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 50	NAAQS	Yes	Facility	Defined as applicable at 20.2.70.7.E.11 - any national ambient air quality standard.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	See Below	Applies only if any other NSPS subpart applies. Holloman AFB is subject to 40 CFR 60 Subparts IIII and JJJJ.
NSPS 40 CFR 60, Subpart Cb	Municipal Waste Combustors	No	-	N/A – Holloman AFB has no municipal waste combustors.
NSPS 40 CFR 60, Subpart Cc	Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills	No	-	N/A – Holloman AFB's landfill is smaller than the applicability threshold and it is closed.
NSPS 40 CFR 60, Subpart Cd	Emission Guidelines and Compliance Times for Sulfuric Acid Production Plants	No	-	N/A – Holloman AFB does not have any sulfuric acid production units.
NSPS 40 CFR 60, Subpart Ce	Emission Guidelines and Compliance Times for Hospital/ Medical/ Infectious Waste Incinerators	No	-	N/A – Holloman AFB does not have any hospital, medical, or infectious waste incinerators.
NSPS 40 CFR 60, Subpart D	Standards of Performance for Fossil Fuel Fired Steam Generators	No	-	N/A – Holloman AFB does not have steam generators with a heat output capacity greater than 250 million British Thermal Units per hour (40 CFR 60.40(a)(1)).
NSPS 40 CFR60, Subpart Da	Performance Standards for **Electric Utility Steam Generating Units**	No	-	N/A – Holloman AFB does not have steam generators this large.
NSPS 40 CFR60, Subpart Db	**Electric Utility Steam Generating Units** (a) The affected facility to which this subpart applies is each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 MW (100 million Btu/hour).	No	-	N/A – Holloman AFB does not have steam generators this large.
NSPS 40 CFR60.40c	Standards of Performance for	No	-	N/A – Holloman AFB has no steam generating units with a

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
Subpart Dc	Industrial-Commercial-Institutional Steam Generating Units			design heat capacity between 100 and 10 MMBtu/hr (40 CFR 60.40c(a)).
NSPS 40 CFR60, Subpart E	Standards of Performance for Incinerators	No	-	N/A – Holloman AFB does not have any incinerators.
NSPS 40 CFR60, Subpart Ea	Standards of Performance for Municipal Waste Combustors Constructed 12/20/1989 – 9/20/1994	No	-	N/A – Holloman AFB does not have any municipal waste combustors.
NSPS 40 CFR60, Subpart Eb	Standards of Performance for Large Municipal Waste Combustors constructed after 9/20/1994	No	-	N/A – Holloman AFB does not have any municipal waste combustors.
NSPS 40 CFR60, Subpart Ec	Standards of Performance for Hospital/ Medical/ Infectious Waste Incinerators constructed after 6/20/1996	No	-	N/A – Holloman AFB does not have any hospital/medical/infectious waste incinerators.
NSPS 40 CFR60, Subpart F	Standards of Performance for Portland Cement Plants	-No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR60, Subpart G	Standards of Performance for Nitric Acid Plants	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR60, Subpart H	Standards of Performance for Sulfuric Acid Plants	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR60, Subpart I	Standards of Performance for Hot Mix Asphalt Facilities	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR60, Subpart J	Standards of Performance for Petroleum Refineries	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR60, Subpart K	Standards of Performance for Storage Vessels for Petroleum Liquids constructed after 6/11/1973 and prior to 5/19/1978	No	-	N/A – Holloman AFB has no affected facilities.

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for **Storage Vessels for Petroleum Liquids** for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and **Prior** to July 23, 1984	No	-	Holloman AFB does not have an affected facility as cited in 40 CFR 60.110a. Holloman AFB does not own or operate any storage vessels for petroleum liquids that were constructed, reconstructed or modified between May 18, 1978 and July 23, 1984.
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for **Volatile Organic Liquid Storage Vessels** (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced **After** July 23, 1984	No	-	N/A – Holloman AFB has no affected facilities. The Standard was modified on 15 October 2003 and there are no longer any applicable requirements for storage vessels handling liquid with a vapor pressure < 0.51 psia (3.5kPa) (40 CFR 60.110b(b)).
NSPS 40 CFR 60, Subpart L	Standards of Performance for Secondary Lead Smelters	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart M	Standards of Performance for Secondary Brass and Bronze Production Plants	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart N	Standards of Performance for Primary Emissions from Basic Oxygen Process Furnaces constructed on or after 6/11/1973	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart Na	Standards of Performance for Primary Emissions from Basic Oxygen Process Furnaces constructed after 1/20/1983	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart O	Standards of Performance for Sewage Treatment Plants	No	-	N/A - Wastewater treatment plant at Holloman AFB does not utilize an incinerator. (40 CFR 60.150(a)).
NSPS 40 CFR 60,	Standards of	No	-	N/A – Holloman AFB has no affected facilities.

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
Subpart P	Performance for Primary Copper Smelter Plants			
NSPS 40 CFR 60, Subpart Q	Standards of Performance for Primary Zinc Smelters	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart R	Standards of Performance for Primary Lead Smelters	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart S	Standards of Performance for Primary Aluminum Reduction Plants	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart T	Standards of Performance for Primary Aluminum Reduction Plants	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart U - X	Standards of Performance for the Phosphate Fertilizer Industry	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart Y	Standards of Performance for Coal Preparation Plants	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart Z - AAa	Standards of Performance for Steel Plants	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart BB	Standards of Performance for Kraft Pulp Mills	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart CC	Standards of Performance for Glass Manufacturing Plants	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart DD	Standards of Performance for Grain Elevators	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart EE	Standards of Performance for Surface Coating of Metal Furniture	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart GG	Standards of Performance for Stationary Gas Turbines	No	-	N/A – Holloman AFB does not have gas turbines that meet the 10 MMBtu/hour threshold.
NSPS 40 CFR 60, Subpart HH	Standards of Performance for Lime Manufacturing	No	-	N/A – Holloman AFB has no affected facilities.

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NSPS 40 CFR 60, Subpart KK	Standards of Performance for Lead-Acid Battery Manufacturing Plants	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart LL	Standards of Performance for Metallic Mineral Processing Plants	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart MM	Standards of Performance for Automobile and Light Duty Truck Surface Coating Operations	No	-	N/A – Holloman AFB does not operate a light duty truck assembly plant.
NSPS 40 CFR 60, Subpart NN	Standards of Performance for Phosphate Rock Plants	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart PP	Standards of Performance for Ammonium Sulfate Manufacture	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart QQ	Standards of Performance for the Graphic Arts Industry: Publication Rotogravure Printing	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart RR	Standards of Performance for Pressure Sensitive Tape and Label Surface Coating Operations	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart SS	Standards of Performance for Industrial Surface Coating: Large Appliances	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart TT	Standards of Performance for Metal Coil Surface Coating	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart UU	Standards of Performance for Asphalt Processing and Asphalt Roofing Manufacture	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart VV	Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing	No	-	N/A – Holloman AFB has no affected facilities.

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
	Industry			
NSPS 40 CFR 60, Subpart WW	Standards of Performance for the Beverage Can Surface Coating Industry	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart XX	Standards of Performance for Bulk Gasoline Terminals	No	-	N/A – Holloman AFB gasoline throughput is below the threshold for a bulk gasoline terminal, which is 75,700 liters (20,000 gallons) per day (40 CFR 60.500(a) and 501).
NSPS 40 CFR 60, Subpart AAA	Standards of Performance for New Residential Wood Heaters	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart BBB	Standards of Performance for the Rubber Tire Manufacturing Industry	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart DDD	Standards of Performance for VOC Emissions from the Polymer Manufacturing Industry	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart FFF	Standards of Performance for Flexible Vinyl and Urethane Coating and Printing	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart GGG	Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart HHH	Standards of Performance for Synthetic Fiber Production Facilities	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart III	Standards of Performance for VOC Emissions from the SOCMI Air Oxidation Unit Process	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart JJJ	Standards of Performance for Petroleum Dry Cleaners	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart KKK	Standards of Performance for Equipment Leaks of	No	-	N/A – Holloman AFB has no affected facilities.

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
	VOC from Onshore Natural Gas Processing Plants			
NSPS 40 CFR 60, Subpart LLL	Standards of Performance for Onshore Natural Gas Processing: SO_2 Emissions	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart NNN	Standards of Performance for VOC Emissions from SOCMI Distillation Operations	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart OOO	Standards of Performance for Nonmetallic Mineral Processing Plants	No	-	Applicable to contractor-owned/operated systems.
NSPS 40 CFR 60, Subpart PPP	Standards of Performance for Wool Fiberglass Insulation Manufacturing Plants	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart QQQ	Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Systems	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart RRR	Standards of Performance for VOC Compound Emissions from SOCMI Reactor Processes	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart SSS	Standards of Performance for Magnetic Tape Coating Facilities	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart TTT	Standards of Performance for Industrial Surface Coating: Surface Coating of Plastic Parts for Business Machines	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart UUU	Standards of Performance for Calciners and Dryers in Mineral Industries	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart VVV	Standards of Performance for Polymeric Coating of Supporting Substrates Facilities	No	-	N/A – Holloman AFB has no affected facilities.

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NSPS 40 CFR 60, Subpart WWW	Standards of Performance for Municipal Solid Waste Landfills	No	-	N/A – Holloman AFB landfills are smaller than the applicable threshold.
NSPS 40 CFR 60, Subpart AAAA	Standards of Performance for Small Municipal Waste Combustion Units Constructed after 6/6/2001	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart AAAA	Standards of Performance for Small Municipal Waste Combustion Units Constructed after 6/6/2001	-	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart BBBB	Emissions Guidelines and Compliance Times for Small Municipal Waste Combustion Units constructed before 8/30/1999	-No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart CCCC	Standards of Performance for Commercial and Industrial Solid Waste Incineration Units constructed after 11/30/1999	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart DDDD	Emission Guidelines and Compliance Times for Commercial and Industrial Solid Waste Incineration Units constructed before 11/30/1999	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart EEEE	Standards of Performance for Other Solid Waste Incineration Units constructed after 12/9/2004	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart FFFF	Emission Guidelines and Compliance Times for Other Solid Waste Incineration Units constructed before 12/9/2004	No	-	N/A – Holloman AFB has no affected facilities.
NSPS 40 CFR 60, Subpart HHHH	Emission Guidelines and Compliance	No	-	N/A – Holloman AFB has no affected facilities.

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
	Times for Coal Fired Electric Steam Generating Units			
NSPS 40 CFR 60, Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	Yes	19210 - 19224, 19300, 19302, 19331- 19362, 19364 -19369, 19373 – 19377, 19380 - 19405	This applies to new, modified, and reconstructed compression ignition IC engines larger than 11 hp constructed after the rule proposal date of July 11, 2005 (essentially, those engines manufactured after April 1, 2006). Holloman AFB has affected existing sources and Holloman AFB anticipates purchasing new emergency back-up engines in the future. The Stationary Compression Ignition Internal Combustion Engines are subject to the requirements of 40 CFR Part 60 Subpart IIII General Requirements and Paragraph 60.4205 (a) and (c).
NSPS 40 CFR 60, Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	Yes	19378 & 19379	Applicable standards for LPG engines, rich burn, >25 HP, manufactured on or after 01/01/2009 are those contained in 60.4231(c) [which references 40 CFR 1048.101(c)] for field testing. Holloman AFB operates 18 barrier rewind engines that are stationary SI ICE that were manufactured and installed, prior to the applicability date of this rule or were installed later but qualify for a National Security Exemption,
NSPS 40 CFR 60, Subpart KKKK	Standards of Performance for Stationary Combustion Turbines	No	-	N/A – Holloman AFB does not operate stationary combustion turbines.
NSPS 40 CFR 60 Subpart TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units	No	-	Holloman AFB does not operate any electric generating units that are subject to Subpart TTTT.
NSPS 40 CFR 60 Subpart UUUU	Emissions Guidelines for Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units	No	-	Holloman AFB does not operate any electric utility generating units.
NESHAP 40 CFR 61, Subpart A	General Provisions	Yes	See below	Applicable for each emissions unit affected by a NESHAP, as indicated below.
NESHAP 40 CFR 61, Subpart B	National Emissions Standards for Radon Emissions from Underground Uranium Mines	No	-	N/A – Holloman AFB has no affected facilities.

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NESHAP 40 CFR 61, Subpart C	National Emissions Standards for Beryllium	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 61, Subpart D	National Emissions Standards for Beryllium Rocket Motor Firing	No	-	N/A – Holloman AFB rocket firing emissions do not include beryllium.
NESHAP 40 CFR 61, Subpart E	National Emission Standards for Mercury	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 61, Subpart F	National Emission Standards for Vinyl Chloride	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 61, Subpart H	National Emission Standards for Emissions of Radionuclides other than Radon from DOE Facilities	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 61, Subpart I	National Emission Standards for Radionuclide Emissions from Federal Facilities other than Nuclear Regulatory Commission Licensees and not covered by Subpart H	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 61, Subpart J	National Emission Standards for Equipment Leaks (fugitive emissions source) of Benzene	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 61, Subpart K	National Emission Standard for Radionuclide Emissions from Elemental Phosphorous Plants	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 61, Subpart L	National Emission Standard for Benzene Emissions from Coke By-Product Recovery Plants	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 61, Subpart M	National Emission Standard for Asbestos	Yes	Facility	Applicable when Holloman AFB conducts asbestos demolition and removal projects.
NESHAP 40 CFR 61, Subpart N	National Emission Standard for Inorganic Arsenic Emissions from Glass Manufacturing	No	-	N/A – Holloman AFB has no affected facilities.

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
	Plants			
NESHAP 40 CFR 61, Subpart O	National Emission Standard for Inorganic Arsenic Emissions from Primary Copper Smelters	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 61, Subpart P	National Emission Standard for Inorganic Arsenic Emissions from Arsenic Trioxide and Metallic Arsenic Production Facilities	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 61, Subpart Q	National Emission Standards for Radon Emissions from DOE Facilities	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 61, Subpart R	National Emission Standards for Radon Emissions from Phosphogypsum Stacks	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 61, Subpart T	National Emission Standards for Radon Emissions from the Disposal of Uranium Mill Tailings	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 61, Subpart V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 61, Subpart W	National Emission Standards for Radon Emissions from Operating Mill Tailings	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 61, Subpart Y	National Emission Standards for Benzene Emissions from Benzene Storage Vessels	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 61, Subpart BB	National Emission Standards for Benzene Emissions from Benzene Transfer Stations	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 61, Subpart FF	National Emission Standards for Benzene Waste	No	-	N/A – Holloman AFB has no affected facilities.

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
	Operations			
NESHAP 40 CFR 63, Subpart A	General Provisions	Yes	See Below	Holloman AFB is not subject to any of the major source MACT standards established in the 40 CFR 63 subsections. Holloman AFB is a minor source of HAP (HAP emissions < 10 tpy of any one HAP and < 25 tpy of any combination of HAPs.) Holloman is applicable to 40 CFR 63 Subparts A, ZZZZ, CCCCCC, BBBBBB. Holloman AFB is subject to sections of this subpart as defined by each applicable area source NESHAP. See below for applicability of area source standards.
NESHAP 40 CFR 63, Subpart M	National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart N	National Emission Standards for Chromium Emissions From Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks	-No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart O	Ethylene Oxide Emissions Standards for Sterilization Facilities	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart T	National Emission Standards for Halogenated Solvent Cleaning	No	-	N/A – Holloman AFB does not utilize solvent cleaning machines containing methylene chloride, perchloroethylene, 1,1,1-trichloroethane, carbon tetrachloride or chloroform in concentrations greater than 5 percent by weight. (40 CFR 63.460(a)).
NESHAP 40 CFR 63, Subpart X	National Emission Standards for Hazardous Air Pollutants from Secondary Lead Smelting	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart Y	National Emission Standards for Marine Tank Vessel Loading Operations	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart HH	National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63,	National Emission Standards for Hazardous Air	No	-	N/A – Holloman AFB has no affected facilities.

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
Subpart EEE	Pollutants from Hazardous Waste Combustors			
NESHAP 40 CFR 63, Subpart TTT	National Emission Standards for Hazardous Air Pollutants for Primary Lead Smelting	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart VVV	National Emission Standards for Hazardous Air Pollutants: Publicly Owned Treatment Works	No	-	N/A – Holloman AFB has no affected facilities. Holloman AFB does not accept any regulated waste.
NESHAP 40 CFR 63, Subpart AAAA	National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills	No	-	N/A – Holloman AFB has no affected facilities. The landfill was certified as closed circa 2001 and the design capacity does not meet the regulatory criteria of this subpart.
NESHAP 40 CFR 63, Subpart ZZZZ	National Emission Standards for HAPS from Stationary RICE	Yes	19363, 19370, 19371,19372, 19406, 19602, 19603, 19608, 19609	Existing emergency RICE located at an area source of HAP emissions are subject to this subpart (§ 63.6590(a)(1)(iii)).
NESHAP 40 CFR 63, Subpart AAAAA	National Emission Standards for Hazardous Air Pollutants for Lime Manufacturing Plants	No		N/A – Holloman AFB has no affected facilities.
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No		N/A – Holloman AFB is not a Major Source of HAPs
MACT 40 CFR 63 Subpart UUUUU	National Emission Standards for Hazardous Air Pollutants Coal & Oil Fire Electric Utility Steam Generating Unit	No	-	Holloman AFB does not own or operate any coal & oil fire electric utility steam generating Unit.
NESHAP 40 CFR 63, Subpart WWWWW	National Emission Standards for Hospital Ethylene Oxide Sterilizers	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart YYYYY	National Emission Standards for Hazardous Air Pollutants for Area Sources: Electric Arc Furnace Steelmaking Facilities	No	-	N/A – Holloman AFB has no affected facilities.

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NESHAP 40 CFR 63, Subpart ZZZZZ	National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart BBBBBB	National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities	Yes	POL Yard – 16004, 22002	Holloman AFB operates a small gasoline distribution plant subject to the requirements of 40 CFR Part 63 Subpart BBBBBB.
NESHAP 40 CFR 63, Subpart CCCCCC	National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities	Yes	15001, 15004, 15011, 15013, 15014, 22014R, 22054, 22058, 22100, 22101, 22102, 22110.	Holloman AFB owns and operates Gasoline Dispensing Facilities which are subject to the requirements of 40 CFR Part 63 Subpart CCCCCC.
NESHAP 40 CFR 63, Subpart DDDDDD	National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production Area Sources	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart EEEEEE	National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting Area Sources	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart FFFFFF	National Emission Standards for Hazardous Air Pollutants for Secondary Copper Smelting Area Sources	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart GGGGGG	National Emission Standards for Hazardous Air Pollutants for Primary Nonferrous Metals Area Sources—Zinc, Cadmium, and Beryllium	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart HHHHHH	National Emission Standards for Hazardous Air Pollutants: Paint Stripping and	No	-	N/A – Holloman AFB's activities are exempt, meets the definition of § 63.11169(d)(1).

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
	Miscellaneous Surface Coating Operations at Area Sources			
NESHAP 40 CFR 63 Subpart JJJJJJ	National Emission Standards for Hazardous Air Pollutants: Industrial, Commercial, and Institutional Boilers at Area Sources	No		Holloman AFB only operate natural gas boilers which are exempted by §63.11195(e).
NESHAP 40 CFR 63, Subpart LLLLLL	National Emission Standards for Hazardous Air Pollutants for Acrylic and Modacrylic Fibers Production Area Sources	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart MMMMMM	National Emission Standards for Hazardous Air Pollutants for Carbon Black Production Area Sources	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart NNNNNN	National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources: Chromium Compounds	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart OOOOOO	National Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production and Fabrication Area Sources	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart PPPPPP	National Emission Standards for Hazardous Air Pollutants for Lead Acid Battery Manufacturing Area Sources	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart QQQQQQ	National Emission Standards for Hazardous Air Pollutants for Wood Preserving Area Sources	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart RRRRRR	National Emission Standards for Hazardous Air Pollutants for Clay Ceramics	No	-	N/A – Holloman AFB has no affected facilities.

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
	Manufacturing Area Sources			
NESHAP 40 CFR 63, Subpart SSSSSS	National Emission Standards for Hazardous Air Pollutants for Glass Manufacturing Area Sources	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart TTTTTT	National Emission Standards for Hazardous Air Pollutants for Secondary Nonferrous Metals Processing Area Sources	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart WWWWWW	National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart XXXXXX	National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories	No	-	N/A – Holloman AFB has no affected facilities.
NESHAP 40 CFR 63, Subpart YYYYYY	National Emission Standards for Hazardous Air Pollutants for Area Sources: Ferroalloys Production Facilities	No	-	N/A – Holloman AFB has no affected facilities.
NESHAPS 40 CFR 64	Compliance Assurance Monitoring	No	-	N/A – Holloman AFB has no affected facilities.
NESHAPS 40 CFR 68	Chemical Accident Prevention	No	-	N/A – Holloman AFB does not meet the following criteria. The stationary source that has more than a threshold quantity of a regulated substance in a process, as determined under §68.115.
Title IV – Acid Rain 40 CFR 72	Acid Rain	No	-	N/A – Holloman AFB has no affected facilities.
Title IV – Acid Rain 40 CFR 73	Sulfur Dioxide Allowance Emissions	No	-	N/A – Holloman AFB has no affected facilities.
Title IV – Acid Rain 40 CFR 76	Acid Rain Nitrogen Oxides Emission Reduction Program	No	-	N/A – Holloman AFB has no affected facilities.
40 CFR 79	Registration of Fuels and Fuel Additives	No	-	N/A – Holloman AFB has no affected facilities.

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 80, Subpart A	General Provisions	No	See Below	All subsections of this part that are applicable to refineries and motor vehicle manufacturers are not applicable to Holloman AFB. See below for the applicability for retail outlets.
40 CFR 80, Subpart B	Controls and Prohibitions	Yes	15001, 15004, 15011, , 15013, 15014.	§80.22, §80.27 – Applicable to all gasoline distribution operations at Holloman AFB. §80.29 – Applicable to all diesel fuel operations at Holloman AFB.
40 CFR 80, Subpart C	Oxygenated Gasoline	Yes	15001	§ 80.35 - Applicable to oxygenated gasoline fuel pumps at retail fuel distributors.
Title VI – 40 CFR 82	Protection of Stratospheric Ozone	Yes	Facility	Holloman AFB has equipment that contains a charge greater than 50 lb of ODS, services motor vehicle air conditioners, procure refrigerants, and thus 40 CFR Part 82 Subparts B,D, F and G are applicable.
CAA Section 112(r)	Accidental Release Prevention / Risk Management Plan Rule	No	-	Holloman AFB does not exceed threshold quantities of regulated substances in a process.

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Section 14

Operational Plan to Mitigate Emissions

(submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

☑ **Title V Sources** (20.2.70 NMAC)**:** By checking this box and certifying this application the permittee certifies that it has developed an **Operational Plan to Mitigate Emissions During Startups, Shutdowns, and Emergencies** defining the measures to be taken to mitigate source emissions during startups, shutdowns, and emergencies as required by 20.2.70.300.D.5(f) and (g) NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.

☐ **NSR** (20.2.72 NMAC)**, PSD** (20.2.74 NMAC) **& Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has developed an **Operational Plan to Mitigate Source Emissions During Malfunction, Startup, or Shutdown** defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown as required by 20.2.72.203.A.5 NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.

☐ **Title V** (20.2.70 NMAC)**, NSR** (20.2.72 NMAC)**, PSD** (20.2.74 NMAC) **& Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has established and implemented a Plan to Minimize Emissions During Routine or Predictable Startup, Shutdown, and Scheduled Maintenance through work practice standards and good air pollution control practices as required by 20.2.7.14.A and B NMAC. This plan shall be kept on site or at the nearest field office to be made available to the Department upon request. This plan should not be submitted with this application.

Holloman AFB's Operational Plan to Mitigate Emissions During Startups, Shutdowns, and Emergencies is kept on site and will be made available to the NMED AQB upon request. This plan is not included with this application in accordance with the instructions for Section 14 above.

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Section 15

Alternative Operating Scenarios

(submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

Alternative Operating Scenarios: Provide all information required by the department to define alternative operating scenarios. This includes process, material and product changes; facility emissions information; air pollution control equipment requirements; any applicable requirements; monitoring, recordkeeping, and reporting requirements; and compliance certification requirements. Please ensure applicable Tables in this application are clearly marked to show alternative operating scenario.

Construction Scenarios: When a permit is modified authorizing new construction to an existing facility, NMED includes a condition to clearly address which permit condition(s) (from the previous permit and the new permit) govern during the interval between the date of issuance of the modification permit and the completion of construction of the modification(s). There are many possible variables that need to be addressed such as: Is simultaneous operation of the old and new units permitted and, if so for example, for how long and under what restraints? In general, these types of requirements will be addressed in Section A100 of the permit, but additional requirements may be added elsewhere. Look in A100 of our NSR and/or TV permit template for sample language dealing with these requirements. Find these permit templates at: https://www.env.nm.gov/aqb/permit/aqb_pol.html. Compliance with standards must be maintained during construction, which should not usually be a problem unless simultaneous operation of old and new equipment is requested.

In this section, under the bolded title “Construction Scenarios”, specify any information necessary to write these conditions, such as: conservative-realistic estimated time for completion of construction of the various units, whether simultaneous operation of old and new units is being requested (and, if so, modeled), whether the old units will be removed or decommissioned, any PSD ramifications, any temporary limits requested during phased construction, whether any increase in emissions is being requested as SSM emissions or will instead be handled as a separate Construction Scenario (with corresponding emission limits and conditions, etc.

Holloman AFB does not propose any alternative operating schedules outside of the parameters discussed in Sections 3, 6, and 10 of this application.

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Section 16

Air Dispersion Modeling

(submitting under 20.2.72 and 20.2.74 NMAC)

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1) Minor Source Construction (20.2.72 NMAC) and Prevention of Significant Deterioration (PSD) (20.2.74 NMAC) ambient impact analysis (modeling): Provide an ambient impact analysis as required at 20.2.72.203.A(4) and/or 20.2.74.303 NMAC and as outlined in the Air Quality Bureau's Dispersion Modeling Guidelines found on the Planning Section's modeling website. If air dispersion modeling has been waived for one or more pollutants, attach the AQB Modeling Section modeling waiver approval documentation.
2) SSM Modeling: Applicants must conduct dispersion modeling for the total short term emissions during routine or predictable startup, shutdown, or maintenance (SSM) using realistic worst case scenarios following guidance from the Air Quality Bureau's dispersion modeling section. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on SSM emissions modeling requirements.
3) Title V (20.2.70 NMAC) ambient impact analysis: Title V applications must specify the construction permit and/or Title V Permit number(s) for which air quality dispersion modeling was last approved. Facilities that have only a Title V permit, such as landfills and air curtain incinerators, are subject to the same modeling required for preconstruction permits required by 20.2.72 and 20.2.74 NMAC.

What is the purpose of this application?	Enter an X for each purpose that applies
New PSD major source or PSD major modification (20.2.74 NMAC). See #1 above.	
New Minor Source or significant permit revision under 20.2.72 NMAC (20.2.72.219.D NMAC). See #1 above. **Note:** Neither modeling nor a modeling waiver is required for VOC emissions.	
Reporting existing pollutants that were not previously reported.	
Reporting existing pollutants where the ambient impact is being addressed for the first time.	
Title V application (new, renewal, significant, or minor modification. 20.2.70 NMAC). See #3 above.	X
Relocation (20.2.72.202.B.4 or 72.202.D.3.c NMAC)	
Minor Source Technical Permit Revision 20.2.72.219.B.1.d.vi NMAC for like-kind unit replacements.	
Other: i.e. SSM modeling. See #2 above.	
This application does not require modeling since this is a No Permit Required (NPR) application.	
This application does not require modeling since this is a Notice of Intent (NOI) application (20.2.73 NMAC).	
This application does not require modeling according to 20.2.70.7.E(11), 20.2.72.203.A(4), 20.2.74.303, 20.2.79.109.D NMAC and in accordance with the Air Quality Bureau's Modeling Guidelines.	

Check each box that applies:

☐ See attached, approved modeling **waiver for all** pollutants from the facility.
☐ See attached, approved modeling **waiver for some** pollutants from the facility.
☐ Attached in Universal Application Form 4 (UA4) is a **modeling report for all** pollutants from the facility.
☐ Attached in UA4 is a **modeling report for some** pollutants from the facility.
☑ No modeling is required.

The content of Section 16 is required for permit applications submitted under 20.2.72 or 20.2.74 NMAC. Since Holloman AFB has not modified its facility in such a manner as to require air dispersion modeling under 20.2.72 NMAC since 2008, NMED AQB required that air dispersion modeling be submitted as part of the 2015 Title V renewal permit application. NMED AQB implemented a Compliance Plan under Holloman AFB's Title V Permit No. P105-R2-M2 Section A113 to address the request for air dispersion modeling. The previously submitted 2015 modeling effort and report met these requirements.

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Section 17

Compliance Test History

(submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

To show compliance with existing NSR permits conditions, you must submit a compliance test history. The table below provides an example.

Holloman AFB holds two permits under 20.2.72 NMAC, NSR Permit Nos. 1508C-M2R4 and 1508-M2R3. Neither of these permits list compliance testing requirements; however, compliance testing is required under the existing Title V Permit. Holloman AFB has chosen to present the Title V compliance testing in the table below.

Compliance Test History Table

Unit No.	Test Description	Test Date
22100, 22101, 22102	Vapor balancing system performance testing required pursuant to 40 CFR 63.11120(a), NESHAP for Gasoline Dispensing Facilitites (GDFs) and Section A1607.B.4 of Operating Permit No. P105-R2.	6/21/2011 and 6/22/2011
22100, 22101, 22102	Vapor balancing system performance testing required pursuant to 40 CFR 63.11120(a), NESHAP for Gasoline Dispensing Facilitites (GDFs) and Section A1607.B.4 of Operating Permit No. P105-R2-M2.	6/10/2014
22100, 22101, 22102	Vapor balancing system performance testing required pursuant to 40 CFR 63.11120(a), NESHAP for Gasoline Dispensing Facilities (GDFs) and Section A1607.B.4 of Operating Permit No. P105-R3	6/6/2017
22100, 22101, 22102	Vapor balancing system performance testing required pursuant to 40 CFR 63.11120(a), NESHAP for Gasoline Dispensing Facilities (GDFs) and Section A1607.B.4 of Operating Permit No. P105-R3.	6/2/2020

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Section 18

Addendum for Streamline Applications

Do not print this section unless this is a streamline application.

Streamline Applications do not require a complete application. Submit Sections 1-A, 1-B, 1-D, 1-F, 1-G, 2-A, 2-C thru L, Sections 3 thru 8, Section 13, Section 18, Section 22, and Section 23 (Certification). Other sections may be required at the discretion of the Department. 20.2.72.202 NMAC Exemptions do not apply to Streamline sources. 20.2.72.219 NMAC revisions and modifications do not apply to Streamline sources, thus 20.2.72.219 type actions require a complete new application submittal. Please do not print sections of a streamline application that are not required.

Holloman AFB is not submitting a streamline application; therefore, this section is not applicable.

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Section 19

Requirements for Title V Program

Do not print this section unless this is a Title V application.

Who Must Use this Attachment:

* Any major source as defined in 20.2.70 NMAC.
* Any source, including an area source, subject to a standard or other requirement promulgated under Section 111 - Standards of Performance for New Stationary Sources, or Section 112 Hazardous Air Pollutants, of the 1990 federal Clean Air Act ("federal Act"). Non-major sources subject to Sections 111 or 112 of the federal Act are exempt from the obligation to obtain an 20.2.70 NMAC operating permit until such time that the EPA Administrator completes rulemakings that require such sources to obtain operating permits. In addition, sources that would be required to obtain an operating permit solely because they are subject to regulations or requirements under Section 112(r) of the federal Act are exempt from the requirement to obtain an Operating Permit.
* Any Acid Rain source as defined under title IV of the federal Act. The Acid Rain program has additional forms. See http://www.nmenv.state.nm.us/aqb/index.html. Sources that are subject to both the Title V and Acid Rain regulations are encouraged to submit both applications simultaneously.
* Any source in a source category designated by the EPA Administrator ("Administrator"), in whole or in part, by regulation, after notice and comment.

19.1 - 40 CFR 64, Compliance Assurance Monitoring (CAM) (20.2.70.300.D.10.e NMAC)

Any source subject to 40CFR, Part 64 (Compliance Assurance Monitoring) must submit all the information required by section 64.7 with the operating permit application. The applicant must prepare a separate section of the application package for this purpose; if the information is already listed elsewhere in the application package, make reference to that location. Facilities not subject to Part 64 are invited to submit periodic monitoring protocols with the application to help the AQB to comply with 20.2.70 NMAC. Sources subject to 40 CFR Part 64, must submit a statement indicating your source's compliance status with any enhanced monitoring and compliance certification requirements of the federal Act.

Holloman AFB is not subject to 40 CFR 64.

19.2 - Compliance Status (20.2.70.300.D.10.a & 10.b NMAC)

Describe the facility's compliance status with each applicable requirement at the time this permit application is submitted. This statement should include descriptions of or references to all methods used for determining compliance. This statement should include descriptions of monitoring, recordkeeping and reporting requirements and test methods used to determine compliance with all applicable requirements. Refer to Section 2, Tables 2-N and 2-O of the Application Form as necessary. (20.2.70.300.D.11 NMAC) For facilities with existing Title V permits, refer to most recent Compliance Certification for existing requirements. Address new requirements such as CAM, here, including steps being taken to achieve compliance.

Based on information and belief formed after reasonable inquiry, Holloman AFB certifies that it is in compliance with each applicable requirement.

20.2.7 NMAC – Excess Emissions During Malfunction, Startup, or Scheduled Maintenance

Holloman AFB is required to report incidences of excess emissions and will do so in accordance with applicable regulations. Holloman AFB verifies compliance with this regulation through recordkeeping and emissions tracking for its permitted sources.

20.2.8 NMAC – Emissions Leaving New Mexico

Holloman AFB is required to ensure that emissions leaving the State of New Mexico shall not exceed the standards and regulations of the receiving state. The dispersion modeling that Holloman AFB conducted for its construction permit applications and this Title V renewal application demonstrated that emissions did not cause or contribute to an exceedance of any National Ambient Air Quality Standard. Since the ambient concentrations associated with source emissions decrease with distance from the source, Holloman AFB has ensured that its emissions do not exceed the standards or regulations of bordering states.

20.2.60 NMAC – Open Burning

Holloman AFB has applied for and received permits for open burning activities conducted at the Base. Holloman AFB conducts all open burning activities in compliance with the provisions of those permits.

20.2.61 NMAC – Regulation to Control Smoke and Visible Emissions

Only 20.2.61 NMAC (109), (110)(A), and (111) are applicable to sources at Holloman AFB. Holloman AFB has equipment maintenance procedures in place to minimize smoke and visible emissions. There are a combination of Air Force Instructions and Policies, federal requirements, and permit conditions that require routine equipment maintenance, records of this maintenance, and Method 9 monitoring. Holloman AFB uses pipeline natural gas for external combustion units. For emergency and fire pump engines visible emission tests are conducted by Method 9 certified personnel at the frequency prescribed by the current Title V permit.

20.2.65 NMAC – Smoke Management

Holloman AFB meets the smoke management requirements for open burning activities conducted at the Base. Holloman AFB conducts all open burning activities in compliance with the provisions of smoke management requirements.

20.2.70 NMAC – Operating Permits

Holloman AFB is a major source as defined in 20.2.70 NMAC. Holloman AFB currently operates under Permit No. P105-R2-M2 issued on 23 May 2014 and is in compliance with applicable requirements and conditions as certified in the most recent Annual Compliance Certification submitted to NMED AQB.

20.2.72 NMAC – Permits

Holloman AFB has applied for construction permits for all sources that exceed the applicability threshold for 20.2.72.200.A and 20.2.72.200.C NMAC. Holloman AFB has been issued two permits pursuant to 20.2.72 NMAC and operates the regulated facilities in accordance with applicable provisions of these permits. NSR Permit Nos. 1508C-M2R4 and 1508-M2R4, both issued on 3 April 2014.

20.2.73 NMAC – Notice of Intent and Emissions Inventory Requirements

Holloman AFB has complied with 20.2.73.300 NMAC Emission Inventory Requirements on the schedule requested by AQB; due to AQB annually on April 1st every year. Compliance with this requirement is demonstrated by maintaining records of the submitted emissions inventories. In addition, copies of the past inventories can be accessed via AQB's Air Emissions Inventory Reporting (AEIR) tool.

20.2.74 NMAC – Permits, Prevention of Significant Deterioration (PSD)

This regulation is currently not applicable to Holloman AFB because Holloman AFB has federally enforceable permit limits below the PSD major source threshold. Holloman AFB does not have the potential to emit more than 250 tpy of any criteria pollutant and is, by definition, a minor source under PSD rules. In the past, Holloman AFB had received the required PSD permit (NSR Permit No. 1508) for its jet engine test facilities and operated in compliance with the applicable conditions of this permit. As more actual operating data was collected for the jet engine test facilities, it was identified that they routinely operate well below the PSD threshold; subsequently a permit modification was requested to reduce the permit limits resulting in NSR Permit No. 1508-M2 issued 19 November 2008. Holloman AFB currently operates at levels that are below the major PSD threshold and all modifications to operations at the Base are reviewed to determine whether the action affects its PSD status.

20.2.77 NMAC – New Source Performance Standards (NSPS)

New Mexico has adopted NSPS promulgated by the EPA in 40 CFR 60 through 23 September 2013. The only NSPSs that are currently applicable to Holloman AFB's operations are 40 CFR 60 Subpart A: General Provisions, 40 CFR 60 Subpart IIII: Stationary Compression Ignition Internal Combustion Engines, and 40 CFR Subpart JJJJ: Stationary Spark Ignition Internal Combustion Engines .

Holloman AFB has installed sources to which parts of a NSPS apply; therefore, Holloman AFB must also meet the general provisions in 40 CFR 60 Subpart A. Those provisions in 40 CFR 60.7 include recordkeeping and notification with which Holloman AFB has complied.

Holloman AFB operates compression and spark ignition emergency engines that meet the applicability requirements of 40 CFR 60 Subpart IIII and JJJJ, respectively. All emergency engines are fitted with a non-resettable hour meter prior to startup. Emergency engines are only operated during emergency situations and for maintenance purposes. These generators use diesel fuel that meet the requirements of 40 CFR 80.5 10 (a). Holloman AFB ensures that these engines are operated and configured according to the manufacturer's specifications. Holloman AFB maintains all records of engine manufacturer data and control device vendor data indicating compliance with the standards, as applicable.

20.2.78 NMAC – National Emission Standards for Hazardous Air Pollutants

New Mexico has adopted NESHAPs promulgated by the EPA in 40 CFR 61 through 28 January 2021. Holloman AFB complies with the applicable portions of Subpart M. Holloman AFB evaluates all demolition and renovation activities prior to commencement and complies with all requirements of this NESHAP.

20.2.80 NMAC – Stack Height Requirements

Holloman AFB has taken 20.2.80 NMAC into consideration for any ambient air quality modeling it has performed in the past and will continue to do so for future modeling requirements.

20.2.82 NMAC – National Emission Standards for Hazardous Air Pollutants

New Mexico has adopted NESHAPs promulgated by the EPA in 40 CFR 63 through 28 January 2021. The only NESHAPs that are currently applicable to Holloman AFB's operations are 40 CFR 63 Subpart A: General Provisions; Subpart ZZZZ: HAPs from Stationary RICE; Subpart BBBBBB: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities; and Subpart CCCCCC: Gasoline Dispensing Facilities. Holloman AFB is not a major source with respect to Title III of the Clean Air Act Amendments of 1990 and is not subject to any major source MACT standards enacted under 40 CFR 63.

Holloman AFB operates emergency compression ignition (CI) and spark ignition (SI) internal combustion engines that are subject to requirements of 40 CFR 63 Subpart ZZZZ. Holloman AFB is an area source as defined by § 63.6585. All emergency engines are fitted with a non-resettable hour meter prior to startup. Emergency engines are only operated during emergency situations and for maintenance purposes. Holloman AFB ensures that these engines are operated and configured according to the manufacturer's specifications.

Holloman AFB maintains copies of the required notifications submitted pursuant to 40 CFR 63 Subpart BBBBBB and Subpart CCCCCC. Holloman AFB maintains copies of the results from the testing required under § 63.11120(a). Holloman AFB maintains the required records to demonstrate compliance with submerged filling heights for the affected gasoline storage tanks. Holloman AFB implements standard operating procedures in accordance with §§ 63.11085 and 63.11116(a) to ensure that gasoline is handled in a manner that minimizes emissions to the atmosphere.

40 CFR 68 – 112(r) Accidental Release Provisions

Holloman AFB used to manage chlorine in amounts that trigger the provisions of 40 CFR 68 and maintained/implemented the required risk management plan. Holloman AFB modified its management practices and submitted a de-registration form to EPA in September 2013. Currently Holloman AFB does not store more than a threshold quantity of a regulated substance in a process, as determined under 40 CFR 68.115.

40 CFR 80 – Regulation of Fuels and Fuel Additives

Holloman AFB meets the definition of a wholesale purchaser-consumer as defined in 40 CFR 80. The gasoline dispensing operations at Holloman AFB comply with the dispensing nozzle design and flow-rate restrictions of 40 CFR 80.22. Gasoline and diesel fuel dispensed by Holloman AFB comply with the requirements specified in 40 CFR 80.27 and 80.29. Holloman AFB does not "additize" its gasoline, as prohibited in 40 CFR 80.155.

40 CFR 82 – Protection of Stratospheric Ozone

Subpart B of 40 CFR 82 is applicable to Holloman AFB because it services and repairs air conditioners in its fleet vehicles. Holloman AFB is in compliance with 40 CFR 82.34 because Holloman AFB uses approved refrigerant recycling equipment and repairs are performed by certified technicians. Holloman AFB is in compliance with 40 CFR 82.42: Certification, Recordkeeping and Public Notification requirements. Holloman AFB has kept records confirming that all personnel performing air conditioner servicing are trained and certified technicians in accordance with Section 82.40. Holloman AFB also maintains records of the refrigerant recycled and the name and address of the facility where the recycled refrigerant is sent.

Subpart F of 40 CFR 82 applies to stationary air conditioning equipment service and repair operations. The equipment and technician training requirements of this subpart are identical to those of Subpart B; Holloman AFB is in compliance with these requirements. Subpart F also specifies required disposal and servicing practices (40 CFR 82.156) and prohibits the following actions (40 CFR 82.154):

- Intentional release of any Class I or Class II ozone depleting compound during the maintenance, servicing, repair, or disposal of refrigeration appliances; and
- Altering the design of certified refrigerant recycling or recovery equipment in a way that would affect the equipment's ability to meet the certification standards.

Holloman AFB has not conducted any operations that violate these prohibitions.

Subpart G of 40 CFR 82 prohibits the use of a substitute for a Class I or Class II ozone depleting compound that the user knows or has reason to know was manufactured, processed, or imported in violation of the EPA's Significant New Alternatives Policy (SNAP). This section also prohibits the use of a substitute without adhering to any use restrictions set out by EPA's acceptability decision for that substitute. Holloman AFB currently is not using any unapproved ODC substitute compounds.

Subpart H of 40 CFR 82 affects halon systems. This rule specifies that no person may:

- Sell a product containing a blend of two or more halon compounds;
- Release any halon compound (except for de minimis releases, as defined within the regulation); or
- Dispose of any halon except by sending to a manufacturer, fire equipment dealer, or recycler that operates in accordance with National Fire Protection Association (NFPA) 10 and NFPA 12A standards.

This subpart also requires any organization with halon-containing equipment to provide training for any technicians that maintain or operate such equipment. Holloman AFB complies with applicable portions of 40 CFR 82 Subpart H.

NSR Permit No. 1508-M2R5 – Jet Engine Test Facility Construction Permit

On 19 November 2008 Holloman AFB received Permit No. 1508-M2 authorizing the modification and operation of the Jet Engine Test Facility. The following permit revisions added exempt equipment pursuant to 20.2.72.202.B NMAC: Permit No. 1508-M2R1 received on 7 April 2009; Permit No, 1508-M2R2 received on 20 December 2010; Permit No. 1508-M2R3 received on 24 June 2013; Permit No. 1508-M2R4 received on 14 November 2013; and Permit No. 1508-M2R5 received on 23 May 2014. NSR Permit No. 1508-M2R5 is in an older NMED AQB permit format than Holloman AFB's current Title V Permit; as a result, there are some minor differences in the language contained in the specific NSR permit conditions. Therefore, the NSR Specific and General Conditions are listed below rather than referencing the most recent Annual Compliance Certification submitted to NMED AQB. Holloman AFB certifies compliance with the following permit conditions:

Section I - Condition No. 1 – Revision and Operation

Holloman AFB continues to operate the jet engine test facilities in accordance with the revised permit issued on 19 November 2008. Holloman AFB has met the permitting requirements of 20.2.74 NMAC.

Section I - Condition No. 2 – Emission Limits

Condition No. 2 in the permit relates to emission limits for VOC, NO_x, CO, SO_2, TSP, PM_{10} and $PM_{2.5}$ from the jet engine test facilities. Holloman AFB complies with these restrictions and maintains records to demonstrate compliance.

Section I - Condition No. 3 – Monitoring

Holloman AFB monitors jet engine test facility operations as required by this permit condition and maintains records to demonstrate compliance.

Section I - Condition No. 4 – Recordkeeping

Holloman AFB maintains records of all jet engine test facility operations as required by this permit condition.

Section I - Condition No. 5 – Reporting

Holloman AFB generates emission reports in accordance with the provisions of this permit condition. Holloman AFB has reported any changes that have occurred, as required by the permit.

Section I - Condition No. 6 – Compliance Tests

Compliance tests have not been required for the jet engine test facilities.

Section II – Condition No. 1 – Reporting

Holloman AFB has submitted notifications as applicable to the AQB in accordance with the provisions of this permit condition. Holloman AFB has not had any change of operators of the jet engine test facilities.

Section II – Condition No. 2 – Records Retention

Records are maintained on-site and made available upon request by the AQB, as required by this permit condition.

Section II – Condition No. 3 – Posting/Retention of the Permit

Holloman AFB has a copy of its permit available at the plant site for review by AQB personnel at their request.

Section II – Condition No. 4 – Right to Access Property and Review Records

Holloman AFB has granted and will continue to grant access to EPA or the AQB, upon request, to the jet engine test facilities and the required records for these facilities.

Section II – Condition No. 5 – Contents of Permit Application

Holloman AFB operates their permitted activities and equipment as described in the applicable applications. There are no changes in the parameters used for the applicable air dispersion modeling.

Section II – Condition No. 6 – Asbestos Demolition

In the case of any planned asbestos demolition or renovation work, Holloman AFB will determine whether 40 CFR 61 Subpart M applies and will submit a notification to AQB if required.

Section II – Condition No. 7 – Revisions and Modifications

Holloman AFB has not made any physical changes or changes in the method of operation of any permitted facility.

Section II – Condition No. 8 – Notification to Subsequent Owners

Holloman AFB has not had any change of control or ownership of this facility.

Section II – Condition No. 9 – Permit Cancellations

Holloman AFB accepts the terms of permit cancellations described in this condition.

Section II – Condition No. 10 – Emission Limit Averaging Times and Energy Input Limits

Holloman AFB accepts the terms described in this condition.

Section II – Condition No. 11 – Testing and Records for Engines and Turbines Equipped with Emissions Controls

The permitted engines do not have emission control devices.

Section II – Condition No. 12 – Operation of Engines with Catalytic Converters

The permitted engines do not have catalytic converters.

Section II – Condition No. 13 – Flares

Flares are not used at Holloman AFB.

Section II – Condition No. 14 – Compliance Testing Procedures

No compliance tests have been required for the permitted facilities.

Section II – Condition No. 15 – Compliance Test Submittals

No compliance tests have been required for the permitted facilities.

Section II – Condition No. 16 – General Monitoring/Compliance Testing Requirements

To date, no sampling has been required.

Section II – Condition No. 17 – Definitions

Holloman AFB accepts the definitions as stated in this condition.

NSR Permit No. 1508C-M2R5 – Paint Booths, Storage Tanks, and Heaters located at Holloman AFB

On 6 April 2009 Holloman AFB received Permit No. 1508C-M2 authorizing the modification and operation of the permitted Paint Booths, Storage Tanks, and Heaters. On 29 October 2009 Permit No. 1508C-M2R1 was issued to authorize the construction of two 8,000-gallon AVGAS storage tanks. On 3 July 2013 Permit No. 1508C-M2R3 was issued to authorize the removal of four AVGAS storage tanks that were proposed but never installed. On 3

April 2014 Permit No. 1508C-M2R4 was issued to authorize the removal of one paint booth, EU ID 21015, since the paint booth was dismantled and removed. Holloman AFB certified compliance with the Specific and General Conditions of NSR Permit No. 1508C-M2R5 in its Annual Compliance Certifications.

19.3 - Continued Compliance (20.2.70.300.D.10.c NMAC)

Provide a statement that your facility will continue to be in compliance with requirements for which it is in compliance at the time of permit application. This statement must also include a commitment to comply with other applicable requirements as they come into effect during the permit term. This compliance must occur in a timely manner or be consistent with such schedule expressly required by the applicable requirement.

Holloman AFB will maintain compliance with the conditions of this permit modification through recordkeeping, emission calculations, equipment maintenance, and the continued implementation of the Operational Plan to Mitigate Emissions of this application. Holloman AFB will ensure continued compliance with air quality regulations through reviewing new air quality regulations as they are proposed and implemented, finding opportunities to use new emission reduction techniques and technology as appropriate and applicable, and reviewing all proposed projects basewide to ensure that all potential air quality permitting, permit modification and notification requirements are met. If Holloman AFB becomes subject to new federal air quality regulations during the term of the operating permit, it will comply with the applicable requirements on the schedule presenting in the applicable rule and will modify the operating permit to include the applicable requirements.

19.4 - Schedule for Submission of Compliance (20.2.70.300.D.10.d NMAC)

You must provide a proposed schedule for submission to the department of compliance certifications during the permit term. This certification must be submitted annually unless the applicable requirement or the department specifies a more frequent period. A sample form for these certifications will be attached to the permit.

Holloman AFB submits compliance certification forms to the NMED AQB annually on January 30th as required by Condition A109.B of Permit No. P105-R2-M2. Holloman AFB submits reports of required monitoring activities to the AQB semiannually on February 14th and August 14th as required by Condition A109.A of Permit No. P105-R3 Holloman AFB does not propose to modify this reporting schedule.

19.5 - Stratospheric Ozone and Climate Protection

In addition to completing the four (4) questions below, you must submit a statement indicating your source's compliance status with requirements of Title VI, Section 608 (National Recycling and Emissions Reduction Program) and Section 609 (Servicing of Motor Vehicle Air Conditioners).

---

1. Does your facility have any air conditioners or refrigeration equipment that uses CFCs, HCFCs or other ozone-depleting substances? ☑ **Yes** ☐ **No**

2. Does any air conditioner(s) or any piece(s) of refrigeration equipment contain a refrigeration charge greater than 50 lbs? ☑ **Yes** ☐ **No**

   (If the answer is yes, describe the type of equipment and how many units are at the facility.)

3. Do your facility personnel maintain, service, repair, or dispose of any motor vehicle air conditioners (MVACs) or appliances ("appliance" and "MVAC" as defined at 82. 152)? ☑**Yes** ☐ **No**

4. Cite and describe which Title VI requirements are applicable to your facility (i.e. 40 CFR Part 82, Subpart A through G.) **See Below**

Regulation Citation	Brief Description	Comments on Applicability
40 CFR 82 Subpart A	Production and Consumption Controls	This subpart does not apply to Holloman AFB operations except as referred to by other applicable subparts.
40 CFR 82 Subpart B	Servicing of Motor Vehicle Air Conditioners (MVAC)	This subpart applies to some operations at Holloman AFB servicing MVAC
40 CFR 82 Subpart C	Ban on Nonessential Products Containing Class I Substances and Ban on Non-essential Products Containing or Manufactured with Class II Substances	This subpart does not apply to Holloman AFB operations.
40 CFR 82 Subpart D	Federal Procurement	The US Air Force complies with this subpart.
40 CFR 82 Subpart E	The Labeling of Products Using Ozone-Depleting Substances	This subpart does not apply to Holloman AFB operations.
40 CFR 82 Subpart F	Recycling and Emission Reduction	This subpart applies to some operations at Holloman AFB servicing refrigeration equipment and disposing of refrigeration equipment.
40 CFR 82 Subpart G	Significant New alternatives Policy Program	Holloman AFB uses substitutes for Class I and II ODS when possible.

19.6 - Compliance Plan and Schedule

Applications for sources, which are not in compliance with all applicable requirements at the time the permit application is submitted to the department, must include a proposed compliance plan as part of the permit application package. This plan shall include the information requested below:

A. Description of Compliance Status: (20.2.70.300.D.11.a NMAC)
A narrative description of your facility's compliance status with respect to all applicable requirements (as defined in 20.2.70 NMAC) at the time this permit application is submitted to the department.

B. Compliance plan: (20.2.70.300.D.11.B NMAC)
A narrative description of the means by which your facility will achieve compliance with applicable requirements with which it is not in compliance at the time you submit your permit application package.

C. Compliance schedule: (20.2.70.300D.11.c NMAC)
A schedule of remedial measures that you plan to take, including an enforceable sequence of actions with milestones, which will lead to compliance with all applicable requirements for your source. This schedule of compliance must be at least as stringent as that contained in any consent decree or administrative order to which your source is subject. The obligations of any consent decree or administrative order are not in any way diminished by the schedule of compliance.

D. Schedule of Certified Progress Reports: (20.2.70.300.D.11.d NMAC)

A proposed schedule for submission to the department of certified progress reports must also be included in the compliance schedule. The proposed schedule must call for these reports to be submitted at least every six (6) months.

E. Acid Rain Sources: (20.2.70.300.D.11.e NMAC)
If your source is an acid rain source as defined by EPA, the following applies to you. For the portion of your acid rain source subject to the acid rain provisions of title IV of the federal Act, the compliance plan must also include any additional requirements under the acid rain provisions of title IV of the federal Act. Some requirements of title IV regarding the schedule and methods the source will use to achieve compliance with the acid rain emissions limitations may supersede the requirements of title V and 20.2.70 NMAC. You will need to consult with the Air Quality Bureau permitting staff concerning how to properly meet this requirement.

NOTE: The Acid Rain program has additional forms. See http://www.nmenv.state.nm.us/aqb/index.html. Sources that are subject to both the Title V and Acid Rain regulations are **encouraged** to submit both applications **simultaneously**.

This section is not applicable to Holloman AFB. Holloman AFB is in compliance with all applicable air quality regulations at the time of this permit application submittal.

19.7 - 112(r) Risk Management Plan (RMP)

Any major sources subject to section 112(r) of the Clean Air Act must list all substances that cause the source to be subject to section 112(r) in the application. The permittee must state when the RMP was submitted to and approved by EPA.

Holloman AFB used to manage chlorine in amounts that trigger the provisions of 40 CFR 68 and maintained/implemented the required risk management plan. Holloman AFB modified its management practices and submitted a de-registration form to EPA in September 2013. Currently Holloman AFB does not store more than a threshold quantity of a regulated substance in a process, as determined under 40 CFR 68.115.

19.8 - Distance to Other States, Bernalillo, and Class I Areas

Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B NMAC)?

(If the answer is yes, state which apply and provide the distances.)

The northeastern corner of the Holloman AFB facility boundary is located 45.26 kilometers from the southwestern section of the White Mountain Wilderness Area identified as a Class I Area on the *Class I Areas within 100 kilometers of New Mexico* map available on the NMED AQB website at: http://www.nmenv.state.nm.us/aqb/modeling/

19.9 - Responsible Official

Provide the Responsible Official as defined in 20.2.70.7.AD NMAC:

Colonel Ryan P. Keeney
Commander, 49 WG
490 1st Street, Suite 1700
Holloman AFB, NM 88330-8277
Phone: (575) 572-4901
e-mail: ryan.keeney@us.af.mil

Section 20

Other Relevant Information

Other relevant information. Use this attachment to clarify any part in the application that you think needs explaining. Reference the section, table, column, and/or field. Include any additional text, tables, calculations or clarifying information.

Additionally, the applicant may propose specific permit language for AQB consideration. In the case of a revision to an existing permit, the applicant should provide the old language and the new language in track changes format to highlight the proposed changes. If proposing language for a new facility or language for a new unit, submit the proposed operating condition(s), along with the associated monitoring, recordkeeping, and reporting conditions. In either case, please limit the proposed language to the affected portion of the permit.

Holloman AFB has included a tracked changes version of Operating Permit No. P105-R3 to present the proposed updates and changes to the operating permit. A copy of the marked-up version is given below. It is also provided as a separate MS Word file.

New Mexico
ENVIRONMENT DEPARTMENT

525 Camino de los Marquez Suite 1
Santa Fe, NM 87505-1816
Phone (505) 476-4300
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BUTCH TONGATE
CABINET SECRETARY

JC BORREGO
DEPUTY SECRETARY

Air Quality Bureau
TITLE V OPERATING PERMIT
Issued under 20.2.70 NMAC

Certified Mail No: 7013 2630 0000 9073 8625
Return Receipt Requested

Operating Permit No:	P105-~~R3~~R4
Facility Name:	Holloman Air Force Base
Facility Owner/Operator:	U.S. Air Force 49th Fighter Wing
Permittee Name:	United States Air Force
Mailing Address:	550 Tabosa Ave. Holloman AFB, New Mexico 88330-8458
TEMPO/IDEA ID No:	942- PRT20150001
AIRS No:	35-035-0013
Permitting Action:	Title V Permit Renewal
Source Classification	Major Title V and PSD Synthetic Minor
Facility Location:	UTM E 399000 m, UTM N 3634000 m, Zone 13
County:	Otero; **Datum:** WGS84
Air Quality Bureau Contact:	Joseph Kimbrell
Main AQB Phone No.	(505) 476-4300
TV Permit Expiration Date:	~~March 17, 2022~~
TV Renewal Application Due:	~~March 17, 2021~~

____
Richard L. Goodyear, PE
Bureau Chief
Air Quality Bureau

~~March 17, 2017~~
Date

Template version: 1/25/17

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PART B GENERAL CONDITIONS (Attached)

PART C MISCELLANEOUS: Supporting On-Line Documents; Definitions;

Acronyms (Attached)

PART A FACILITY SPECIFIC REQUIREMENTS

A100 Introduction

A. Not Applicable.

A101 Permit Duration (expiration)

A. The term of this permit is five (5) years. It will expire five years from the date of issuance. Application for renewal of this permit is due twelve (12) months prior to the date of expiration. (20.2.70.300.B.2 and 302.B NMAC)

B. If a timely and complete application for a permit renewal is submitted, consistent with 20.2.70.300 NMAC, but the Department has failed to issue or disapprove the renewal permit before the end of the term of the previous permit, then the permit shall not expire and all the terms and conditions of the permit shall remain in effect until the renewal permit has been issued or disapproved. (20.2.70.400.D NMAC)

A102 Facility: Description

A. This facility is a military installation that is home to the U.S. Air Force 49th Wing, whose primary mission is to maintain the combat readiness of military aircraft and crews. Regulated air pollutant emissions from Holloman Air Force Base (AFB) are a result of training exercises and other activities associated with aircraft refueling and maintenance. Stationary sources include jet engine testing, fuel storage and distribution, and corrosion control activities. Examples of air emissions sources at Holloman AFB that are not directly related to the primary mission include boilers, emergency engines, and woodworking.

B. Holloman AFB's main gate is located approximately 7 miles southwest of the intersection of S. White Sands Blvd and Panorama Blvd in Alamogordo, New Mexico in Otero County. This facility is a stationary source and not allowed to relocate. (20.2.70.302. A(7) NMAC)

C. This renewal will incorporate typographical, administrative and minor modifications, to include the removal of and updates to emission units as listed below:

- Removal of the Wisconsin gasoline fired barrier rewind engines, EU Numbers 19604, 19605, 19610, and 19611 (four engines total).~~of the following emission units:~~
  - ~~One abrasive blaster, emission unit identification number (EU ID) 10013;~~
  - ~~One landfarm activity, EU ID 12011;~~
- Removal of EU 19348 (Diesel standby engine at Building 871)

- ~~Four diesel internal combustion barrier rewind engines, EU IDs 19612 through 19615;~~
- ~~Miscellaneous Surface Coating source category, EU ID 21999; and~~
- ~~Fuel Equipment Leaks source category, EU ID 34001.~~

- ~~Update to the following emission units:~~Addition of sixteen (16) diesel standby engines; EU Numbers 19363 through 19377, and 19380
- Addition of two (2) propane standby engines; EU 19378 and 19379.

- ~~Explosive Ordnance Disposal source category name changed to Open Burning/Open Detonation and reduced the allowable annual amount of net explosive weight detonated.~~
- ~~Changed the Miscellaneous Chemical Use source category, EU ID 31999, recordkeeping requirement to be semiannual, consistent with the Cannon AFB requirements for the same source category.~~

This description of this modification is for informational purposes only and is not enforceable.

D. Table 102.A and Table 102.B show the total potential emissions from this facility for information only, not an enforceable condition, excluding insignificant or trivial activities.

Table 102.A: Total Potential Pollutant Emissions from Entire Facility

Pollutant	**Emissions (tons per year)**
Nitrogen Oxides (NOx)	~~66.4~~67.0
Carbon Monoxide (CO)	~~107.6~~106.5
Volatile Organic Compounds (VOC)	249.9
Sulfur Dioxide (SO_2)	~~18.7~~18.5
Total Suspended Particulate Matter (TSP)	~~12.4~~12.1
Particulate Matter less than 10 microns (PM_{10})	~~12.4~~12.1
Particulate Matter less than 2.5 microns ($PM_{2.5}$)	~~12.4~~12.1
Greenhouse Gas (CO_{2e})	~~67,952.2~~61,731.3

Note: Total Potential Pollutant Emissions in Table 102.A, may include fugitive emissions; routine or predictable, startup, shutdown, and maintenance emissions (SSM); and permitted malfunction allowances if these are sources of regulated air pollutants from this facility.

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Table 102.B: Total Potential Hazardous Air Pollutants (HAPs)* and State Toxic Air Pollutants (TAPs)

Pollutant	Emissions (tons per year)
Benzene	1.0
Carbon Tetrachloride	2.2
Ethylbenzene	1.~~7~~8
Formaldehyde	7.7
Methanol	5.~~2~~3
Methyl Isobutyl Ketone	~~5.7~~6.8
Methylene Chloride	~~4.0~~6.8
Phenol	2.~~2~~5
Propylene Glycol Monomethyl Ether	1.8
Toluene	~~5.8~~6.1
Xylene	9.6
Chromium VI	1.46
Total HAPs**	~~46.9~~53.1

* HAP emissions are included in the Table 102.A VOC emissions total.
** Total HAP emissions may not agree with the sum of individual HAPs because only individual HAPs emitted at a rate greater than 1.0 ton per year are listed in Table 102.B.

A103 <u>Facility: Applicable Regulations and Non-Applicable Regulations</u>

A. The permittee shall comply with all applicable sections of the requirements listed in Table 103.A.

Table 103.A: Applicable Requirements

Applicable Requirements	Federally Enforceable	Unit No.
NSR Permit Nos: 1508C-M2-R4	X	14031, 14034 to 14038, 21006 to 21011R, 21018 to 21024, 22105.
NSR Permit Nos: 1508-M2, 1508-M2-R1, 1508-M2-R2, 1508-M2-R3, 1508-M2-R4, M2-R5, M2-R6, M2-R7, M2-R8, M2-R9	X	20001, 20003, 20006, 20007, 20009.
20.2.1 NMAC General Provisions – other than 20.2.1.116	X	Entire Facility
20.2.2 NMAC Definitions	X	Entire Facility
20.2.7 NMAC Excess Emissions	X	Entire Facility
20.2.60 NMAC Open Burning	X	Entire Facility

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Table 103.A: Applicable Requirements

Applicable Requirements	Federally Enforceable	Unit No.
20.2.61 NMAC Smoke and Visible Emissions	X	All combustion sources listed in sections A700, A900, A1200, and A1300~~, A1700, and A1800~~ of this permit.
20.2.65 NMAC Open Burning Smoke and Visible Emissions	X	Entire Facility
20.2.70 NMAC Operating Permits	X	Entire Facility
20.2.71 NMAC Operating Permit Emission Fees	X	Entire Facility
20.2.72 NMAC Construction Permit	X	14031, 14034 to 14038, 21006 to 21011R, 21018 to 21024, 22105, 20001, 20003, 20006, 20007, 20009.
20.2.73 NMAC Notice of Intent and Emissions Inventory Requirements	X	Entire Facility
20.2.77 NMAC New Source Performance	X	Units subject to 40 CFR 60, Subpart IIII and Subpart JJJJ.
20.2.78 NMAC NESHAPs	X	Units subject to 40 CFR 61, Subpart M
20.2.82 NMAC MACT Standards for Source Categories of HAPS	X	Units subject to 40 CFR 63, Subparts ZZZZ, BBBBBB or CCCCCC.
40 CFR 50 National Ambient Air Quality Standards	X	Entire Facility
40 CFR 60, Subpart A, General Provisions	X	Units subject to Subpart IIII and Subpart JJJJ.
40 CFR 60, Subpart IIII, Stationary CI ICE	X	19210, 19300, 19302, 19331 to 19362, 19364 to 19369, 19373 to 19377, and 19380 to19405.
40 CFR 63, Subpart A, General Provisions	X	Units subject to Subparts ZZZZ, BBBBBB, or CCCCCC.
40 CFR 63, Subpart ZZZZ, HAPs from Stationary RICE	X	19363, 19370, 19371, 19372, 19406, 19602, 19603, 19608, and 19609. ~~and 19600 to 19611.~~
40 CFR 63, Subpart BBBBBB, Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities	X	16004, 22002.
40 CFR 63, Subpart CCCCCC, Gasoline Dispensing Facilities	X	15001, 15004, 15011, 15013, 15014, 22100, 22101, 22102, 22110, 22054, 22014R, 22058.
40 CFR 80, Subpart A, General Provisions	X	Units subject to Subparts B and/or C.
40 CFR 80, Subpart B, Controls and Prohibitions	X	15001, 15004, 15011, 15013, 15014.
40 CFR 80, Subpart C, Oxygenated Gasoline	X	15001
40 CFR 82, Subpart B, Servicing of Motor Vehicle Air Conditioners (MVAC)	X	Entire Facility

Table 103.A: Applicable Requirements

Applicable Requirements	Federally Enforceable	Unit No.
40 CFR 82, Subpart D, Federal Procurement	X	Entire Facility
40 CFR 82, Subpart F, Recycling and Emission Reduction	X	Entire Facility
40 CFR 82, Subpart G, Significant New Alternative Policy Program	X	Entire Facility
40 CFR 82, Subpart H, Halon Emissions Reduction	X	Entire Facility

B. Table 103.B lists requirements that are **not** applicable to this facility. This table includes only those requirements cited in the application as applicable and determined by the Department to be not applicable. Applicable regulations that do not impose any specific requirements on the operation of this facility as described in this permit are also listed in Table 103.B.

Table 103.B: Non-Applicable Requirements

Non-Applicable Requirements	(1)	(2)	Justification
20.2.3 NMAC Ambient Air Quality Standards	X		Not an applicable requirement under Title V according to 20.2.3.9 NMAC.
20.2.5 NMAC Source Surveillance		X	
20.2.8 NMAC Emissions Leaving New Mexico		X	
20.2.75 NMAC Construction Permit Fees		X	Applies only to NSR permit fees.
20.2.80 NMAC Stack Heights	X		
40 CFR 61, Subpart M, Asbestos		X	Applicable when Holloman AFB conducts asbestos demolition and removal projects.

(1) Not Applicable: No existing or planned operation/activity at this facility triggers the applicability of these requirements.
(2) No Requirements: Although these regulations may apply, they do not impose any specific requirements on the operation of the facility as described in this permit.

C. Compliance with the terms and conditions of this permit regarding specific source emissions and operation demonstrate compliance with national ambient air quality standards specified at 40 CFR 50, which were applicable at the time air dispersion modeling was performed for the facility's NSR Permits 1508-M2 and 1508C-M2. This compliance demonstration applies only to those sources included in the modeling analyses.

A104 Facility: Regulated Sources

A. Source category specific Regulated Equipment Tables are included in sections A700 through A2000 under the Equipment Specific Requirements part of this permit. The Regulated

Equipment Tables list all of the process equipment authorized for this facility. Emission units that were identified as insignificant or trivial activities (as defined in 20.2.70.7 NMAC) and equipment not regulated pursuant to the Act are not included.

A105 Facility: Control Equipment

A. Source category specific Control Equipment Tables are included in sections A701 through A2001 under the Equipment Specific Requirements part of this permit. The Control Equipment Tables list all the pollution control equipment required for this facility. Each emission point is identified by the same number that was assigned to it in the permit application.

A106 Facility: Allowable Emissions

A. Source category specific Allowable Emissions are established in sections A602 through A2102 under the Equipment Specific Requirements part of this permit. Table 106.A below shows a summary of these emission limits, which are subject to permit fees. (40 CFR 50; Paragraphs 1, 7, and 8 of 20.2.70.302.A NMAC and NSR Permits 1508-M2, 1508-M2-R1, 1508-M2-R2, 1508-M2-R3, 1508-M2-R4, 1508-M2-R5,and 1508C-M2-R4).

Table 106.A: Facility: Allowable Emissions

Source Category (Section No.)	NOx pph	NO_x tpy	CO pph	CO tpy	VOC pph	VOC tpy	SO_2 pph	SO_2 tpy	TSP pph	TSP tpy	PM_{10} pph	PM_{10} tpy	$PM_{2.5}$ pph	$PM_{2.5}$ tpy
Remediation Activities (A700)	1.96	8.6	1.65	~~7.3~~7.2	0.11	*	0.04	0.2	0.15	0.7	0.15	0.7	0.15	0.7
Open Burn/Open Detonation (A800)	2.98	0.5	23.6	4.3	0.11	*	0.4	0.07	30.0	5.5	30.0	5.5	30.0	5.5
External Combustion (A900)	3.24	14.2	2.72	11.9	0.18	*	0.07	0.3	0.25	1.1	0.25	1.1	0.25	1.1
Fuel Dispensing (A1000)	-	-	-	-	6.81	*	-	-	-	-	-	-	-	-
Fuel Loading (A1100)	-	-	-	-	~~0.12~~0.12	*	-	-	-	-	-	-	-	-
Internal Combustion (A1200)	~~137.9~~207.6	~~11.2~~11.8	~~133.3~~150.0	~~9.4~~8.4	~~56.9~~49.5	*	~~34.3~~34.7	~~1.9~~1.8	~~8.7~~10.6	~~0.7~~0.6	~~8.7~~10.6	~~0.7~~0.6	~~8.7~~10.6	~~0.7~~0.6

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Source Category (Section No.)	NOx pph	NO_x tpy	CO pph	CO tpy	VOC pph	VOC tpy	SO_2 pph	SO_2 tpy	TSP pph	TSP tpy	PM_{10} pph	PM_{10} tpy	$PM_{2.5}$ pph	$PM_{2.5}$ tpy
Jet Engine Testing (A1300)	462.4	31.9	684.4	74.7	98.64	8.7 [3]	198.4	16.2	39.8	3.4	39.8	3.4	39.8	3.4
Surface Coating – Paint Booths (A1400)	-	-	-	-	~~5.96~~6.23	*	-	-	0.17	0.~~8~~7	0.17	0.~~8~~7	0.17	0.~~8~~7
Fuel Storage Tanks (A1600)	-	-		-	~~5.95~~5.73	*	-	-	-	-	-	-	-	-
Woodworking Dust Collection (A1900)	-	-	-	-	-	-	-	-	~~0.039~~ 0.04	0.2	~~0.039~~ 0.04	0.2	~~0.039~~ 0.04	0.2
Miscellaneous Chemical Use (A2000)	-	-		-	~~-~~	*	-	-	-	-	-	-	-	-
Total [4]		**~~66.4~~67.0**		**~~107.5~~ 106.5**		**249.9 [5]**		**~~18.7~~ 18.5**		**~~12.4~~12.1**		**~~12.4~~12.1**		**~~12.4~~12.1**

1 "-" indicates the application represented that emissions of this pollutant are not expected.

2 "*" The VOC emissions from each source category are included in the base-wide allowable emissions limit established in condition A106.B: 249.9 tpy VOC, 9.9 tpy per individual HAP, and 24.9 tpy of combined HAPs.

3 The VOC emissions from the jet engine testing source category must meet the limit established in NSR Permit No. 1508-M2. These VOC emissions are included in the basewide allowable emissions limit established in condition A106.B.

4 Source category and facility-wide total allowables are for information only, not enforceable conditions, and used to determine annual Operating Fees. Enforceable emission limits are found at Condition A106.B and in the emission limits tables for each source-specific section (A600 through A2100).

5 This value is the basewide allowable VOC limit established in condition A106.B.

B. Emissions from all permitted emission units at the facility, combined, shall not exceed 249.9 tons per year of volatile organic compounds, 9.9 tons per year of any individual hazardous air pollutant, or 24.9 tons per year of all hazardous air pollutants combined.

A107 Facility: Allowable Startup, Shutdown, & Maintenance and Malfunction Emissions

A. Holloman AFB has concluded that source emissions during startup and shutdown are equal to steady state emissions for all source categories in this permit. The permittee shall maintain records in accordance with Condition B109.E.

A108 Facility: Hours of Operation

A. The operating hours for this facility are established under each source category in sections A704 through A2004 under the Equipment Specific Requirements part of this permit. As applicable, monitoring, recordkeeping, and reporting provisions are specified to demonstrate compliance with allowable hours of operation that are also established under each source category in sections A704 through A2004.

A109 Facility: Reporting Schedules

A. A Semi-Annual Report of monitoring activities is due within 45 days following the end of every 6-month reporting period. The six month reporting periods start on January 1st and July 1st of each year.

B. The Annual Compliance Certification Report is due within 30 days of the end of every 12-month reporting period. The 12-month reporting period starts on January 1st of each year.

A110 Facility: Fuel Sulfur Requirements

A. Sulfur requirements are defined by source category, as applicable, in sections A705 through A2005 under the Equipment Specific Requirements part of this permit.

A111 Facility: 20.2.61 NMAC Opacity

A. Opacity requirements are defined by source category, as applicable, in sections A706 through A2006 under the Equipment Specific Requirements part of this permit.

A112 Facility-Wide Emission Limit for Volatile Organic Compounds (VOCs) and HAPs

A. All Source Categories

Requirement: The permittee has taken a voluntary facility-wide limit of 249.9 tons per year of VOCs from all source categories. The permittee has also taken a voluntary facility-wide limit for 24.9 tpy of Total HAPs and 9.9 ton per year of any individual HAP to remain an area source of HAPs. The permittee shall calculate emissions of VOC and HAP resulting from all source categories to demonstrate compliance with the facility-wide limit in Specific Conditions A106.B and A107.A.
Monitoring: The permittee shall: 1) Tabulate the actual Total Emission Rate (tons/month) for each emission limit above. 2) Calculate the Facility-Wide monthly rolling 12-month Total Emission Rate (tons/year) for each emission limit above and compare them to the emission limits of 249.9 tpy for VOC, 24.9 tpy for HAPs, and 9.9 ton per year of any individual HAP.
Recordkeeping: The permittee shall retain records of all input data and calculations used in

these compliance calculations and shall maintain these records in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

EQUIPMENT SPECIFIC REQUIREMENTS

A200 Oil and Gas Industry – Not Required

A300 Construction Industry – Not Required

A400 Power Generation Industry – Not Required

A500 Solid Waste Disposal (Landfills) Industry – Not Required

ABRASIVE BLASTING

A600 Regulated Sources – Abrasive Blasting – Not Required

REMEDIATION ACTIVITIES

A700 Regulated Sources – Remediation Activities

A. Table 700.A lists all of the process equipment authorized for this source category. Emission units that were identified as insignificant or trivial activities (as defined in 20.2.70.7 NMAC) and equipment not regulated pursuant to the Act are not included.

Table 700.A: Regulated Sources List

Unit No.	Source Description	Make Model	Serial No.	Capacity	Manufacture Date
12010	Heater / proposed Thermal Oxidizer	TBD	TBD	20 MM Btu/hr	TBD
12012	Landfarm, Site SS-59	N/A	N/A	N/A	N/A

A701 Control Equipment – Remediation Activities

A. Table 701.A lists all of the pollution control equipment required for the applicable regulated equipment in this source category. Each emission point is identified by the same number that was assigned to it in the permit application.

Table 701.A: Control Equipment List

Control Equipment Unit No.	Control Description	Pollutant being controlled	Control for Unit No.~~[1]~~
12010	TBD proposed thermal oxidizer	TBD	12010

B. Emission Unit 12010 is a proposed (not yet installed) thermal treatment system to treat fuel-contaminated soil. When this remediation system is installed, the permittee shall install a thermal oxidizer, catalytic oxidizer, or carbon adsorber to reduce the amount of VOC and HAP emitted.

A702 Emission Limits – Remediation Activities

A. Table 702.A lists the emission units, and their allowable emission limits. (40 CFR 50; Paragraphs 1, 7, and 8 of 20.2.70.302.A NMAC).

Table 702.A: Allowable Emissions

Unit No.	NOx pph	NO_x tpy	CO pph	CO tpy	VOC pph	VOC tpy	SO2 pph	SO_2 tpy	TSP pph	TSP tpy	PM_{10} pph	PM_{10} tpy	$PM_{2.5}$ pph	$PM_{2.5}$ tpy
12010	1.96	8.6	1.65	7.~~3~~2	0.11	96.2[1]	0.04	0.2	0.15	0.7	0.15	0.7	0.15	0.7
12012	-		-		*		-		-		-		-	

1 The VOC emissions from this source category are included in the base-wide allowable emissions limit established in condition A106.B: 249.9 tpy VOC, 9.9 tpy per individual HAP, and 24.9 tpy of combined HAPs.

* "*" indicates hourly emission limits are not appropriate for this operating situation.

A703 Applicable Requirements – Remediation Activities

A. The permittee shall comply with all applicable sections of the requirements listed in Table 703.A.

Table 703.A: Applicable Requirements

Applicable Requirements	Federally Enforceable	Unit No.
20.2.61 NMAC Smoke and Visible Emissions	X	12010
20.2.72 NMAC Construction Permits	X	12010

A704 Operational Limitations – Remediation Activities

A. The equipment/operations in this source category are authorized to operate any time during the year. No monitoring, recordkeeping, or reporting requirements are required to demonstrate compliance with its hours of operation.

A705 Fuel Sulfur Requirements – Remediation Activities

A. Thermal Oxidizer (Unit 12010)

Requirement: The thermal oxidizer (Unit 12010) shall combust only natural gas containing no more than 0.75 grains of total sulfur per 100 dry standard cubic feet.
Monitoring: Monitoring is achieved by recordkeeping as described below.
Recordkeeping: The permittee shall demonstrate compliance with the natural gas limit on total sulfur content by maintaining records of a current, valid purchase contract, tariff sheet

or transportation contract for the gaseous fuel, or fuel gas analysis, specifying the allowable limit or less. If fuel gas analysis is used, the analysis shall not be older than one year.
Reporting: The permittee shall report in accordance with Section B110.

A706 20.2.61 NMAC Opacity – Remediation Activities

A. Thermal Oxidizer (Unit 12010)

Requirement: Visible emissions from all stationary combustion emission stacks shall not equal or exceed an opacity of 20 percent in accordance with the requirements at 20.2.61.109 NMAC.
Monitoring: (1) Use of natural gas fuel constitutes compliance with 20.2.61 NMAC unless opacity equals or exceeds 20% averaged over a 10-minute period. When any visible emissions are observed during operation other than during startup mode, opacity shall be measured over a 10-minute period, in accordance with the procedures at 40 CFR 60, Appendix A, Reference Method 9 (EPA Method 9) as required by 20.2.61.114 NMAC, or the operator will be allowed to shut down the equipment to perform maintenance/repair to eliminate the visible emissions. (2) Following completion of equipment maintenance/repair, the operator shall conduct visible emission observations following startup in accordance with the following procedures: (a) Visible emissions observations shall be conducted over a 10-minute period during operation after completion of startup mode in accordance with the procedures at 40 CFR 60, Appendix A, Reference Method 22 (EPA Method 22). If no visible emissions are observed, no further action is required. (b) If any visible emissions are observed during completion of the EPA Method 22 observation, subsequent opacity observations shall be conducted over a 10-minute period, in accordance with the procedures at EPA Method 9 as required by 20.2.61.114 NMAC. (3) For the purposes of this condition, *Startup mode* is defined as the startup period that is described in the facility's startup plan.
Recordkeeping: (1) If any visible emissions observations were conducted, the permittee shall keep records in accordance with the requirements of Section B109 and as follows: (a) For any visible emissions observations conducted in accordance with EPA Method 22, record the information on the form referenced in EPA Method 22, Section 11.2. (2) For any opacity observations conducted in accordance with the requirements of EPA Method 9, record the information on the form referenced in EPA Method 9, Sections 2.2 and 2.4.
Reporting: The permittee shall report in accordance with Section B110.

A707 Other – Remediation Activities

A. Emission Unit 12010 shall not be constructed without first acquiring an NSR Permit as required under 20.2.72 NMAC.

B. Exhaust Characterization (Unit 12010)

Requirement: The permittee shall calculate soil thermal treatment emissions in accordance with the provisions specified in the NSR permit issued for this unit.
Monitoring: 1) The permittee shall monitor the exhaust streams or other parameters approved by the Air Quality Bureau of all soil thermal treatment systems for VOC and HAP on a monthly basis. 2) The permittee shall calculate the actual emissions rate (tons/month) for the emission units listed in Table 700.A. 3) The permittee shall calculate the monthly total and the monthly rolling 12-month total emissions rate (tons/year) for this source category and compare them to the emission limits in Table 702.A.
Recordkeeping: The permittee shall maintain records in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

C. Combustion Emissions Related to Remediation Activities (Unit 12010)

Requirement: Compliance with the allowable emission limits in Table 106.A and A702.A shall be demonstrated by ensuring proper combustion practices.
Monitoring: The permittee shall monitor the type and quantity of fuel used by emission unit 12010.
Recordkeeping: The permittee shall: 1) Maintain monthly records of fuel used in accordance with Section B109; and 2) Calculate the annual emission rate as a monthly 12-month rolling total for all pollutants resulting from fuel gas combustion.
Reporting: The permittee shall report in accordance with Section B110.

D. Landfarming (Unit 12012)

Requirement: The permittee shall calculate landfarming emissions based on the amount of soil in the landfarm and the average concentration of petroleum contaminants in the soil placed in each landfarm. The monthly total and the monthly rolling 12-month total Landfarm emissions shall be calculated using the modified Thibodeaux-Hwang model provided in the permit application, or other emission factors and calculation methods deemed acceptable by the Air Quality Bureau.
Monitoring:

1) The permittee shall monitor the amount of soil placed in its landfarms and shall monitor the concentration of total petroleum hydrocarbons, benzene, ethylbenzene, toluene, xylenes, and hexane of soil placed in each landfarm. Emissions shall be attributed to the month in which the soil was placed in the landfarm. 2) The permittee shall calculate the actual emissions rate (tons/month) for the emission units listed in Table 700.A. 3) The permittee shall calculate the monthly rolling 12-month total emissions rate (tons/year) for this source category and compare them to the emission limits in Table 702.A.
Recordkeeping: The permittee shall maintain records in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

OPEN BURNING/OPEN DETONATION

A800 Regulated Sources – Open Burning/Open Detonation

A. Table 800.A lists all of the process equipment authorized for this source category.

Table 800.A: Regulated Sources List

Unit No.	Source Description	Make Model	Serial No.	Capacity	Manufacture Date
13002	OB/OD 50lb Demolition Range	N/A	N/A	18,250 lb/yr	N/A

A801 Control Equipment – Open Burning/Open Detonation – Not Required

A802 Emission Limits – Open Burning/Open Detonation

A. Table 802.A lists the emission units, and their allowable emission limits. (40 CFR 50; Paragraphs 1, 7, and 8 of 20.2.70.302.A NMAC).

Table 802.A: Allowable Emissions

Unit No.	NO_x pph	NO_x tpy	CO pph	CO tpy	VOC pph	VOC tpy	SO_2 pph	SO_2 tpy	TSP pph	TSP tpy	PM_{10} pph	PM_{10} tpy	$PM_{2.5}$ pph	$PM_{2.5}$ tpy
13002	2.98	0.5	23.6	4.3	0.11	0.019[1]	0.4	0.07	30.0	5.5	30.0	5.5	30.0	5.5

1 The VOC emissions from this source category are included in the base-wide allowable emissions limit established in condition A106.B: 249.9 tpy VOC, 9.9 tpy per individual HAP, and 24.9 tpy of combined HAPs.

A803 Applicable Requirements – Open Burning/Open Detonation - Not Required

A804 Operational Limitations – Open Burning/Open Detonation

A. The equipment/operation in this source category is authorized to operate any time during the year. No monitoring, recordkeeping, or reporting requirements are required to demonstrate compliance with its hours of operation.

B. Throughput (Unit 13002)

Requirement: Compliance with the allowable emission limits in Table 106.A and A802.A shall be demonstrated by detonating up to 18,250 pounds per year net explosive weight.
Monitoring: The permittee shall monitor the amount of net explosive weight (NEW) detonated on a monthly rolling 12-month total basis.
Recordkeeping: The permittee shall maintain monthly records of the amount of NEW detonated. The permittee shall record a monthly rolling 12-month total of NEW detonated, and maintain all records in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

A805 Fuel Sulfur Requirements – Open Burning/Open Detonation – Not Required

A806 20.2.61 NMAC Opacity – Open Burning/Open Detonation – Not Required

A807 Other – Open Burning/Open Detonation

A. Emission calculations (Unit 13002)

Requirement: The permittee shall calculate explosive ordnance disposal emissions using the following equation: Emissions [tpy] = (NEW [lb/yr]) (Emission Factor [lb/lb NEW]) / (2000 [lb/ton]) and using the published emission factors provided in the permit application, or other emission factors and calculation methods deemed acceptable by the Air Quality Bureau.
Monitoring: The permittee shall: 1) Calculate the actual emissions rate (tons/month) for the emission units listed in Table 800.A. 2) Calculate the monthly rolling 12-month total emissions rate (tons/year) for this source category and compare them to the emission limits in Table 802.A.
Recordkeeping: 1) The Permittee shall keep records of emission factors used in calculations, the monthly total emissions, and the monthly rolling 12-month total emissions.

2) The permittee shall keep records in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

EXTERNAL COMBUSTION

A900 Regulated Sources – External Combustion

A. Table 900.A lists all of the process equipment authorized for this source category.

Table 900.A: Regulated Sources List

Unit No.	Source Description	Make Model	Serial No.	Capacity	Manufacture Date
14031	Boiler, Bldg 868	Rite	23402	8.4 MM Btu/hr	1996
14034	Boiler, Bldg 285	Rite / A700WG	25092	5.4 MM Btu/hr	1996
14035	Boiler, Bldg 21295	Rite / A700WG	27347	5.06 MM Btu/hr	1999
14036	Boiler, Bldg 21296	Rite / A700WG	27348	5.06 MM Btu/hr	1999
14037	Boiler, Bldg 21297	Rite / A700WG	27346	5.06 MM Btu/hr	1999
14038	Process Heater, Bldg 195	Bananza / Spray Cure B-3000	02103000.21	4.1 MM Btu/hr	2003

A901 Control Equipment – External Combustion – Not Required

A902 Emission Limits – External Combustion

A. Table 902.A lists the emission units, and their allowable emission limits. (40 CFR 50; Paragraphs 1, 7, and 8 of 20.2.70.302.A NMAC).

Table 902.A: Allowable Emissions

Unit No.	NO_x pph	NO_x tpy	CO pph	CO tpy	VOC pph	VOC tpy	SO_2 pph	SO_2 tpy	TSP pph	TSP tpy	PM_{10} pph	PM_{10} tpy	$PM_{2.5}$ pph	$PM_{2.5}$ tpy
14031	0.82	14.2	0.69	11.9	0.05	0.78[1]	0.02	0.3	0.06	1.1	0.06	1.1	0.06	1.1
14034	0.53		0.~~45~~44		0.03		0.01		0.04		0.04		0.04	
14035	0.5		0.42		0.03		0.01		0.04		0.04		0.04	
14036	0.5		0.42		0.03		0.01		0.04		0.04		0.04	
14037	0.5		0.42		0.03		0.01		0.04		0.04		0.04	
14038	0.4		0.34		0.02		0.001		0.03		0.03		0.03	

1 The VOC emissions from this source category are included in the base-wide allowable emissions limit established

in condition A106.B: 249.9 tpy VOC, 9.9 tpy per individual HAP, and 24.9 tpy of combined HAPs.

A903 Applicable Requirements – External Combustion

A. The permittee shall comply with all applicable sections of the requirements listed in Table 903.A.

Table 903.A: Applicable Requirements

Applicable Requirements	Federally Enforceable	Unit No.
NSR Permit No: 1508C-M2-R4	X	14031, 14034 to 14038
20.2.61 NMAC Smoke and Visible Emissions	X	All External Combustion Sources

A904 Operational Limitations – External Combustion

A. The External Combustion source category is authorized for continuous operation. No monitoring, recordkeeping, or reporting requirements are required to demonstrate compliance with continuous hours of operation.

A905 Fuel Sulfur Requirements – External Combustion

A. External Combustion Sources (Units 14031, 14034 to 14038)

Requirement: All external combustion sources shall combust only natural gas containing no more than 0.75 grains of total sulfur per 100 dry standard cubic feet.
Monitoring: Monitoring is achieved by recordkeeping as described below.
Recordkeeping: The permittee shall demonstrate compliance with the natural gas limit on total sulfur content by maintaining records of a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, or fuel gas analysis, specifying the allowable limit or less. If fuel gas analysis is used, the analysis shall not be older than one year.
Reporting: The permittee shall report in accordance with Section B110.

A906 20.2.61 NMAC Opacity – External Combustion

A. External Combustion Sources (Units 14031, 14034 to 14038)

Requirement: Visible emissions from all stationary combustion emission stacks shall not equal or exceed an opacity of 20 percent in accordance with the requirements at 20.2.61.109 NMAC.
Monitoring: (1) Use of natural gas fuel constitutes compliance with 20.2.61 NMAC unless opacity equals or exceeds 20% averaged over a 10-minute period. When any visible emissions are observed during operation other than during startup mode, opacity shall be measured over a 10-minute period, in accordance with the procedures at 40 CFR 60, Appendix A, Reference Method 9 (EPA Method 9) as required by 20.2.61.114 NMAC, or the operator will be allowed to shut down the equipment to perform maintenance/repair to eliminate the visible emissions. (2) Following completion of equipment maintenance/repair, the operator shall conduct visible emission observations following startup in accordance with the following procedures: (a) Visible emissions observations shall be conducted over a 10-minute period during operation after completion of startup mode in accordance with the procedures at 40 CFR 60, Appendix A, Reference Method 22 (EPA Method 22). If no visible emissions are observed, no further action is required. (b) If any visible emissions are observed during completion of the EPA Method 22 observation, subsequent opacity observations shall be conducted over a 10-minute period, in accordance with the procedures at EPA Method 9 as required by 20.2.61.114 NMAC. (3) For the purposes of this condition, *Startup mode* is defined as the startup period that is described in the facility's startup plan.
Recordkeeping: (1) If any visible emissions observations were conducted, the permittee shall keep records in

accordance with the requirements of Section B109 and as follows: (a) For any visible emissions observations conducted in accordance with EPA Method 22, record the information on the form referenced in EPA Method 22, Section 11.2. (2) For any opacity observations conducted in accordance with the requirements of EPA Method 9, record the information on the form referenced in EPA Method 9, Sections 2.2 and 2.4.
Reporting: The permittee shall report in accordance with Section B110.

A907 Other – External Combustion

A. Operational inspections (External Combustion Sources) (Units 14031, 14034 to 14038)

Requirement: Compliance with the allowable emission limits in Table 106.A shall be demonstrated by performing periodic inspections to ensure proper operations.
Monitoring: The permittee shall conduct annual operational inspections to determine that the heater(s)/boiler(s) are operating properly. The operational inspections shall include operational checks for indications of insufficient excess air, or too much excess combustion air. These operational checks shall include observation of common physical indications of improper combustion, including indications specified by the heater/boiler manufacturer, and indications based on operational experience with the/these unit(s).
Recordkeeping: The permittee shall maintain records of operational inspections, describing the results of all operational inspections noting chronologically any adjustments needed to bring the heater(s)/boiler(s) into compliance. The permittee shall maintain records in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

B. Emission calculations (External Combustion Sources) (Units 14031, 14034 to 14038)

Requirement: The permittee shall calculate external combustion system emissions assuming continuous operation and using the following equation: $\text{Annual Emissions [tpy]} = \frac{\text{(max capacity [Btu/hr])(emission factor [lb/ft}^3\text{ or gal])(hours [hr/yr])}}{\text{(fuel heating value [Btu/ft}^3\text{ or gal])(2000 [lb/ton])}}$ and using the emission factors published in Section 1.4 of AP-42, or other emission factors and calculation methods deemed acceptable by the Air Quality Bureau.
Monitoring: The permittee shall: 1) Calculate the actual emissions rate (tons/month) for the emission units listed in Table 900.A. 2) Calculate the monthly rolling 12-month total emissions rate (tons/year) for this source category and compare them to the emission limits in Table 902.A.
Recordkeeping: 1) The Permittee shall keep records of actual emissions rate and the monthly rolling 12-month total emissions.

2) The permittee shall maintain records in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

FUEL DISPENSING

A1000 Regulated Sources – Fuel Dispensing

A. Table 1000.A lists all of the process equipment authorized for this source category.

Table 1000.A: Regulated Sources List

Unit No.	Source Description	Make Model	Serial No.	Capacity	Manufacture Date	Other
15001	Fuel Dispensing, Bldg 33	----	----	10 gal/min per nozzle	----	----
15004	Fuel Dispensing, Bldg 136 & 702	----	----	10 gal/min per nozzle	----	----
15005	Fuel Dispensing, Bldg 283	----	----	40,000 gal/yr	----	----
15011	Fuel Dispensing, Bldg 525	----	----	10 gal/min per nozzle	----	----
15012	Fuel Dispensing, Bldg 500	----	----	60,000 gal/yr	----	----
15013	Fuel Dispensing, Bldg 1166	----	----	10 gal/min per nozzle	~ MAY 2003	----
15014	Fuel Dispensing, Bldg 906	----	----	10 gal/min per nozzle	----	----

A1001 Control Equipment – Fuel Dispensing – Not Required

A1002 Emission Limits – Fuel Dispensing

A. Table 1002.A lists the emission units, and their allowable emission limits. (40 CFR 50; Paragraphs 1, 7, and 8 of 20.2.70.302.A NMAC).

Table 1002.A: Allowable Emissions

Unit No.	VOC tpy
15001	--[1]
15004	
15005	
15011	
15012	
15013	

Unit No.	VOC tpy
15014	

1 The VOC emissions from this source category are included in the base-wide allowable emissions limit established in condition A106.B: 249.9 tpy VOC, 9.9 tpy per individual HAP, and 24.9 tpy of combined HAPs.

A1003 Applicable Requirements – Fuel Dispensing

A. The permittee shall comply with all applicable sections of the requirements listed in Table 1003.A.

Table 1003.A: Applicable Requirements

Applicable Requirements	Federally Enforceable	Unit No.
20.2.82 NMAC MACT Standards for Source Categories of HAPS	X	15001, 15004, 15011, 15013, 15014.
40 CFR 63 Subpart A, General Provisions	X	15001, 15004, 15011, 15013, 15014.
40 CFR 63 Subpart CCCCCC, Gasoline Dispensing Facilities	X	15001, 15004, 15011, 15013, 15014.

A1004 Operational Limitations – Fuel Dispensing

A. The Fuel Dispensing source category is authorized for continuous operation. No monitoring, recordkeeping, or reporting requirements are required to demonstrate compliance with continuous hours of operation.

B. Total amount of motor vehicle gasoline dispensed.

Requirement: Units 15001, 15004, 15011, 15013, and 15014 shall dispense no more than 5,000,000 gallons of motor vehicle gasoline, combined, per year.
Monitoring: The permittee shall monitor the total amount of motor vehicle gasoline dispensed from Units 15001, 15004, 15011, 15013, and 15014.
Recordkeeping: The permittee shall maintain records of the monthly rolling 12-month total motor vehicle gasoline throughput of Units 15001, 15004, 15011, 15013, and 15014 in accordance with the applicable provisions of Section B109 of this permit.
Reporting: The permittee shall report in accordance with Section B110.

C. Aviation gasoline dispensed from Unit 15005.

Requirement: Unit 15005 shall dispense no more than 40,000 gallons of aviation gasoline per year.
Monitoring: The permittee shall monitor the total amount of aviation gasoline dispensed from Unit 15005.

Recordkeeping: The permittee shall maintain records of the monthly rolling 12-month total aviation gasoline throughput of Unit 15005 and in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

D. Aviation gasoline dispensed from 15012.

Requirement: Unit 15012 shall dispense no more than 60,000 gallons of aviation gasoline per year.
Monitoring: The permittee shall monitor the total amount of aviation gasoline dispensed from Unit 15012.
Recordkeeping: The permittee shall maintain records of the monthly rolling 12-month total aviation gasoline throughput of Unit 15012 and in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

A1005 Fuel Sulfur Requirements – Fuel Dispensing – Not Required

A1006 20.2.61 NMAC Opacity – Fuel Dispensing – Not Required

A1007 Other - Fuel Dispensing

A. Emission calculations (Fuel Dispensing)

Requirement: The permittee shall calculate VOC emissions from the fuel dispensing operations listed in Table 1000.A based on the records of fuel dispensing throughput and using the following equation:

$$\boxed{\text{VOC [tpy]} = (\text{fuel throughput } [10^3 \text{ gal/yr}])\ (11.7\ [\text{lb VOC}/10^3 \text{ gal}])\ /\ (2000\ [\text{lb/ton}])}$$

or other emission factors and calculation methods deemed acceptable by the Air Quality Bureau. The permittee shall calculate HAP emissions using the motor vehicle gasoline speciation described in the most current version of the *Air Emissions Inventory Guidance Document for Stationary Sources at Air Force Installations* and the aviation gasoline speciation based on the MSDS obtained from the supplier, or another speciation deemed acceptable by the Air Quality Bureau.

Monitoring: The permittee shall:

1) Calculate the actual emissions rate (tons/month) for the emission units listed in Table 1000.A.
2) Calculate the monthly rolling 12-month total emissions rate (tons/year) for this source category and compare them to the emission limits in Table 1002.A.

Recordkeeping:

1) The Permittee shall keep records of actual emissions rate and the monthly rolling 12-month total emissions. 2) The permittee shall maintain records in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

B. National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 63 Subpart CCCCCC – Gasoline Dispensing Facilities.

Requirement: Units 15001, 15004, 15011, 15013, and 15014 are subject to the requirements in Paragraph 63.11116(a) of Subpart CCCCCC. 1) The permittee shall not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include, but are not limited to, the following: (a) Minimize gasoline spills; (b) Clean up spills as expeditiously as practicable; (c) Cover all open gasoline containers and all gasoline storage tank fill-pipes with a gasketed seal when not in use; (d) Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.
Monitoring: 1) The permittee shall conduct daily leak inspections when the facility is operational as part of an Air Force requirement for emission units 15001, 15004, 15011, 15013 and 15014. These inspections constitute compliance with requirement B.1.
Recordkeeping: The permittee shall maintain records as required by 40 CFR 63, Subpart CCCCCC and in accordance with Section B109.
Reporting: The permittee shall report as required by 40 CFR 63, Subpart CCCCCC and in accordance with Section B110.

C. 40 CFR 63 Subpart CCCCCC (Fuel Dispensing)

Requirement: Units 15001 and 15004 are subject to the additional requirements of Paragraphs 63.11118 and 63.11117 of Subpart CCCCCC listed below: 1) The permittee shall submit the applicable notifications as required in Paragraph 63.1124(b)(1) and (b)(2) for Unit 15001. 2) The permittee shall submit the applicable notifications as required in Paragraph 63.1124(a) for Unit 15004.
Monitoring: Monitoring is achieved by recordkeeping as described below.
Recordkeeping: The permittee shall maintain records as required by 40 CFR 63, Subpart CCCCCC, and in accordance with Section B109.

Reporting: The permittee shall report as required by 40 CFR 63, Subpart CCCCCC and in accordance with Section B110.

FUEL LOADING

A1100 Regulated Sources – Fuel Loading

A. Table 1100.A lists all of the process equipment authorized for this source category.

Table 1100.A: Regulated Sources List

Unit No.	Source Description	Make Model	Serial No.	Capacity	Manufacture Date
16004	Fuel Loading, POL Yard	----	----	< 20,000 gal/day	----
16005	Fuel Loading, Bldg 500	----	----	60,000 gal/yr	----

A1101 Control Equipment – Fuel Loading – Not Required

A1102 Emission Limits – Fuel Loading

A. Table 1102.A lists the emission units, and their allowable emission limits. (40 CFR 50; Paragraphs 1, 7, and 8 of 20.2.70.302.A NMAC).

Table 1102.A: Allowable Emissions

Unit No.	VOC tpy
16004	--[1]
16005	

1 The VOC emissions from this source category are included in the base-wide allowable emissions limit established in condition A106.B: 249.9 tpy VOC, 9.9 tpy per individual HAP, and 24.9 tpy of combined HAPs.

A1103 Applicable Requirements – Fuel Loading

A. The permittee shall comply with all applicable sections of the requirements listed in Table 1103.A.

Table 1103.A: Applicable Requirements

Applicable Requirements	Federally Enforceable	Unit No.
20.2.82 NMAC MACT Standards for Source Categories of HAPS	X	16004
40 CFR 63, Subpart A, General Provisions	X	16004
40 CFR 63 Subpart BBBBBB, Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities	X	

A1104 Operational Limitations – Fuel Loading

A. The Fuel Loading source category is authorized for continuous operation. No monitoring, recordkeeping, or reporting requirements are required to demonstrate compliance with continuous hours of operation.

B. Total amount of motor vehicle gasoline loaded (Fuel Loading Sources)

Requirement: Unit 16004 shall load no more than 150,000 gallons of unleaded gasoline per year.
Monitoring: The permittee shall monitor the monthly throughput of unleaded gasoline loaded by Unit 16004.
Recordkeeping: The permittee shall maintain records of the monthly rolling 12-month total fuel throughput of Unit 16004 and in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

C. Total amount of aviation gasoline loaded (Fuel Loading Sources)

Requirement: Unit 16005 shall load no more than 60,000 gallons of aviation gasoline per year.
Monitoring: The permittee shall monitor the monthly throughput of aviation gasoline loaded from Unit 16005.
Recordkeeping: The permittee shall maintain records of the monthly rolling 12-month total fuel throughput of Unit 16005 and in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

A1105 Fuel Sulfur Requirements – Fuel Loading – Not Required

A1106 20.2.61 NMAC Opacity – Fuel Loading – Not Required

A1107 Other – Fuel Loading

A. Emission calculations (Fuel Loading Sources)

Requirement: The permittee shall calculate fuel loading rack VOC emissions based on the fuel throughput records and using the methods described in Section 5.2 of AP-42. The permittee shall calculate loading rack HAP emissions using the motor vehicle gasoline speciation described in the *Air Emissions Inventory Guidance Document for Stationary Sources at Air Force Installations*, the aviation gasoline speciation based on the MSDS obtained from the supplier, or another speciation acceptable to the Air Quality Bureau.
Monitoring: The permittee shall: 1) Calculate the actual emissions rate (tons/month) for the emission units listed in Table 1100.A.

2) Calculate the monthly rolling 12-month total emissions rate (tons/year) for this source category and compare them to the emission limits in Table 1102.A.
Recordkeeping: 1) The Permittee shall keep records of actual emissions rate and the monthly rolling 12-month total emissions. 2) The permittee shall maintain records in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

B. National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 63 Subpart BBBBBB - Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities.

Requirements: Unit 16004 is subject to the following requirements from Subpart BBBBBB listed below: 1) The permittee shall perform monthly leak inspections of all equipment in gasoline service for the affected bulk gasoline plant comprised of Units 16004 and 22002 pursuant to Paragraph 63.11086(c). 2) When a leak is detected, an initial attempt at repair must be made as soon as practicable, but no later than five (5) calendar days after the leak is detected. Repair or replacement of leaking equipment must be completed within fifteen (15) calendar days after the detection of each leak. Delay of repair of leaking equipment will be allowed if the repair is not feasible within 15 days. (Paragraphs 63.~~11086~~11089(c) and (d)). 3) The permittee shall maintain an inventory of the types, identification numbers, and locations of all equipment in gasoline service for the Unit 16004 bulk gasoline plant. (Paragraph 63.11094(d)). 4) The permittee shall not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include, but are not limited to, the requirements listed in Paragraph 63.11086(d). 5) The permittee shall submit the applicable notifications as required in Paragraphs 63.11086(3) and (f).
Monitoring: The permittee shall conduct monthly inspections for Unit 16004 and its associated fuel storage tank, Unit 22002. These inspections constitute compliance with requirements 1 and 4 above. Detection methods incorporating sight, sound, and smell are acceptable when inspecting for fuel leaks. (Paragraphs 63.11089(a))
Recordkeeping: The permittee shall maintain the following records as applicable, all records required by 40 CFR 63, Subpart BBBBBB, and in accordance with Section B109: 1) The permittee shall maintain the following records in a logbook pursuant to Paragraphs 63.11089(b) and (c) of Subpart BBBBBB: (a) A copy of the monthly inspection checklist including the date of the inspection and the signature of the inspector;

(b) If a leak is detected, it will be recorded in the logbook in accordance with Paragraph 63.11094(e); and

(c) An inventory of the types, identification numbers, and locations of all equipment in gasoline service for the Unit 16004 bulk gasoline plant. (Paragraph 63.11094(d))

2) Compliance with requirement B.5 shall be demonstrated by maintaining a copy of the required notifications.

3) If a semiannual report is submitted as specified below, the permittee shall maintain a copy of the report submittal.

Reporting: The permittee shall submit the following reports as applicable, shall report as required by 40 CFR 63, Subpart BBBBBB, and in accordance with Section B110:

1) If a leak is detected, the permittee shall submit a semiannual excess emissions report specified in Paragraph 63.11095(c) to the Administrator, only for a 6-month period during which an excess emission event has occurred. If no excess emission events have occurred during the previous 6-month period, no report is required.

INTERNAL COMBUSTION

A1200 Regulated Sources – Internal Combustion

A. Table 1200.A lists all of the process equipment authorized for this source category.

Table 1200.A: Regulated Sources List

Unit No.	Source Description	Make Model	Serial No.	Capacity	Manufacture Date
19210	Fire Pump, German Pump #1, Bldg 287	DETROIT / 8064-7412	6FF-21647	265 hp	SEPT 2006
19211 to 19224	Emergency Fire Pump Engine	TBD	TBD	TBD	TBD
19300	Emergency Generator, Bldg 577	CUMMINS / QSB5-G3 NR3	73012399	145 hp	2009
19302	Emergency Generator, Bldg 1272	CUMMINS / QSL9-G3 NR3	73012150	415 hp	2009
19331	Emergency Generator, Bldg 288	CUMMINS / 6BTAA5.9-G1	46633739	~~250~~ 207 hp	2006
19332	Emergency Generator, Bldg 572	CUMMINS / 4BTA3.9-G5	46643360	~~145~~ 99 hp	2006
19333	Emergency Generator, Bldg 1097	CUMMINS / 4BTA3.9-G5	46641364	99 hp	2006
19334	Emergency Generator, Bldg 202	CUMMINS / QSL9-G2-NR3	21739943	~~317~~ 364 hp	2006
19335	Emergency Generator, Bldg 525	CUMMINS / QSL9-G3	46625288	~~415~~ 399 hp	2006
19336	Emergency Generator, Bldg 1053	CUMMINS / 6BTA5.9-G3	46643964	~~250~~ 207 hp	2006
19337	Emergency Generator, Bldg 35	CUMMINS / 4BTA3.9-G5	21798698	~~68~~ 99 hp	2007
19338	Emergency Generator, Bldg 317	CUMMINS / QSL9-G2-NR3	21762230	364 hp	2007
19339	Emergency Generator, Bldg 702	CUMMINS / QSL9-G2 NR3	21773588	~~250~~ 364 hp	2007
19340	Emergency Generator, Bldg 908	CUMMINS / QSL9-G2 NR3	46960856	364 hp	2008
19341	Emergency Generator, Bldg 811	KABOTA / D1703	8S0586	27.1 hp	2008
19342	Emergency Generator, Bldg 1062	CUMMINS / QSM11-G~~H~~4NR3	35192297	470 hp	2007
19343	Emergency Generator, Bldg 864	CUMMINS / QSB7-G5 NR3	73329352	~~250~~ 324 hp	2011
19344	Emergency Generator, Bldg 302	CUMMINS / QSB7-G3 NR3	73053014	250 hp	2010
19345	Emergency Generator, Bldg 13102	ONAN / QSB5-G3 NR3	73051611	145 hp	2010
19346	Emergency Generator, Bldg 51	CUMMINS / QSM11-G4 NR3	73113428	364 hp	2010

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Unit No.	Source Description	Make Model	Serial No.	Capacity	Manufacture Date
19347	Emergency Generator, Bldg1093	CUMMINS / QSB5-G3 NR3	73267122	145 hp	2011
~~19348~~	~~Emergency Generator, Bldg 871~~	~~CUMMINS / QSL9-G2 NR3~~	~~73274391~~	~~364 hp~~	~~2011~~
19349	Emergency Generator, Bldg 302, GCS#3	CUMMINS / QSB7-G3 NR3	73126531	250 hp	2010
19350	Emergency Generator, Bldg 302, GCS#2	CUMMINS / QSB7-G3 NR3	73125859	250 hp	2010
19351	Emergency Generator, Bldg 302, GCS#1	CUMMINS / QSB7-G3 NR3	73125877	250 hp	2010
19352	Emergency Generator, Bldg 13662	JOHN DEERE / 404JHF285	PE4045L089467	178 hp	2010
19353	Emergency Generator, Bldg 826	CUMMINS / QSB5-G3 NR3	73327623	145 hp	2011
19354	Emergency Generator, Bldg 684	KUBOTA / D1703	CE1482	27.1 hp	2012
19355	Emergency Generator, Bldg 685	KUBOTA / D1703	CE1264	27.1 hp	2012
19356	Emergency Generator, Bldg 688	KUBOTA / D1703	CE1323	27.1 hp	2012
19357	Emergency Generator, Bldg 689	KUBOTA / D1703	CE1421	27.1 hp	2012
19358	Emergency Generator, Bldg 310	KUBOTA / D1703	8W1033	27.1 hp	2010
19359	Emergency Generator, Bldg 1086	KUBOTA / D1703	8W0900	27.1 hp	2010
19360	Emergency Generator, Bldg 878	KUBOTA / D1703	8G1143	27.1 hp	2008
19361	Emergency Generator, Bldg 1081	JOHN DEERE / D1703	8L1117	27.1 hp	2008
19362	Emergency Generator, Bldg 911	Cummins / 4BT3.3G5	72011130	69 hp	2013
19363	Emergency Generator, Bldg 756	CUMMINS KTA38-G1	33130788	1135 hp	1996
19364	Emergency Generator, Bldg 872	CATERPILLAR C15	FTE02791	762 hp	2016
19365	Emergency Generator, Bldg 831	CUMMINS ~~74047471~~QSB7-G5-NR3	~~QSB7-G5-NR3~~74047471	325 hp	2016
19366	Emergency Generator, Bldg 302 (GCS#4)	CUMMINGS / QSB7-G5-NR3	74110056	325 hp	2017
19367	Emergency Generator, Bldg 318	CUMMINGS / QSB7-G5-NR3	74143021	325 hp	2017
19368	Emergency Generator, Bldg 302 (GCS#5)	CUMMINGS / QSB7-G5-NR3	74214927	325 hp	2017
19369	Emergency Generator, Bldg 1258	CUMMINGS / QSB7-G5-NR3	73974931	325 hp	2016
19370	Emergency Generator, Bldg 1020	CUMMINGS / KTA38-G2	97365-1	1200 hp	1990

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Unit No.	Source Description	Make Model	Serial No.	Capacity	Manufacture Date
19371	Emergency Generator, Bldg 1108	CUMMINGS / 6BT5.9-G6	46042992	170 hp	2000
19372	Emergency Generator, Bldg 1155	CUMMINGS / 4BT3.9-G4	46038158	102 hp	2000
19373	Emergency Generator, Bldg 29039	CUMMINGS / 4BT3.3-G6	68090228	81 hp	2007
19374	Emergency Generator, Bldg 29215	CATERPILAR / C4.4	E3L01681	85.8	2018
19375	Emergency Generator, Bldg 81103	KUBOTA / D1703	8W1116	27.1	2008
19376	Emergency Generator, Bldg 81209	KUBOTA / D1703	8W1108	27.1	2008
19377	Emergency Generator, Bldg 508	CUMMINS / QSB5-G13	74509809	173 hp	2019
19378	Emergency Generator, Bldg 1161	GENERAC / 6.8GLPNDQT	3004925345	231 hp	2019
19379	Emergency Generator, Bldg 1625	GENERAC / 6.8GLPNDQT	3004925472	231 hp	2019
19380	Emergency Generator, Bldg 319	CUMMINS / QSX15-G9	80270788	755 hp	2020
~~19366~~ 19381 to 19405	Emergency Generator	TBD	TBD	TBD	TBD
19406	Emergency Generator, Bldg 1103	MEP007B	49503671	134 hp	~2005
19602	Barrier Rewind Engine, 07 North	WISCONSIN / V-465 D	--	65 hp	Before 2006
19603	Barrier Rewind Engine, 07 South	WISCONSIN / V-465 D	--	65 hp	Before 2006
~~19604~~	~~Barrier Rewind Engine, 04 North~~	~~WISCONSIN / V-465 D~~	~~--~~	~~65 hp~~	~~Before 2006~~
~~19605~~	~~Barrier Rewind Engine, 04 South~~	~~WISCONSIN / V-465 D~~	~~--~~	~~65 hp~~	~~Before 2006~~
19608	Barrier Rewind Engine, 22 North	WISCONSIN / V-465 D	--	65 hp	Before 2006
19609	Barrier Rewind Engine, 22 South	WISCONSIN / V-465 D	--	65 hp	Before 2006
~~19610~~	~~Barrier Rewind Engine, 16 East~~	~~WISCONSIN / V-465 D~~	~~--~~	~~65 hp~~	~~Before 2006~~
~~19611~~	~~Barrier Rewind Engine, 16 West~~	~~WISCONSIN / V-465 D~~	~~--~~	~~65 hp~~	~~Before 2006~~

A1201 Control Equipment – Internal Combustion – Not Required

A1202 Emission Limits – Internal Combustion

A. Table 1202.A lists the emission units, and their allowable emission limits. (40 CFR 50; Paragraphs 1, 7, and 8 of 20.2.70.302.A NMAC).

Table 1202.A: Allowable Emissions

Unit No.	NO_x tpy	CO tpy	VOC tpy	SO_2 tpy	TSP tpy	PM_{10} tpy	$PM_{2.5}$ tpy
19210-19224 19300 19302 19331-19406 19600 to 19611	11.~~2~~8	~~9.4~~8.4	--[1]	1.~~9~~8	0.~~7~~6	0.~~7~~6	0.~~7~~6

[1] The VOC emissions from this source category are included in the base-wide allowable emissions limit established in condition A106.B: 249.9 tpy VOC, 9.9 tpy per individual HAP, and 24.9 tpy of combined HAPs.

A1203 Applicable Requirements – Internal Combustion

A. The permittee shall comply with all applicable sections of the requirements listed in Table 1203.A.

Table 1203.A: Applicable Requirements

Applicable Requirements	Federally Enforceable	Unit No.
20.2.61 NMAC Smoke and Visible Emissions	X	All Internal Combustion Sources
20.2.77 New Source Performance Standards	X	Units subject to 40 CFR 60
20.2.82 NMAC MACT Standards for Source Categories of HAPS	X	Units subject to 40 CFR 63
40 CFR 60, Subpart A, General Provisions	X	19210 to 19224, 19300, 19302, 19331 to 19362, 19364 to 19369, 19373 to 19405.
40 CFR 60 Subpart IIII, Stationary CI ICE	X	19210 to 19224, 19300, 19302, 19331 to ~~19405~~19362, 19364 to 19369, 19373 to 19377, 19380 to 19405.
40 CFR 60 Subpart JJJJ Stationary SI ICE	X	19378 and 19379

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Applicable Requirements	**Federally Enforceable**	**Unit No.**
40 CFR 63, Subpart A, General Provisions	X	19363, 19370, 19371, 19372, 19406~~, and~~ 19602, 19603, ~~to 19605 and~~ 19608, 19609~~ to 19611~~.
40 CFR 63 Subpart ZZZZ, HAPs from Stationary RICE	X	

A1204 Operational Limitations – Internal Combustion

A. Hours of Operation for Emergency Engines/Generators including barrier rewind engines and auxiliary power engines for fire pumps, water pumps, and buildings.

Requirement: Maintenance checks and readiness testing of Units 19210 to 19224, 19300, 19302, 19331 to 19406, and 19602, 19603, 19608, and 19609 ~~to 19605 and 19608 to 19611~~ are limited to 100 hours per year, per engine. There is no operating limit on the use of emergency stationary ICE in emergency situations (40 CFR 60, Subpart IIII, Paragraphs 4211(e) and 40 CFR 63, Subpart ZZZZ, Paragraphs 63.6640(f)).
Monitoring: The permittee shall monitor the monthly rolling 12-month total hours of operation for Units 19210 to 19224, 19300, 19302, 19331 to 19406, and 19602, 19603, 19608, and 19609 ~~to 19605 and 19608 to 19611~~ on a monthly basis.
Recordkeeping: The permittee shall maintain the following records and in accordance with Section B109: 1) The permittee shall keep records of the monthly rolling 12-month total hours of operation of the engines listed above, as indicated on the non-resettable hour meter. 2) The permittee shall document how many hours are spent for emergency operation; including what classified the operation as emergency and how many hours are spent for non-emergency operation. (40 CFR 63, Subpart ZZZZ, Paragraph 63.6655(f)).
Reporting: The permittee shall report as required by 40 CFR 63, Subpart ZZZZ and in accordance with Section B110.

A1205 Fuel Sulfur Requirements – Internal Combustion

A. Internal Combustion Sources

Requirement: RICE used at the facility shall combust only Non-Road Diesel (Ultra-Low Sulfur Diesel, ULSD) containing no more than 15 ppmw total sulfur or shall combust only motor vehicle gasoline meeting Federal on-road motor vehicle fuel total sulfur specifications.
Monitoring: Monitoring is achieved by recordkeeping as described below.
Recordkeeping: The permittee shall demonstrate compliance with the limit on total fuel sulfur content by maintaining records of a current, valid purchase contract, tariff sheet or transportation contract for the fuel, or fuel analysis, specifying the fuel grade and certification or allowable sulfur limit. If fuel analysis is used, the analysis shall not be older than one year. Alternatively, compliance may be demonstrated by keeping a receipt or invoice from a commercial fuel supplier with each fuel delivery, which shall include the delivery date, the fuel type delivered, and amount of fuel delivered, and the maximum sulfur content of the fuel.
Reporting: The permittee shall report in accordance with Section B110.

A1206 20.2.61 NMAC Opacity – Internal Combustion

A. Internal Combustion Sources (all diesel fueled engines)

Requirement: Visible emissions from all emission stacks of all **compression ignition** and spark ignition engines shall not equal or exceed an opacity of 20 percent in accordance with the requirements at 20.2.61.109 NMAC.

Monitoring:

(1) For compression ignition engines that are used to generate facility power and/or used for facility processing and **are not** emergency, black start, or limited use engines as defined at 40 CFR 63, Subpart ZZZZ, the permittee shall, at least once every **90** days of operation, measure opacity on each Unit for a minimum of 10 minutes in accordance with the procedures of 40 CFR 60, Appendix A, Method 9. The permittee shall also measure opacity on a Unit's emissions stack when any visible emissions are observed during steady state operation.

(2) For emergency, standby, or limited use compression ignition engines that operate on a limited basis, the permittee shall, at least once during any year that the unit is operated and no less frequently than once every 5 years regardless of unit operation, measure opacity during steady state operation on each Unit for a minimum of 10 minutes in accordance with the procedures of 40 CFR 60, Appendix A, Method 9. The permittee shall also measure opacity on a Unit's emissions stack anytime when visible emissions are observed during steady state operation.

(3) Alternatively for any compression and spark ignition engine, if visible emissions are observed during steady state operation, within 1 hour of seeing visible emissions, the permittee shall shut down the engine and perform maintenance and/or repair to eliminate the visible emissions. Following completion of equipment maintenance and/or repair, the permittee shall conduct visible emission observations following startup in accordance with the following procedures:

- Visible emissions observations shall be conducted over a 10-minute period during operation after completion of startup mode in accordance with the procedures at 40 CFR 60, Appendix A, Reference Method 22 (EPA Method 22). If no visible emissions are observed, no further action is required.
- If any visible emissions are observed during completion of the EPA Method 22 observation, subsequent opacity observations shall be conducted over a 10-minute period, in accordance with the procedures at EPA Method 9 as required by 20.2.61.114 NMAC.

For the purposes of this condition, *Startup mode* is defined as the startup period that is described in the facility's startup plan.

Recordkeeping:

- If any visible emissions observations were conducted, the permittee shall keep records in accordance with the requirements of Section B109 and as follows:
- For any visible emissions observations conducted in accordance with EPA Method 22, record the information on the form referenced in EPA Method 22, Section 11.2.

• For any opacity observations conducted in accordance with the requirements of EPA Method 9, record the information on the form referenced in EPA Method 9, Sections 2.2 and 2.4. • For each emergency, black start, and limited use compression ignition engine, the permittee shall also record the number of operating hours per year of each Unit and the reason for operating the unit.
Reporting: The permittee shall report in accordance with Section B110.

A1207 Other – Internal Combustion

A. Emission calculations (Internal Combustion Sources)

Requirement: The permittee shall calculate internal combustion source emissions using the most current version of AP-42 emission factors, applicable NSPS emission standards, or other emission factors deemed acceptable by the Air Quality Bureau.
Monitoring: The permittee shall: 1) Calculate the actual emissions rate (tons/month) for the emission units listed in Table 1200.A. 2) Calculate the monthly rolling 12-month total emissions rate (tons/year) for this source category and compare them to the emission limits in Table 1202.A.
Recordkeeping: 1) The Permittee shall keep records of actual emissions rate and the monthly rolling 12-month total emissions. 2) The permittee shall maintain records in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

B. New Source Performance Standards (NSPS) 40 CFR 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines - General Requirements.

Requirements: Units 19210 to 19224, 19300, 19302, 19331 to 1936~~5~~2, 19364 to 19369, 19373 to 19377, 19380, and the proposed/anticipated units designated ~~19366~~ 19381 to 19405 are subject to Subpart IIII under Paragraph 60.4200(a)(2). These engines shall comply with the following general requirements from Subpart IIII: 1) The permittee shall install a non-resettable hour meter if one is not already installed (Paragraph 60.4209(a)). 2) The permittee shall operate and maintain the stationary CI ICE and control device according to the manufacturer's written instructions or procedures developed by the permittee. In addition, the permittee may change only those settings that are permitted by the manufacturer (Paragraph 60.4211(a)).

3) Stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel shall use diesel fuel that meets, at a minimum, the following standards of 40 CFR 80.510(b) for nonroad diesel fuel (Paragraph 60.4207(b)):
   (a) Sulfur content.
      (i) 15 ppm maximum for nonroad (NR) diesel fuel.
   (b) Cetane index or aromatic content, as follows:
      (i) A minimum cetane index of 40; or
      (ii) A maximum aromatic content of 35 volume percent.
4) Notifications are not required for these units under Paragraph 60.4214(b)(5).

Monitoring: Monitoring is achieved by recordkeeping as described below.

Recordkeeping: The permittee shall maintain the following records as applicable, all records required by 40 CFR 60, Subpart IIII, and in accordance with Section B109:

1) Compliance with requirement 2 shall be demonstrated by maintaining records of the maintenance conducted on the affected stationary CI ICE.
2) Compliance with requirement 3 shall be demonstrated by maintaining the test records, certification, or specification sheet provided by the fuel supplier.

Reporting: The permittee shall report as required by 40 CFR 60, Subpart IIII, and in accordance with Section B110.

C. NSPS 40 CFR 60 Subpart IIII - Emission Standards from Paragraph 60.4205(a) and (c).

Requirement: Units 19210 to 19224, 19300, 19302, 19331 to ~~19365~~19362, 19364 to 19369, 19373 to 19377, 19380, and the proposed/anticipated units designated ~~19366~~ 19381 to 19405 are subject to the emission standards in Paragraph 60.4205 as they apply to each specific engine.

Monitoring: Monitoring is achieved by recordkeeping as described below.

Recordkeeping: The permittee shall maintain the following records as applicable, all records required by 40 CFR 60, Subpart IIII, and in accordance with Section B109:

1) For pre-2007 models of stationary CI ICE that are required to comply with the emission standards specified in Paragraph 60.4205(a), or fire pump engines manufactured prior to 2008 that are required to comply with the emission standards specified in Paragraph 60.4205(c), the permittee shall demonstrate compliance with the emission standard according to **one** of the methods specified in Paragraphs 60.4211(b)(1) through (5) as follows:

(a) Purchasing an engine certified according to 40 CFR part 89 or 40 CFR 94, as applicable, for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications, or

(b) Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly, or (c) Keeping records of engine manufacturer data indicating compliance with the standards, or (d) Keeping records of control device vendor data indicating compliance with the standards, or (e) Conducting an initial performance test to demonstrate compliance with the emission standards according to the requirements specified in §60.4212, as applicable. 2) For 2007 model year and later stationary CI ICE that are required to comply with the emission standards specified in Paragraph 60.4205(b), or fire pump engines manufactured on or after 2008 that are required to comply with the emission standards specified in Paragraph 60.4205(c), the permittee shall demonstrate this compliance according to Paragraph 60.4211(c) as follows: (a) Purchasing an engine certified to the applicable emission standard from Paragraphs 60.4205(b) or (c) for the same model year and maximum engine power. The engine shall be installed and configured according to the manufacturer's specifications.
Reporting: The permittee shall report as required by 40 CFR 60, Subpart IIII and in accordance with Section B110.

D. NSPS 40 CFR 60 Subpart JJJJ – Emission Standards from Paragraph 60.4233(c)

Requirement: Units 19378 and 19379 are subject to the Subpart JJJJ emission standards in Paragraph 60.4231 (c) applicable to LPG engines. 1)
Monitoring: Monitoring is achieved by recordkeeping as described below.
Recordkeeping:.
Reporting:

~~D.~~E. National Emissions Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Subpart ZZZZ - Stationary Reciprocating Internal Combustion Engines.

Requirement: Units 19406, 19363, 19370, 19371, 19372, 19602, 19603,19608, and 19609 are subject to Subpart ZZZZ as "existing stationary RICE" under Paragraph 63.6590(a)(1)(iii). These engines must comply with the following requirements by May 3, 2013 for diesel engines and October 19, 2013 for gasoline engines (Paragraph 63.6595(a)(1)): 1) The permittee shall comply with the following work practices listed under Items 4 and 5 in Table 2d of Subpart ZZZZ, except during periods of start-up, in accordance with Paragraph 63.6603(a): (a) Change oil and filter every 500 hours of operation or annually, whichever comes first; (b) Or in lieu of changing the oil in accordance with (a) above, utilize an oil analysis program to determine when oil needs to be replaced under Paragraph §63.6625(i);

(c) Inspect spark plugs or air cleaner (as applicable for gasoline or diesel engines) every 1,000 hours of operation or annually, whichever comes first; and

(d) Inspect all hoses and belts (as applicable) every 500 hours of operation or annually, whichever comes first, and replace as necessary.

2) (a) Air Force maintenance procedures for barrier rewind engines include like-kind equipment exchanges to ensure that there is uninterrupted service for the barriers during an emergency. Like-kind equipment exchanges are approved for emission units ~~19600~~ 19602, 19603, 19608, and 19609 ~~– 19611~~ provided that the replacement equipment is the same make, model, rated horsepower, fuel type, and is manufactured or reconstructed (Reconstruction as defined in §63.2) prior to 2006. If equipment is proposed that does not meet these requirements, then a permitting applicability determination must be made prior to installation of the equipment and the appropriate actions taken to obtain/modify a permit and to notify the Department.
(b) The permittee shall operate and maintain these emergency engines and after treatment control device (if any) according to the manufacturer's emission-related written instructions or maintenance plan developed by the permittee which provides to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions (Paragraph 63.6625(e)).

3) The permittee shall install a non-resettable hour meter if one is not already installed (Paragraph 63.6625(f)).

4) The permittee shall minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes (Paragraph 63.6625(h)).

5) Notifications are not required for these units under Paragraph 63.6645(a)(5).

Monitoring: Monitoring is achieved by recordkeeping as described below.

Recordkeeping: The permittee shall maintain the following records as applicable, all records required by 40 CFR 63, Subpart ZZZZ, and in accordance with Section B109:

1) Compliance with requirements 1 and 2 shall be demonstrated by maintaining records of the maintenance conducted on the affected engines according to Paragraph 63.6655(e).

2) Each record must be kept readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, (as applicable), according to Paragraph 63.10(b)(1) of 40 CFR 63 Subpart A, as specified in Paragraph 63.6660.

Reporting: The permittee shall submit reports as required by 40 CFR 63, Subpart ZZZZ, and in accordance with Section B110:

1) The permittee shall report each instance in which the work practices were not met from Item 5 in Table 2d of Subpart ZZZZ. These instances are deviations from the emissions and operating limitations in this subpart. These deviations must be reported in the semiannual monitoring report on the schedule in Section A109 (Paragraphs 63.6640(b) and 63.6650(b)(5)).

JET ENGINE TESTING

A1300 Regulated Sources – Jet Engine Testing

A. Table 1300.A lists all of the process equipment authorized for this source category.

Table 1300.A: Regulated Sources List[1]

Unit No.	Source Description	Make Model	Serial No.	Capacity	Manufacture Date
20001	Jet Engine Testing, Bldg 11648	Assembled On-site / T-10	----	N/A	1990
20003	Jet Engine Testing, Bldg 638	Assembled On-site / A/F32A-18	----	N/A	1971
20006	Jet Engine Testing, Bldg 11649	Assembled On-site / T-10	----	N/A	1989
20007	Jet Engine Testing, Bldg 639	Assembled On-site / T-4	----	N/A	1971
20009	Jet Engine Testing, Bldg 11285	Assembled On-site / T-10	----	N/A	1996

[1] The units listed in Table 1300.A do not specifically restrict the aircraft/jet engine type. (NSR Permit 1508-M2, Specific Condition 1.f., revised)

A1301 Control Equipment – Jet Engine Testing – Not Required

A1302 Emission Limits – Jet Engine Testing

A. Table 1302.A lists the emission units, and their allowable emission limits. (40 CFR 50; Paragraphs 1, 7, and 8 of 20.2.70.302.A NMAC; NSR Permits 1508-M2, 1508-M2-R1, 1508-M2-R2, 1508-M2-R3, 1508-M2-R4, and 1508-M2-R5).

Table 1302.A: Allowable Emissions

Unit No.	NO_x tpy	CO tpy	VOC tpy	SO_2 tpy	TSP tpy	PM_{10} tpy	$PM_{2.5}$ tpy
20001	31.9	74.7	8.70 [1]	16.~~2~~1	3.4	3.4	3.4
20003							
20006							
20007							
20009							

[1] The cumulative VOC emissions from all permitted jet engine testing units must meet the VOC limit established in NSR Permit No. 1508-M2 or most current modification/revision. These VOC emissions are included in the base-wide allowable emissions limit established in condition A106.B: 249.9 tpy VOC, 9.9 tpy per individual HAP, and 24.9 tpy of combined HAPs.

B. Once the annual emissions of any single regulated air contaminant reach the total annual limit in Table 1302.A, no further operation of the Jet Engine Test Facility is allowed for the remainder of the calendar year. (NSR Permit 1508-M2, Specific Condition 1.c., revised)

A1303 Applicable Requirements – Jet Engine Testing

A. The permittee shall comply with all applicable sections of the requirements listed in Table 1303.A.

Table 1303.A: Applicable Requirements

Applicable Requirements	Federally Enforceable	Unit No.
20.2.61 NMAC Smoke and Visible Emissions	X	All Combustion Turbines
NSR Permit No: 1508-M2, 1508-M2-R1, 1508-M2-R2, 1508-M2-R3, 1508-M2-R4, M2-R5, M2-R6 & M2-R7	X	20001, 20003, 20006, 20007, and 20009.

A1304 Operational Limitations – Jet Engine Testing

A. The Jet Engine Testing source category is authorized to operate at any time of the day or night on any day of the year. All jet engine test units are allowed to operate simultaneously. No monitoring, recordkeeping, or reporting requirements are required to demonstrate compliance with continuous hours of operation.

A1305 Fuel Sulfur Requirements – Jet Engine Testing

A. Fuel Sulfur (Jet Engine Combustion Turbines)

Requirement: The sulfur content of the jet fuel shall not exceed 0.2% sulfur by weight. (NSR Permit 1508-M2, Condition 2.d.)
Monitoring: The permittee shall monitor the sulfur content of the fuel delivered to Holloman using one of the methods described in the recordkeeping section below.
Recordkeeping: The permittee shall demonstrate compliance with the jet fuel limit on total sulfur content by maintaining records of a current, valid purchase contract, tariff sheet, fuel delivery record, fuel test result from the supplier, or transportation contract for the fuel, specifying the allowable limit or less. If fuel testing analyses are used to demonstrate compliance with the fuel sulfur limit, the current analysis shall not be older than 1 year. (NSR Permit 1508-M2, Specific Conditions 4.e. and 4.f., revised) Alternatively, compliance may be demonstrated by keeping a receipt or invoice from a commercial fuel supplier with each fuel delivery, which shall include the delivery date, the fuel type delivered, and amount of fuel delivered, and the maximum sulfur content of the fuel.
Reporting: The permittee shall report in accordance with Section B110.

A1306 20.2.61 NMAC Opacity – Jet Engine Testing

A. 20.2.61.109 NMAC, Jet Engine Combustion Turbines

Requirement: Visible emissions from all stationary combustion emission stacks shall not equal or exceed an opacity of 20 percent in accordance with the requirements at 20.2.61.109 NMAC.
Monitoring: (1) Use of Jet A fuel constitutes compliance with 20.2.61 NMAC unless opacity equals or exceeds 20% averaged over a 10-minute period. When any visible emissions are observed during operation other than during startup mode, opacity shall be measured over a 10-minute period, in accordance with the procedures at 40 CFR 60, Appendix A, Reference Method 9 (EPA Method 9) as required by 20.2.61.114 NMAC, or the operator will be allowed to shut down the equipment to perform maintenance/repair to eliminate the visible emissions. (2) Following completion of equipment maintenance/repair, the operator shall conduct visible emission observations following startup in accordance with the following procedures: (a) Visible emissions observations shall be conducted over a 10-minute period during operation after completion of startup mode in accordance with the procedures at 40 CFR 60, Appendix A, Reference Method 22 (EPA Method 22). If no visible emissions are observed, no further action is required. (b) If any visible emissions are observed during completion of the EPA Method 22 observation, subsequent opacity observations shall be conducted over a 10-minute period, in accordance with the procedures at EPA Method 9 as required by 20.2.61.114 NMAC. (3) For the purposes of this condition, *Startup mode* is defined as the startup period that is described in the facility's startup plan.
Recordkeeping: (1) If any visible emissions observations were conducted, the permittee shall keep records in accordance with the requirements of Section B109 and as follows: (a) For any visible emissions observations conducted in accordance with EPA Method 22, record the information on the form referenced in EPA Method 22, Section 11.2. (2) For any opacity observations conducted in accordance with the requirements of EPA Method 9, record the information on the form referenced in EPA Method 9, Sections 2.2 and 2.4.
Reporting: The permittee shall report in accordance with Section B110.

A1307 Other – Jet Engine Testing

A. Emission calculations.

Requirement: The permittee shall calculate jet engine testing emissions based on the records and the emission factors required by NSR Permit No. 1508-M2, Specific Condition 1.g.
Monitoring: The permittee shall: 1) Calculate the actual emissions rate (tons/month) for the emission units listed in Table 1300.A. (NSR Permit 1508-M2, Specific Conditions 4.b.ii. and 4.d., revised)

2) Calculate the monthly rolling 12-month total emissions rate (tons/year) for this source category and compare them to the emission limits in Table 1302.A. (NSR Permit 1508-M2, Specific Conditions 2.b. and4.b.iii., revised)
Recordkeeping: 1) The Permittee shall keep records of actual emissions rate and the monthly rolling 12-month total emissions. 2) The permittee shall maintain records required in accordance with Section B109.
Reporting: The permittee shall report as required by NSR Permit 1508-M2, Specific Condition 5, and in accordance with Section B110.

SURFACE COATING – PAINT BOOTHS

A1400 Regulated Sources – Surface Coating-Paint Booths

A. Table 1400.A lists all of the process equipment authorized for this source category.

Table 1400.A: Regulated Sources List

Unit No.	Source Description	Make Model	Serial No.	Capacity	Manufacture Date
21006	Paint Booth, Bldg 830	Spray Systems, Inc.	----	----	~1986
21007	Paint Booth, Bldg 282	Vardo Pruden	----	----	~1971
21008	Paint Booth, Bldg 282	De Vil Bliss	----	----	~1971
21009	Paint Booth, Bldg 1178	JBI, Inc. / IDB-4816-S	----	----	1957
21010	Paint Booth, Bldg 856	N/A	----	----	~1956
21011R	Paint Booth, Bldg 195	Future Cure	----	----	2003
21018	Paint Booth, Bldg 294	JBI, Inc.	----	----	1999
21019	Paint Booth, Bldg 903	JBI, Inc. / IDB-4816-S	----	----	2001
21020	Teflon Coating, Bldg 21295	N/A	----	----	----
21021	Paint Booth, Bldg 898	Morehead Industrial Services, Inc.	----	----	2011
21022	Paint Booth, Bldg 898	Morehead Industrial Services, Inc.	----	----	2011
21023	Paint Booth, Bldg 898	Morehead Industrial Services, Inc.	----	----	2011
21024	Hangarette Surface Coating, Bldgs 21808, 21810 to 21819	N/A	----	1 gal/hr 100 gal/yr	----

A1401 Control Equipment – Surface Coating-Paint Booths

A. Table 1401.A lists all the pollution control equipment required for this source category. Each emission point is identified by the same number that was assigned to it in the permit application.

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Table 1401.A: Control Equipment List:

Control Equipment Unit No.	Control Description	Pollutant being controlled	Control for Unit No.[1]
21006	Equipment with a manufacturer's rated control efficiency of 99% or higher.	PM, including some HAP and TAP species.	21006
21007	Equipment with a manufacturer's rated control efficiency of 90% or higher.	PM, including some HAP and TAP species.	21007
21008	Equipment with a manufacturer's rated control efficiency of 90% or higher.	PM, including some HAP and TAP species.	21008
21009	Equipment with a manufacturer's rated control efficiency of 90% or higher.	PM, including some HAP and TAP species.	21009
21010	Equipment with a manufacturer's rated control efficiency of 90% or higher.	PM, including some HAP and TAP species.	21010
21011R	Equipment with a manufacturer's rated control efficiency of 90% or higher.	PM, including some HAP and TAP species.	21011R
21018	Equipment with a manufacturer's rated control efficiency of 90% or higher.	PM, including some HAP and TAP species.	21018
21019	Equipment with a manufacturer's rated control efficiency of 90% or higher.	PM, including some HAP and TAP species.	21019
21020	None.	None.	None.
21021	TBD - Equipment with a manufacturer's rated control efficiency of 99% or higher.	PM, including some HAP and TAP species.	21021
21022	TBD - Equipment with a manufacturer's rated control efficiency of 99% or higher.	PM, including some HAP and TAP species.	21022
21023	TBD - Equipment with a manufacturer's rated control efficiency of 99% or higher.	PM, including some HAP and TAP species.	21023
21024	None.	None.	None.

[1] Control for unit number refers to a unit number from the Regulated Equipment List

B. The control equipment is located within the paint booth(s) and serves the following functions:

~~(3)~~(1) Paint Filter Systems are a series of fabric filters designed for use with enclosed paint booths and are used to control emissions of PM.

A1402 Emission Limits – Surface Coating-Paint Booths

A. Table 1402.A lists the emission units, and their allowable emission limits. (40 CFR 50; Paragraphs 1, 7, and 8 of 20.2.70.302.A NMAC; NSR Permit 1508C-M2-R4).

Table 1402.A: Allowable Emissions

Unit No.	VOC tpy	TSP tpy	PM_{10} tpy	$PM_{2.5}$ tpy
21006				
21007				
21008				
21009				
21010				
21011R				
21018	~~26.1~~27.3[1]	0.~~8~~7	0.~~8~~7	0.~~8~~7
21019				
21020				
21021				
21022				
21023				
21024				

[1] The VOC emissions from this source category are included in the base-wide allowable emissions limit established in condition A106.B: 249.9 tpy VOC, 9.9 tpy per individual HAP, and 24.9 tpy of combined HAPs.

A1403 Applicable Requirements – Surface Coating – Paint Booths

A. The permittee shall comply with all applicable sections of the requirements listed in Table 1403.A.

Table 1403.A: Applicable Requirements

Applicable Requirements	Federally Enforceable	Unit No.
NSR Permit No: 1508C-M2-R4	X	21006, 21007, 21008, 21009, 21010, 21011R, 21018, 21019, 21020, 21021, 21022, 21023, 21024.

A1404 Operational Limitations – Surface Coating-Paint Booths

A. This source category is authorized to operate at any time of the day or night on any day of the year. All permitted paint booths are allowed to operate simultaneously. No monitoring, recordkeeping, or reporting requirements are required to demonstrate compliance with continuous hours of operation.

A1405 Fuel Sulfur Requirements – Surface Coating – Paint Booths – Not Required

A1406 20.2.61 NMAC Opacity – Surface Coating – Paint Booths – Not Required

A1407 Other - Surface Coating-Paint Booths

A. Emission calculations (Paint Booth Sources)

Requirement: The permittee shall calculate paint booth emissions based on the amount and type of materials used, the application equipment employed, and the efficiency of the control device installed on the paint booth, using the methodology provided in the permit application or other emission factors and calculation methods deemed acceptable by the Air Quality Bureau. (NSR Permit 1508C-M2-R4)
Monitoring: Within 30 days of the end of each calendar month, The permittee shall: 1) Monitor and calculate and the actual emissions rate (tons/month) for the emission units listed in Table 1400.A for the previous calendar month. (NSR Permit 1508C-M2-R4) 2) Monitor and calculate the monthly rolling 12-month total emissions rate (tons/year) for this source category and compare them to the emission limits in Table 1402.A. (NSR Permit 1508C-M2-R4)
Recordkeeping: 1) The Permittee shall keep records of actual emissions rate and the monthly rolling 12-month total emissions. 2) The permittee shall maintain records in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

B. Control Equipment Requirements (Units listed in Table 1400.A except for Unit 21010)

Requirement: 1) The permittee shall not operate the permitted paint booths unless the air pollution control equipment is operational. 2) The permittee shall install and maintain a differential pressure gauge across each paint booth air filter to monitor the pressure drop. (NSR Permit 1508C-M2-R4) 3) The permittee shall ensure proper maintenance and replacement of particulate filters

according to manufacturers' specifications, based on the manufacturer's recommended pressure drop values. (NSR Permit 1508C-M2-R4) 4) The permittee shall clearly identify the maximum and minimum pressure drop for each filter at or near the differential pressure gauge for the filter. (NSR Permit 1508C-M2-R4)
Monitoring: The permittee shall monitor the pressure drop across the particulate matter filter of the permitted paint booths at least once each calendar day on which that booth is operated. This monitoring is not required for a permitted paint booth on calendar days that the booth is not operated. (NSR Permit 1508C-M2-R4)
Recordkeeping: The permittee shall maintain records of the above monitoring (NSR Permit 1508C-M2-R4), and in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

C. Control Equipment Requirements (Unit 21010)

Requirement: Paint booth 21010 shall be equipped with a "replace filter" indicator light that is designed by the manufacturer to tell the operator that the particulate filter needs replacing. (NSR Permit 1508C-M2-R4)
Monitoring: The permittee shall monitor the status of the "replace filter" indicator light on Unit 21010 at least once each calendar day on which that booth is operated. This monitoring is not required on calendar days that the booth is not operated. (NSR Permit 1508C-M2-R4)
Recordkeeping: The permittee shall maintain records of the above monitoring (NSR Permit 1508C-M2-R4), and in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

MISCELLANEOUS SURFACE COATING

A1500 Regulated Sources – Miscellaneous Surface Coating – Not Required

FUEL STORAGE TANKS

A1600 Regulated Sources – Fuel Storage Tanks

A. Table 1600.A lists all of the process equipment authorized for this source category.

Table 1600.A: Regulated Sources List

Unit No.	Source Description[1]	Make Model	Serial No.	Capacity	Manufacture Date	Other
22002	Gasoline Storage Tank, Bldg 702	----	----	12,000 gal	~JAN 1943	----
22014R	Gasoline Storage Tank, Bldg 1166	----	----	1,000 gal	~MAY 2003	----

Unit No.	Source Description[1]	Make Model	Serial No.	Capacity	Manufacture Date	Other
22054	Gasoline Storage Tank, Bldg 136	----	----	20,000 gal	~JAN 1993	----
22058	Gasoline Storage Tank, Bldg 525	----	----	1,661 gal	~JAN 1995	----
22100	Gasoline Storage Tank, Bldg 33	----	----	12,000 gal	~SEPT 2001	----
22101	Gasoline Storage Tank, Bldg 33	----	----	12,000 gal	~SEPT 2001	----
22102	Gasoline Storage Tank, Bldg 33	----	----	12,000 gal	~SEPT 2001	----
22103	AVGAS Storage Tank, Bldg 283	----	----	3,000 gal	~2002	----
22105	AVGAS Storage Tank, Bldg 500	Contain ment Solutions	P-401989	1,000 gal,	12/01/2008	----
22110	Gasoline Storage Tank, Bldg 906	Kohl Haas Corp.	----	750 gal	~1999	----

[1] All regulated tanks are aboveground storage tanks.

A1601 Control Equipment – Fuel Storage Tanks – Not Required

A1602 Emission Limits – Fuel Storage Tanks

A. Table 1602.A lists the emission units, and their allowable emission limits. (40 CFR 50; Paragraphs 1, 7, and 8 of 20.2.70.302.A NMAC).

Table 1602.A: Allowable Emissions

<table>
<tr><th>Unit No.</th><th>VOC tpy</th></tr>
<tr><td>22002</td><td rowspan="9">2~~6~~5.1[1]</td></tr>
<tr><td>22014R</td></tr>
<tr><td>22054</td></tr>
<tr><td>22058</td></tr>
<tr><td>22100</td></tr>
<tr><td>22101</td></tr>
<tr><td>22102</td></tr>
<tr><td>22103</td></tr>
<tr><td>22110</td></tr>
<tr><td>22105</td><td>0.5 [1,2]</td></tr>
</table>

[1] The VOC emissions from this source category/unit are included in the base-wide allowable emissions limit established in condition A106.B: 249.9 tpy VOC, 9.9 tpy per individual HAP, and 24.9 tpy of combined HAPs.

[2] The VOC emissions from this fuel storage tank must meet the VOC limit established in NSR Permit No. 1508C-M2-R3.

B. Any tank breathing and working losses were computed using the USEPA Tanks program Version 4.09d. Emission rates computed using the same parameters but with a different Department-approved algorithm that exceed these values will not be deemed non-compliance with this permit.

C. There are no tank flashing emissions at this facility.

A1603 Applicable Requirements – Fuel Storage Tanks

A. The permittee shall comply with all applicable sections of the requirements listed in Table 1603.A.

Table 1603.A: Applicable Requirements

Applicable Requirements	Federally Enforceable	Unit No.
NSR Permit No: 1508C-M2-R4	X	22105
20.2.82 NMAC MACT Standards for Source Categories of HAPS	X	22002, 22014R, 22054, 22058, 22100, 22101, 22102, 22110.
40 CFR 63, Subpart A, General Provisions	X	22002, 22014R, 22054, 22058, 22100, 22101, 22102, 22110.
40 CFR 63 Subpart BBBBBB, Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities	X	22002
40 CFR 63 Subpart CCCCCC, Gasoline Dispensing Facilities	X	22014R, 22054, 22058, 22100, 22101, 22102, 22110.

A1604 Operational Limitations – Fuel Storage Tanks

A. This source category is authorized for continuous operation. No monitoring, recordkeeping, or reporting requirements are required to demonstrate compliance with continuous hours of operation.

B. Throughput (Motor Vehicle Gasoline)

Requirement: Units 22002, 22014R, 22054, 22058, 22100, 22101, 22102, and 22110 shall have a throughput of no more than 5,000,000 gallons of motor vehicle gasoline, combined, per year.
Monitoring: The permittee shall monitor the monthly throughput of motor vehicle gasoline for the Units listed above.

Recordkeeping: The permittee shall maintain records of the monthly rolling 12-month total fuel throughput for Units 22002, 22014R, 22054, 22058, 22100, 22101, 22102, and 22110 and in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

C. Throughput (Aviation Gasoline, Unit 22103)

Requirement: Unit 22103 shall have a throughput of no more than 40,000 gallons of aviation gasoline per year.
Monitoring: The permittee shall monitor the monthly throughput of gasoline for Unit 22103.
Recordkeeping: The permittee shall maintain records of the monthly rolling 12-month total fuel throughput and in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

D. Throughput (Aviation Gasoline, Unit 22105)

Requirement: Unit 22105 shall have a throughput of no more than 60,000 gallons of aviation gasoline per year. (NSR Permit No. 1508C-M2-R4)
Monitoring: Within 30 days of the end of the month the permittee shall monitor the monthly and monthly rolling 12-month total throughput of gasoline for Unit 22105 for the previous calendar month. (NSR Permit No. 1508C-M2-R4)
Recordkeeping: The permittee shall maintain records of the monthly rolling 12-month total fuel throughput for Unit 22105 and in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

A1605 Fuel Sulfur Requirements – Fuel Storage Tanks – Not Required

A1606 20.2.61 NMAC Opacity – Fuel Storage Tanks – Not Required

A1607 Other - Fuel Storage Tanks

A. Emission calculations (Fuel Storage Tank Sources)

Requirement: The permittee shall calculate fuel storage tank emissions based on storage tank throughput records and using the methodology described in Section 7.1 of AP-42, or other emission factors and calculation methods deemed acceptable by the Air Quality Bureau. The permittee shall calculate HAP emissions using the motor vehicle gasoline speciation described in the most current version of the *Air Emissions Inventory Guidance Document for Stationary Sources at Air Force Installations*, the aviation gasoline speciation based on the MSDS obtained from the supplier, or another speciation acceptable to the Air Quality Bureau.
Monitoring: The permittee shall:

1) Calculate the actual emissions rate (tons/month) for Units 22002, 22014R, 22054, 22058, 22100, 22101, 22102, 22103, and 22110. 2) Within 30 days of the end of the month, calculate the actual emissions rate (tons/month) for Unit 22105 for the previous calendar month. (NSR Permit No. 1508C-M2-R4) 3) Calculate the monthly rolling 12-month total emissions rate (tons/year) for Units 22002, 22014R, 22054, 22058, 22100, 22101, 22102, 22103, and 22110 and compare them to the emission limits in Table 1602.A. 4) Within 30 days of the end of the month, calculate the monthly rolling 12-month total emissions rate (tons/year) for Unit 22105 and compare them to the emission limits in Table 1602.A. (NSR Permit No. 1508C-M2-R4)
Recordkeeping: 1) The Permittee shall keep records of actual emissions rate and the monthly rolling 12-month total emissions. 2) The permittee shall maintain records in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

B. National Emission Standards for Hazardous Air Pollutants (NESHAP) - 40 CFR 63 Subpart CCCCCC - Gasoline Dispensing Facilities (Units 22100, 22101, and 22102)

Requirements: Units 22100, 22101, and 22102 are subject to the requirements in Paragraph 63.11118 of Subpart CCCCCC detailed in the following list: 1) The permittee shall use submerged fill pipes that are no more than 12 inches from the bottom of the affected storage tanks. 2) The permittee shall operate the affected vapor balance system using the management practices listed in Item No. 1 of Table 1 of Subpart CCCCCC. 3) The permittee shall ensure that cargo tanks unloading fuel at the affected facility comply with the management practices listed in Table 2 of Subpart CCCCCC. 4) The permittee shall conduct a performance test for the affected vapor balance system in accordance with the applicable testing and monitoring requirements in Paragraph 63.11120(a) and requirements from Paragraph 63.7 of Subpart A – General Provisions. 5) The permittee shall submit the applicable notifications as required in Paragraph 63.1124(b)(4) and (b)(5). 6) The permittee shall keep records and submit reports pursuant to Paragraphs 63.11125 and 63.11126.
Monitoring: 1) The permittee shall monitor cargo tanks unloading fuel at the affected facility during each fuel delivery to ensure that the management practices listed in Table 2 are utilized in accordance with requirement B.3 above.

2) The permittee shall conduct the required performance test/s for the affected vapor balance system as stated in requirement B.4 using the applicable test methods listed in Paragraph 63.11120(a). The first test must be conducted no later than 180 days after the applicable January 10, 2011 compliance date and every three years thereafter.
Recordkeeping: The permittee shall maintain the following records as applicable, all records required by 40 CFR 63, Subpart CCCCCC, and in accordance with Section B109: 1) Compliance with requirement 1 shall be demonstrated by maintaining a record of one of the following: the tank configuration; an inspection that: (a) documents the submerged fill pipe height, or (b) states the inspector's name, or (c) the date of inspection, and (d) the inspector's signature or other documentation/statements demonstrating process knowledge. 2) Compliance with requirements 2 and 3 shall be demonstrated by maintaining a record of a Standard/Safe Operating Procedure (SOP) that details, at a minimum the management practices required by requirements 2 and 3. 3) Compliance with requirements 4, 5, and 6 shall be demonstrated by maintaining copies of the associated records. The permittee shall maintain these records for a period of five (5) years and they shall be made available for inspection upon request.
Reporting: The permittee shall report the following as applicable, all reports required by 40 CFR 63, Subpart CCCCCC, and in accordance with Section B110: 1) The permittee shall report to the Administrator the results of all volumetric efficiency tests required under Paragraph 63.11120(b). Reports submitted under this paragraph must be submitted within 180 days of the completion of the performance testing.

C. NESHAP - 40 CFR 63 Subpart CCCCCC (Unit 22054)

Requirement: Unit 22054 is subject to the requirements in Paragraph 63.11117 of Subpart CCCCCC detailed in the following list: 1) The permittee shall not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include, but are not limited to, the requirements listed in Paragraph 63.11116(a). 2) The permittee shall use submerged fill pipes that are no more than 12 inches from the bottom of the affected storage tank, Unit 22054. 3) The permittee shall have records available within 24 hours of a request by the Administrator to document fuel throughput.
Monitoring: The permittee shall conduct daily inspections when the facility is operational as part of an Air Force requirement for emission unit 22054. These inspections constitute

compliance with requirement 1 above.
Recordkeeping: The permittee shall maintain the following records as applicable, all records required by 40 CFR 63, Subpart CCCCCC, and in accordance with Section B109: 1) Compliance with requirement 2 shall be demonstrated by maintaining a record of one of the following: the tank configuration; an inspection that: (a) documents the submerged fill pipe height, or (b) states the inspector's name, or (c) the date of inspection, and (d) the inspector's signature; or other documentation/statements demonstrating process knowledge. 2) Compliance with requirement 3 shall be demonstrated by maintaining monthly fuel throughput records in accordance with Condition A1604.B.
Reporting: The permittee shall report as required by 40 CFR 63, Subpart CCCCCC, and in accordance with Section B110.

D. NESHAP - 40 CFR 63 Subpart CCCCCC (Unit 22014R and 22110)

Requirement: Units 22014R and 22110 are subject to the requirements in Paragraph 63.11116 of Subpart CCCCCC detailed in the following list: 1) The permittee shall not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include, but are not limited to, the requirements listed in Paragraph 63.11116(a). 2) No notifications are required for Units 22014R and 22110, however, the permittee shall have records available within 24 hours of a request by the Administrator to document fuel throughput.
Monitoring: The permittee shall conduct daily inspections when the facility is operational as part of an Air Force requirement for Units 22014R and 22110. These inspections constitute compliance with requirement 1 above.
Recordkeeping: The permittee shall maintain monthly fuel throughput records in accordance with Condition A1604.B, all records required by 40 CFR 63, Subpart CCCCCC, and in accordance with Section B109.
Reporting: The permittee shall report as required by 40 CFR 63, Subpart CCCCCC, and in accordance with Section B110.

E. NESHAP - 40 CFR 63 Subpart BBBBBB - Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities (Unit 22002)

Requirements: Unit 22002 is subject to the following requirements from Subpart BBBBBB detailed in the following list:

1) The permittee shall use submerged fill pipes that are no more than 12 inches from the bottom of the affected storage tank (Paragraph 63.11086(a)(1)). 2) The permittee shall not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include, but are not limited to, the requirements listed in Paragraph 63.11086(d).
Monitoring: The permittee shall conduct daily inspections when the facility is operational as part of an Air Force requirement for emission unit 22002. These inspections constitute compliance with requirement 2 above.
Recordkeeping: The permittee shall maintain the following records as applicable, all records required by 40 CFR 63, Subpart BBBBBB, and in accordance with Section B109: 1) Compliance with requirement 1 shall be demonstrated by maintaining a record of one of the following: the tank configuration; an inspection that: 2) documents the submerged fill pipe height, or 3) states the inspector's name, or 4) the date of inspection, and 5) the inspector's signature; or other documentation/statements demonstrating process knowledge.
Reporting: The permittee shall report as required by 40 CFR 63, Subpart BBBBBB, and in accordance with Section B110.

ROCK/CONCRETE CRUSHING

A1700 Regulated Sources – Rock/Concrete Crushing – Not Required

CONTRACTOR-OWNED CONCRETE BATCH PLANTS

A1800 Regulated Sources – Concrete Batch Plants – Not required

WOODWORKING DUST COLLECTION

A1900 Regulated Sources – Woodworking Dust Collection

A. The permittee currently operates one nonexempt woodworking system that has a centralized sawdust collection and disposal system, designated Unit 29004.

A1901 Control Equipment – Woodworking Dust Collection

A. Table 1901.A lists all the pollution control equipment required for this source category. The emission point is identified by the same number that was assigned to it in the permit application.

Table 1901.A: Control Equipment List:

Control Equipment Unit No.	Control Description	Pollutant being controlled	Control for Unit No.[1]
29004	Fabric Filter/Sawdust Collection System, or other equipment meeting or exceeding a control efficiency of 99%.	TSP, PM10, PM2.5	29004

B. The control equipment is located within the woodworking shop and serves the following functions:

(1) Fabric Filter/Sawdust Collection System is used to control emissions of particulate matter. When the sawdust collection system is activated, an induced draft fan creates a vacuum that pneumatically conveys the sawdust through the collection device. The collection device dumps the sawdust into sealed drums or hoppers, which are emptied routinely and the dust disposed.

A1902 Emission Limits – Woodworking Dust Collection

A. Table 1902.A lists the emission unit and its allowable emission limits. (40 CFR 50; Paragraphs 1, 7, and 8 of 20.2.70.302.A NMAC).

Table 1902.A: Allowable Emissions

Unit No.	TSP tpy	PM_{10} tpy	$PM_{2.5}$ tpy
29004	0.2	0.2	0.2

A1903 Applicable Requirements – Woodworking Dust Collection – Not Required

A1904 Operational Limitations – Woodworking Dust Collection

A. This source category is authorized for continuous operation. No monitoring, recordkeeping, or reporting requirements are required to demonstrate compliance with continuous hours of operation.

B. Total amount of sawdust collected (Woodworking Dust Collection Sources)

Requirement: Unit 29004 shall collect no more than 2600 ft^3 per year or 16.9 tons per year of sawdust. Either the volume or the weight of sawdust may be measured.

Monitoring: The permittee shall monitor the amount of sawdust collected by the woodworking control device on a monthly basis.	
Recordkeeping: The permittee shall maintain records of the monthly rolling 12-month total volume or weight of sawdust collected by Unit 29004 and in accordance with Section B109.	
Reporting: The permittee shall report in accordance with Section B110.	

A1905 Fuel Sulfur Requirements – Woodworking Dust Collection – Not Required

A1906 20.2.61 NMAC Opacity – Woodworking Dust Collection – Not Required

A1907 Other – Woodworking Dust Collection

A. Emission calculations (Woodworking Dust Collection Sources)

Requirement: The permittee shall calculate woodworking dust collection emissions based on the amount of sawdust collected and the control efficiency (CE) of the sawdust collection device, using the following equation, or other emission factors and calculation methods deemed acceptable by the Air Quality Bureau: PM Emissions [tpy] = (dust collected [ft^3/yr]) (13 [lb/ft^3]) ((1 – CE)/CE) / (2000 [lb/ton]) For purposes of this calculation, it shall be assumed that TSP = PM10 = PM2.5
Monitoring: The permittee shall: 1) Calculate the actual emissions rate (tons/month) for Unit 29004. 2) Calculate the monthly rolling 12-month emissions rate (tons/year) for this source category and compare them to the emission limits in Table 1902.A.
Recordkeeping: 1) The Permittee shall keep records of actual emissions rate and the monthly rolling 12-month total emissions. 2) The permittee shall maintain records in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

MISCELLANEOUS CHEMICAL USE

A2000 Regulated Sources – Miscellaneous Chemical Use

A. There are no specific units associated with this source category. The operations that produce miscellaneous chemical use emissions are diverse and varied and use either commonplace equipment or no equipment. The designated Unit Number for these operations is 31999.

A2001 Control Equipment – Miscellaneous Chemical Use – Not Required

A2002 Emission Limits – Miscellaneous Chemical Use

A. Table 2002.A lists this source category emission unit and its allowable emission limit. (40 CFR 50; Paragraphs 1, 7, and 8 of 20.2.70.302.A NMAC).

Table 2002.A: Allowable Emissions

Unit No.	VOC tpy
31999	--[1]

1 The VOC emissions from this source category are included in the base-wide allowable emissions limit established in condition A106.B: 249.9 tpy VOC, 9.9 tpy per individual HAP, and 24.9 tpy of combined HAPs.

A2003 Applicable Requirements – Miscellaneous Chemical Use – Not Required

A2004 Operational Limitations – Miscellaneous Chemical Use

A. This source category is authorized for continuous operation. No monitoring, recordkeeping, or reporting requirements are required to demonstrate compliance with continuous hours of operation.

A2005 Fuel Sulfur Requirements – Miscellaneous Chemical Use – Not Required

A2006 20.2.61 NMAC Opacity – Miscellaneous Chemical Use – Not Required

A2007 Other – Miscellaneous Chemical Use

A. Emission calculations (Miscellaneous Chemical Use Sources)

Requirement: The permittee shall calculate emissions of VOC and HAP resulting from miscellaneous chemical use, based on the chemical use records, Material Safety Data Sheet (MSDS) information, and the equations provided in the permit application, or other emission factors and calculation methods deemed acceptable by the Air Quality Bureau.
Monitoring: The permittee shall monitor facility-wide chemical usage using an electronic chemical tracking system. The quantity of chemicals that are vented to the atmosphere shall be estimated on a semi-annual basis.
Recordkeeping: The permittee shall record the quantity of each individual HAP and total HAP on a semi-annual basis and maintain records in accordance with Section B109.
Reporting: The permittee shall report in accordance with Section B110.

PART B GENERAL CONDITIONS (Attached)

PART C MISCELLANEOUS: Supporting On-Line Documents; Definitions; Acronyms (Attached)

Section 21

Addendum for Landfill Applications

Do not print this section unless this is a landfill application.

Landfill Applications are not required to complete Sections 1-C Input Capacity and Production Rate, 1-E Operating Schedule, 17 Compliance Test History, and 18 Streamline Applications. Section 12 – PSD Applicability is required only for Landfills with Gas Collection and Control Systems and/or landfills with other non-fugitive stationary sources of air emissions such as engines, turbines, boilers, heaters. All other Sections of the Universal Application Form are required.

EPA Background Information for MSW Landfill Air Quality Regulations:
https://www3.epa.gov/airtoxics/landfill/landflpg.html

NM Solid Waste Bureau Website: https://www.env.nm.gov/swb/

Section 21 does not apply to this Title V operating permit renewal application.

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Section 22: Certification

Company Name: Holloman Air Force Base, New Mexico, U.S. Air Force

I, ___________________________________, hereby certify that the information and data submitted in this application are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this ____ day of ________________, ________, upon my oath or affirmation, before a notary of the State of

__________________________________.

_______________________________________ ______________________

*Signature Date

_______________________________________ ______________________

Printed Name Title

Scribed and sworn before me on this ____ day of _________________________, _________.

My authorization as a notary of the State of _______________________________ expires on the

________________ day of ______________________, _____________.

_______________________________________ ______________________

Notary's Signature Date

____

Notary's Printed Name

*For Title V applications, the signature must be of the Responsible Official as defined in 20.2.70.7.AE NMAC.

Section 22: Certification

Company Name: Holloman Air Force Base, New Mexico, U.S. Air Force

I, Col Ryan P. Keeney, hereby certify that the information and data submitted in this application are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this 15 day of MARCH, 2021, upon my oath or affirmation, before a notary of the State of

NEW MEXICO.

*Signature

15 MAR 21
Date

Col Ryan P. Keeney
Printed Name

Commander, 49th Wing
Title

Scribed and sworn before me on this 15 day of March, 2021.

My authorization as a notary of the State of New Mexico expires on the

5th day of November, 2021.

UNITED STATES AIR FORCE
10 U.S.C. 1044a
NOTARY PUBLIC
JUDGE ADVOCATE

Notary's Signature

15 Mar 2021
Date

NICHOLAS G. BROWN, SrA, USAF

Notary's Printed Name

*For Title V applications, the signature must be of the Responsible Official as defined in 20.2.70.7.AE NMAC.