TECHNICAL SUPPORT DOCUMENT

TECHNICAL INFORMATION PRESENTED IN REVIEW OF AN APPLICATION FOR A PART 70 OPERATING PERMIT

for

Nellis Air Force Base (NAFB)
Clark County, Nevada

Facility: 114
SIC Code – 9711: National Security
NAICS Code – 92811: National Security

PROPOSED

Clark County
Department of Air Quality and Environmental Management
Permitting Section
November xx, 2008

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I. ACRONYMS

Table I-1: List of Acronyms

Acronym	Term
AQR	Clark County Air Quality Regulations
AST	Aboveground Storage Tank
ATC	Authority to Construct Certificate or Authority to Construct
ATC/OP	Authority to Construct/Operating Permit
Bhp	Brake Horsepower
BCC	Clark County Board of County Commissioners
CAO	Field Corrective Action Order
CARB	California Air Resources Board
CE	Control Efficiency
CEM	Continuous Emissions Monitoring System
CF	Control Factor
CFR	United States Code of Federal Regulations
CO	Carbon Monoxide
CPI	Urban Consumer Price Index
DAQEM	Clark County Department of Air Quality & Environmental Management
DEM	Digital Elevation Model
EF	Emission Factor
EO	Executive Order
EPA	United States Environmental Protection Agency
EU	Emission Unit
EVR	Enhanced Vapor Recovery
GDO	Gasoline Dispensing Operation
HAP	Hazardous Air Pollutant
HP	Horse Power
MMBtu	Millions of British Thermal Units
NAC	Nevada Administrative Code
NEI	Net Emission Increase
NO_X	Nitrogen Oxides
NOV	Notice of Violation
NRS	Nevada Revised Statutes
NSPS	New Source Performance Standards
NSR	New Source Review
OP	Operating Permit
PM_{10}	Particulate Matter less than 10 microns
Ppm	Parts per Million
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
RVP	Reid Vapor Pressure
Scf	Standard Cubic Feet
SIP	State Implementation Plan
SO_X	Sulfur Oxides
TCS	Toxic Chemical Substance
TSD	Technical Support Document
UST	Underground Storage Tank
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compound
VOL	Volatile Organic Liquid

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II. EXECUTIVE SUMMARY

Nellis Air Force Base (NAFB) is located in Clark County, Nevada, near the City of Las Vegas. The facility is a major source located in Hydrographic Area (HA) 212 (Las Vegas Valley) and HA 215 (Black Mountains Area). The Las Vegas Valley is declared serious nonattainment for PM_{10} and CO, and nonattainment for ozone; the Black Mountains Area is PSD for all criteria pollutants.

NAFB has been permitted under NSR as a major source of NO_X and minor for all other regulated pollutants. The potential emissions for the facility are shown in the table below:

Table II-1: Facility PTE (tons per year)

	PM_{10}	NO_X	CO	SO_2	VOC	HAP
PTE Totals	25.64	97.83	68.98	4.99	43.33	10.90
Exempt Sources	0.15	0.62	0.25	0.03	2.04	2.18E-01
PTE Plus Exempt Sources	25.79	98.45	69.23	5.02	45.37	11.11
Major Source Thresholds	70	50/100[1]	70	70	50	10/25[2]

[1] 50 tons per year for major source status and 100 tons per year for potential offset requirements.

[2] Ten tons for any one HAP or 25 tons for combination of all HAPS.

NAFB submitted its first Title V application on June 14, 1996. That application was deemed complete by the agency on August 6, 1996. Since that time, NAFB has updated its Title V application numerous times; the last request for update was received by DAQEM on March 14, 2008.

Clark County Department of Air Quality and Environmental Management (DAQEM) has delegated authority to implement the requirement of the Part 70 operating permit program. Based on information submitted by the applicant and a technical review performed by the DAQEM staff, the DAQEM proposes the issuance of a Part 70 Operating Permit to NAFB.

III. FACILITY DESCRIPTION AND EMISSIONS SUMMARY

The base is divided into three geographic areas, which vary both in size and purpose. Area I (the Main Base) consists of the flight line and a wide variety of commercial and industrial use in support of the base's mission. Area II is located to the east of the Main Base. This area includes the munitions storage area and the Red Horse Squadron complex along with its mineral processing, asphalt batch plant, and concrete batch plant activities. Area III is a 1.9 square mile portion to the north of the Main Base and includes the bulk fuels storage area, Security Police Squadron facilities, open space and other support facilities.

NAFB is a federal facility and the area that NAFB covers is zoned as Public Facility (P-F). The closest residence to the boundary of NAFB is approximately one-half mile from the western fence line.

All of the activities and emission units at NAFB are classified as Standard Industrial Code (SIC) and North American Industry Classification System (NAICS) Code 9711 (National Security). The emission units and activities conducted at NAFB can be classified into the following three efforts to support the Base:

- Civil Engineering, which supports and maintains the infrastructure of the Base.
- Flight and Maintenance Squadron, which maintains and supports combat readiness of the Air Force in support of National Security.

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- Training and Support Organizations, which maintains and supports combat readiness of deployable Air Force Civil Engineering Squadrons.

Table III-1: Facility-wide Emissions in Pounds per Hour

Activity	PM_{10}	NO_X	CO	SO_2	VOC	HAPs
Storage Tanks/Loading Racks/ Fuel Dispensing	0.00	0.00	0.00	0.00	3,875.79	136.14
External Combustion	1.97	22.01	20.80	1.17	1.37	0.53
Internal Combustion	17.71	478.61	429.10	17.86	30.07	0.94
Hush House	95.86	2,117.56	3,186.32	99.94	676.18	6.48
Landfill	39.54[1]	0.00	0.00	0.00	0.00	0.00
Vacant Land	2.77[1]	0.00	0.00	0.00	0.00	0.00
Mineral Processing	35.95	46.17	24.90	4.02	7.67	1.03
Remediation	0.01	0.06	0.01	0.01	0.18	0.18
Paint Booths	85.09	0.00	0.00	0.00	2,469.69	1,242.32
Cooling Towers	0.33	0.00	0.00	0.00	0.00	0.00
Incinerator	0.04	0.09	0.01	0.05	0.01	8.49E-01
Wood Working	0.60	0.00	0.00	0.00	0.00	0.00
Degreasers	0.00	0.00	0.00	0.00	20.03	5.24
Fuel Cell Maintenance	0.00	0.00	0.00	0.00	0.91	3.86E-02
Miscellaneous Chemicals	0.00	0.00	0.00	0.00	14,360.00	2,120.00
Totals	**279.87**	**2,664.50**	**3,661.14**	**123.04**	**21,441.90**	**3,513.75**

[1] For informational purposes only.

Table III-2: Facility-wide Emissions in Tons per Year

Activity	PM_{10}	NO_X	CO	SO_2	VOC	HAPs
Storage Tanks/Loading Racks/ Fuel Dispensing	0.00	0.00	0.00	0.00	11.63	0.40
External Combustion[1]	0.85	9.88	8.29	1.10	0.55	0.25
Internal Combustion	1.03	22.09	31.62	0.98	1.82	0.51
Hush House	3.04	56.88	26.07	2.26	5.54	1.11
Landfill	1.64	0.00	0.00	0.00	0.00	0.00
Vacant Land	12.13	0.00	0.00	0.00	0.00	0.00
Mineral Processing	3.56	8.70	2.95	0.63	0.99	0.10
Remediation	0.01	0.27	0.04	0.01	0.77	0.77
Paint Booths	0.52	0.00	0.00	0.00	12.31	6.19
Cooling Towers	1.29	0.00	0.00	0.00	0.00	0.00
Incinerator	0.01	0.01	0.01	0.01	0.01	8.83E-02
Wood Working	1.56	0.00	0.00	0.00	0.00	0.00
Degreasers	0.00	0.00	0.00	0.00	1.56	0.05
Fuel Cell Maintenance	0.00	0.00	0.00	0.00	0.36	1.55E-02
Miscellaneous Chemicals	0.00	0.00	0.00	0.00	9.57	1.41
PTE Totals	**25.64**	**97.83**	**68.98**	**4.99**	**45.11**	**10.90**
Exempt Sources	**PM_{10}**	**NO_X**	**CO**	**SO_2**	**VOC**	**HAPs**
Fire Training	0.13	0.38	0.10	0.00	0.17	5.41E-03
EOD	0.00	0.04	0.10	0.00	0.02	1.32E-01
Exempt Storage Tanks	0.00	0.00	0.00	0.00	1.83	8.00E-02
Exempt Emergency Generators (<26 kW)	0.02	0.20	0.05	0.03	0.02	6.83E-04
Subtotal	**0.15**	**0.62**	**0.25**	**0.03**	**2.04**	**2.18E-01**
PTE Plus Exempt Sources	**25.79**	**98.45**	**69.23**	**5.02**	**46.89**	**11.11**

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Activity	PM_{10}	NO_X	CO	SO_2	VOC	HAPs
Major Source Thresholds	**70**	**50/100[2]**	**70**	**70**	**50**	**10/25[3]**

[1] Includes exempt units, which are included in the natural gas usage cap.
[2] 50 tons per year for major source status and 100 tons per year for potential offset requirements.
[3] Ten tons for any one HAP or 25 tons for combination of all HAPS.

The various processes and activities outlined above are broken down and detailed in the following sections of this Technical Support Document.

IV. STORAGE TANKS/LOADING RACKS/FUEL DISPENSING

A. Process Description

Storage tanks, loading racks and fuel-dispensing activities support the base mission by distributing proper fuels to aircraft and vehicles that support the base mission. The first consolidated permitting action for storage tanks, loading racks and fuel dispensing activities at NAFB was issued March 14, 2008 as ATC/OP Modification 37, Revision 2.

B. Calculation of Potential to Emit (PTE)

Table IV-B-1: PTE for Tanks at NAFB (tons/year)[1]

EU	Building	Capacity (gal)	Fuel Type	Yearly Throughput (gal/year)	PTE	
					VOC (tons/year)	HAP (tons/year)
Aboveground Storage Tanks (AST)						
J001	891	20,000	Gasoline (RVP 10)	3,000,000	Emissions from the storage tank have been included in fuel dispensing emissions from EUs: J026 -J034	
J002[2]	1590	500	Gasoline (RVP 10)	30,000	0.25	1.30E-02
J003	10515	2000	Gasoline (RVP 10)	95,999	0.71	3.70E-02
Underground Storage Tanks (UST)						
J004	890	25,000	Gasoline (RVP 10)	3,000,000	Emissions from the storage tank have been included in fuel dispensing emissions from EUs: J026 -J034	
J005	10318	5,000	Gasoline (RVP 10)	95,999	0.45	2.32E-03
J006	890	6,000	Gasoline (RVP 10)	3,000,000	Emissions from the storage tank have been included in fuel dispensing emissions from EUs: J026 -J034	
Internal Floating Roof Storage Tanks (IFR)						
J011	62121 (Fuel Hydrant)	420,000	JP-8	43,680,000	0.12	5.10E-03
J012	62122 (Fuel Hydrant)	420,000	JP-8	43,680,000	0.12	5.10E-03
J014	KM Tanks	420,000	JP-8	42,000,000	0.11	4.67E-03
J015	KM Tanks	420,000	JP-8	42,000,000	0.11	4.67E-03
Total PTE for Tanks at NAFB (tons/year)[3]					**1.87**	**0.10**

[1] Emissions are calculated using Tanks 4.09d software.
[2] Controlled emissions based on 95.0 percent control for Stage I.
[3] Provided for informational purposes only.

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Table IV-B-2: PTE for Tanks at NAFB (lbs/month)[1]

EU	Building	Capacity (gal)	Fuel Type	Monthly Throughput (gal/month)	PTE	
					VOC (lbs/month)	HAP (lbs/month)
Aboveground Storage Tanks (AST)						
J001	891	20,000	Gasoline (RVP 10)	500,000	Emissions from the storage tank (previously permitted under VR 9670 Mod 2) have been included in fuel dispensing emissions from EUs: J026 -J034	
J002[2]	1590	500	Gasoline (RVP 10)	5,000	83.53	4.34
J003	10515	2000	Gasoline (RVP 10)	16,000	237.17	12.33
Underground Storage Tanks (UST)						
J004	890	25,000	Gasoline (RVP 10)	500,000	Emissions from the storage tank have been included in fuel dispensing emissions from EUs: J026 -J034	
J005	10318	5,000	Gasoline (RVP 10)	16,000	148.74	7.73
J006	890	6,000	Gasoline (RVP 10)	500,000	Emissions from the storage tank have been included in fuel dispensing emissions from EUs: J026 -J034	
Internal Floating Roof Storage Tanks (IFR)						
J011	62121 (Fuel Hydrant)	420,000	JP-8	7,280,000	40.00 (0.03lbs/hr)[3]	1.69 (0.01 lbs/hr)[3]
J012	62122 (Fuel Hydrant)	420,000	JP-8	7,280,000	40.00 (0.03lbs/hr)[3]	1.69 (0.01lbs/hr)[3]
J014	KM Tanks	420,000	JP-8	7,000,000	36.67 (0.04lbs/hr)[4]	1.55 (0.02 lbs/hr)[4]
J015	KM Tanks	420,000	JP-8	7,000,000	36.67 (0.04lbs/hr)[4]	1.55 (0.02 lbs/hr)[4]
Total PTE for Tanks at NAFB (lbs/month)[5]					**622.77**	**30.90**

[1] Emissions are calculated using Tanks 4.09d software.
[2] Controlled emissions based on 95.0 percent control for Stage I.
[3] Permitted short-term limitations (Mod 39, August, 2004).
[4] Permitted short-term limitations (Mod 31, June, 2005).
[5] Provided for informational purposes only.

Table IV-B-3: Total Source PTE for Fueling Operations (for informational purposes only)[1]

	PTE					
	PM_{10}	NO_x	CO	SO_x	VOC	HAP
Lbs/month	0.00	0.00	0.00	0.00	3,282.83	129.21
Tons/year	0.00	0.00	0.00	0.00	9.85	0.40

Table IV-B-4: PTE for Exempt Emission Units (for informational purposes only)[1]

Building/ Military Id #	Total Capacity (gal)	Fuel Type	Total Potential Throughput (gal/yr)	PTE	
				VOC (tons/yr)	HAPS (tons/yr)
Exempt ASTs					
2	250	Diesel	13,000	2.00E-04	3.44E-05
6	1,000	Diesel	52,000	7.00E-04	1.20E-04

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Building/ Military Id #	Total Capacity (gal)	Fuel Type	Total Potential Throughput (gal/yr)	PTE	
				VOC (tons/yr)	HAPS (tons/yr)
194	1,000	Diesel	52,000	7.00E-04	1.20E-04
199	250	Diesel	13,000	2.00E-04	3.44E-05
200	5,000	Diesel	1,825,000	7.00E-03	1.20E-03
201	10,000	Diesel	3,650,000	1.40E-02	2.41E-03
201	785	Diesel	40,820	5.00E-04	8.60E-05
216	2,000	Diesel	730,000	3.00E-03	5.16E-04
222	250	Diesel	13,000	2.00E-04	3.44E-05
256	250	Diesel	13,000	2.00E-04	3.44E-05
276	2,500	Diesel	912,500	3.00E-03	5.16E-04
277	250	Diesel	13,000	2.00E-04	3.44E-05
283	250	Diesel	13,000	2.00E-04	3.44E-05
328	250	Diesel	13,000	2.00E-04	3.44E-05
431	125	Diesel	5,200	1.00E-04	1.72E-05
589	1,000	Diesel	52,000	7.00E-04	1.20E-04
603	100	Diesel	5,200	1.00E-04	1.72E-05
620	500	Diesel	26,000	3.00E-04	5.16E-05
805	250	Diesel	13,000	2.00E-04	3.44E-05
807	250	Diesel	13,000	2.00E-04	3.44E-05
809	500	Diesel	26,000	3.00E-04	5.16E-05
812	250	Diesel	13,000	2.00E-04	3.44E-05
814	250	Diesel	13,000	2.00E-04	3.44E-05
830	250	Diesel	13,000	2.00E-04	3.44E-05
856	250	Diesel	13,000	2.00E-04	3.44E-05
890	250	Diesel	13,000	2.00E-04	3.44E-05
890	6,000	Diesel	900,000	4.15E-03	7.14E-04
891	20,000	Diesel	7,300,000	3.50E-02	6.02E-03
891	20,000	Diesel	7,300,000	2.80E-02	4.82E-03
941	500	Diesel	26,000	3.00E-04	5.16E-05
1014	10,000	JP-8	3,650,000	1.80E-02	7.64E-04
1050	500	JP-8	182,500	1.00E-03	4.25E-05
1590	500	Diesel	182,500	1.00E-03	1.72E-04
1602	250	Diesel	13,000	2.00E-04	3.44E-05
1998	50	Diesel	2,600	1.00E-04	1.72E-05
2060	500	Diesel	26,000	3.00E-04	5.16E-05
2064A	1,000	Diesel	52,000	7.00E-04	1.20E-04
2064B	1,000	Diesel	52,000	7.00E-04	1.20E-04
2070/2364	250	Diesel	13,000	2.00E-04	3.44E-05
2345	250	Diesel	13,000	2.00E-04	3.44E-05
2353	250	Diesel	13,000	2.00E-04	3.44E-05
2354	250	Diesel	13,000	2.00E-04	3.44E-05
3366	25	Diesel	13,000	1.00E-04	1.72E-05
10113	200	Diesel	10,400	2.00E-04	3.44E-05
10116	1,000	Diesel	52,000	7.00E-04	1.20E-04
10512	6,000	Diesel	312,000	4.00E-03	6.88E-04
10220	50	Diesel	2,600	1.00E-04	1.72E-05
10304	1,000	Diesel	67,000	7.00E-04	1.20E-04
10307/A	1,000	Diesel	52,000	7.00E-04	1.20E-04
10307/B	10,000	Diesel	3,650,000	1.39E-02	2.39E-03
10309	1,000	Diesel	52,000	7.00E-04	1.20E-04
10322	550	Diesel	200,750	8.00E-04	1.38E-04
10402	1,000	Diesel	52,000	7.00E-04	1.20E-04

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Building/ Military Id #	Total Capacity (gal)	Fuel Type	Total Potential Throughput (gal/yr)	PTE	
				VOC (tons/yr)	HAPS (tons/yr)
10403	500	Diesel	26,000	3.00E-04	5.16E-05
10405	1,000	Diesel	52,000	7.00E-04	1.20E-04
10413	1,000	Diesel	52,000	7.00E-04	1.20E-04
10418	1,000	Diesel	54,000	7.00E-04	1.20E-04
60937/11	25,000	JP-8	184,000,000	5.43E-01	2.31E-02
60937/12	25,000				
60937/13	25,000				
60937/14	25,000				
196	25,000				
60937/2	500	JP-8	182,500	9.00E-04	3.82E-05
61633/1	5,000	JP-8	2,500,000	1.10E-02	4.67E-04
61633/2	2,500	JP-8	2,500,000	9.00E-03	3.82E-04
61637/1	5,000	JP-8	2,500,000	1.10E-02	4.67E-04
61637/2	2,500	JP-8	2,500,000	9.00E-03	3.82E-04
61663	1,000	Diesel	52,000	7.00E-04	1.20E-04
61664	500	Diesel	26,000	3.00E-04	5.16E-05
61669-1	250	Diesel	13,000	2.00E-04	3.44E-05
61669-2	250	Diesel	13,000	2.00E-04	3.44E-05
Trim Pad 1	2,500	JP-8	2,500,000	9.00E-03	3.82E-04
Camp Cobra	6,000	Diesel	312,000	4.00E-03	6.88E-04
Exempt USTs					
235	8,000	JP-8	2,920,000	1.10E-02	4.67E-04
267	10,000	JP-8	3,650,000	1.40E-02	5.95E-04
791	2,000	Heating Oil	104,000	1.00E-03	1.72E-04
890	25,000	DIS	5,000,000	2.00E-02	8.49E-04
941	50,000	JP-8	184,000,000	5.05E-01	2.14E-02
941	50,000	JP-8			
941	50,000	JP-8			
1301	15,000	Diesel	780,000	7.00E-03	1.20E-03
1301	15,000	Diesel	780,000	7.00E-03	1.20E-03
2814	2,100	Diesel	766,500	2.00E-03	3.44E-04
10318	5,000	Diesel	1,825,000	7.00E-03	1.20E-03
61647A	5,000	JP-8	1,825,000	7.00E-03	2.97E-04
61647B	5,000	JP-8	1,825,000	7.00E-03	2.97E-04
Fuel Hydrant	4,000	JP-8	416,000	6.00E-03	2.55E-04
Exempt IFRs					
1051	555,000	JP-8	184,000,000	0.49	2.09E-02
1052	555,000				
1054	555,000				
1055	555,000				
Total PTE for Exempt Tanks (tons/yr)				**1.83**	**0.10**

[1]The emission units listed in this table are exempt from general NSR permitting requirements according to AQR Section 12. However, emissions from these units are quantified, considered and tracked with regard to the facility's status as major or minor source for any regulated air pollutants.

Table IV-B-5: PTE for Loading Racks at NAFB (tons/year)[1]

EU	Location	Fuel Type	Actual Fuel Throughput (gal/yr)	EF[2] (lbs/gal)	PTE	
					VOC (tons/year)	HAP (tons/year)
J007	941/1050 (8 racks)	JP-8	180,000,000	4.01E-07	0.04	1.53E-03

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					PTE	
J008	891 (1 rack)	Gasoline	200,000	5.82E-03	0.58	3.02E-02
J009	891 (1 rack)	Diesel	7,300,000	1.83E-05	0.07	1.15E-02

[1]Emissions are based on AP-42 Section 5.2.2.1.1.
[2]Controlled emission factor with 98.0 percent control.

Table IV-B-6: PTE for Loading Racks at NAFB (lbs/month)[1]

EU	Location	Fuel Type	Actual Fuel Throughput (gal/month)	EF[2] (lbs/gal)	PTE	
					VOC (lbs/month)	HAP (lbs/month)
J007	941/1050 (8 racks)	JP-8	30,000,000	4.01E-07	12.04	0.51
J008	891 (1 rack)	Gasoline	33,500	5.82E-03	194.83	10.13
J009	891 (1 rack)	Diesel	1,250,000	1.83E-05	20.63	3.55

[1]Emissions are based on AP-42 Section 5.2.2.1.1
[2]Controlled emission factor with 98.0 percent control.

Table IV-B-7: PTE for Fuel Dispensing Operations at NAFB (tons/year)[1]

EU	Building	Fuel Type	Fuel Throughput (gal/yr)	VOC EF (lbs/gallon)	PTE	
					VOC (tons/year)	HAP (tons/year)
J016	235	JP-8	416,000	0.0009	0.19	8.07E-03
J017	267	JP-8	520,000	0.0009	0.24	1.01E-02
J018	890	Diesel	712,329	0.0009	0.33	5.63E-02
J019	1590	Diesel	182,500	0.0009	0.08	1.44E-02
J020	1590	Gasoline	30,000	0.0117	0.18	9.13E-03
J021	2814	Diesel	109,200	0.0009	0.05	8.63E-03
J022	10512	Diesel	312,000	0.0009	0.14	2.47E-02
J023	10515	Gasoline	95,999	0.0117	0.56	2.92E-02
J024	10318	Gasoline	95,999	0.0117	0.56	2.92E-02
J025	10318	Diesel	28,600	0.0009	0.01	2.26E-03
J026-J034	891	Gasoline	3,000,000	0.0033[2]	4.95	6.00E-02

[1]Emissions are calculated based on EPA AP-42 Section 5.
[2]Controlled emission factor which includes 95.0 percent control for Stage I and Stage II Equipment.

Table IV-B-8: PTE for Fuel Dispensing Operations at NAFB (lbs/month)

EU	Building	Fuel Type	Fuel Throughput (gal/month)	VOC EF (lbs/gallon)	PTE	
					VOC (lbs/month)	HAP (lbs/month)
J016	235	JP-8	69,500	1.5130	63.45	2.69
J017	267	JP-8	87,000	0.3710	79.43	3.37
J018	890	Diesel	119,000	1.6000	109.36	18.81
J019	1590	Diesel	30,500	0.0030	28.03	4.82
J020	1590	Gasoline	5,000	2.4430	58.50	3.04
J021	2814	Diesel	18,500	0.8100	17.00	2.92
J022	10512	Diesel	52,000	2.3770	47.79	8.22
J023	10515	Gasoline	16,000	0.3300	187.20	9.73
J024	10318	Gasoline	16,000	9.4470	187.20	9.73
J025	10318	Diesel	5,000	0.0000	4.60	0.79
J026-J034	891	Gasoline	500,000	0.0033[2]	1,650.00	20.00

[1]Emissions are calculated based on EPA AP-42 Section 5.
[2]Controlled emission factor which includes 95.0 percent control for Stage I and Stage II Equipment.

Table IV-b-9: Total Source PTE for Fueling Operations[1]

	PM_{10}	NO_X	CO	SO_X	VOC	HAP
Tons/year	**0.00**	**0.00**	**0.00**	**0.00**	**9.85**	**0.40**
Lbs/month	**0.00**	**0.00**	**0.00**	**0.00**	**3,282.83**	**129.21**

PROPOSED

[1]Emissions listed in this table are for information purposes only.

C. Production Limitation and Control Technology Summary

- The JP-8 fuel hydrant Tanks (EUs: J011, J012) shall be equipped with Internal Floating Roofs and primary and secondary seals.
- The JP-8 KM Tanks (EUs: J014 and J015) shall each be equipped with Internal Floating Roofs and Mechanical Shoe Seals.
- Gasoline storage tanks (EUs: J001, J004) shall be equipped with CARB certified Phase I vapor recovery controls, and the gasoline dispensing units (EUs: J026-J034) shall be equipped with CARB certified Phase II vapor recovery controls.
- The Phase I Vapor Recovery System associated with EUs J001, and J004 shall be constructed in accordance with the "Two-Point Phase I Vapor Recovery System" drawing, and shall use components specified in the current CARB EO series VR-101.
- The following general requirements apply to the Phase I Vapor Recovery systems at NAFB:
  - All gasoline tanks shall be connected to vapor return piping that has a minimum inside diameter of 3.0 inches as designated in the current CARB EO, as applicable.
  - The highest point of discharge from a submerged fill-pipe shall be no more than 6.0 inches from the tank bottom.
  - Pursuant to AQR Section 12, all Phase I vapor recovery equipment shall be installed and operated in accordance with the manufacturer's specifications and certification requirements.
  - All Phase I vapor recovery equipment shall be maintained to be leak free, vapor tight, and in good working order.
  - All Phase I vapor recovery equipment shall have a CARB-certified device, which prevents loosening or over tightening of the Phase I product adaptor.
  - Each system that has a pressure/vacuum vent valve installed must also meet the standards as outlined in the current CARB EO, as applicable.
- Each system that has a pressure/vacuum vent valve installed must also meet the standards as outlined in the current CARB EO, as applicable.
- The following requirements apply to the Phase II Vapor Recovery System (associated with EUs: J026-J034):
  - The Phase II gasoline vapor control system shall be in accordance with the current CARB EO G-70-199 series and the current CARB EO G-70-52 series.
  - Only Emco Wheaton Model A4005 nozzles or equivalent CARB approved nozzle, are approved for the Phase II Gasoline Vapor Control System.
  - The gasoline product and vapor return hoses shall be coaxial.
  - The maximum allowable hose length shall be in accordance to the current CARB EO G-70-52 series.
  - Breakaway hose(s) shall be CARB approved.
  - Pursuant to AQR Section 12, all Phase II vapor recovery equipment shall be installed and operated in accordance with the manufacturer's specifications and the current CARB EO G-70-52 series.
  - All Phase II vapor recovery equipment shall be maintained to be leak free, vapor tight, and in good working order.

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- Each Balance Vapor Recovery System dispenser shall limit each nozzle's gasoline dispensing rate to the values listed in Table IV-C-1. Dispenser fuel flow restrictors shall be installed as necessary and must be CARB approved.

Table IV-C-1: Phase II Balance Vapor Recovery Nozzle Requirements[1]

Model/Nozzle	Current CARB EO Series	GPM
Emco Wheaton A4005	G-70-52, G-70-199	6-10

[1]A/L Ratio not applicable to Balance Vapor Recovery Systems.

- Control technology requirements contained in this section are based upon approved California Air Resources Board Executive Orders, which are at least as stringent as Best Available Control Technology.

D. Other Applicable Regulations

Storage tanks, loading racks and fuel dispensing activities at NAFB are subject to AQR Sections 12, 40, 43, 55, and 40 CFR 60 Subpart CCCCCC.

E. Compliance Demonstration

Compliance demonstration includes inspections, record keeping and reporting requirements to ensure that the enforceable limits applicable to emission units associated with storage tanks, loading racks and fuel dispensing activities at NAFB are demonstrated.

F. Performance Testing

Performance testing is required for the following emission units described in Table IV-F-1 and outlined in the Part 70 permit.

Table IV-F-1: Required Performance Test Criterion: Vapor Recovery System

EU	Description	CARB Test Procedure	Standard
J004	Pressure decay/leak: vapor control system including nozzles and underground tanks	TP-201.3	Initial: 2” wc Final: Referenced Value
J001 & J002	Pressure decay/leak: vapor control system including aboveground tanks	TP-201.3B	Initial: 5” wc Final: Referenced Value
J026-J034	Dynamic Back Pressure: include all vapor piping from dispenser to the tanks	TP-201.4	0.35" wc @ 60 SCFH, N_2 0.62" wc @ 80 SCFH, N_2
J026-J034	Dispensing nozzle flow rate	As Specified in EO	10 gpm (max.)

V. EXTERNAL COMBUSTION

A. Description of Action

Nellis Air Force Base (NAFB) applied for Authority to Construct/Operate for numerous boilers throughout the source. This modification also consolidated all of the source’s boilers previously permitted under different, stand-alone permitting actions including some old yellow ticket permits. The first consolidated permit for external combustion units was issued on April 30, 2007.

Some of the boilers and water heaters installed in the source are exempt from permitting requirements due to their heat input rating (one (1) MMBtu/hr or less) and the time period in which they were installed. These boilers and water heaters less than one (1) MMBtu were installed during the time period that APCR 9 or 15 was the SIP-approved New Source Review (NSR) regulation for Clark County.

PROPOSED

Under AQR Sections 9 and 15, all boilers and water heaters less than one (1) MMBtu were exempt from NSR review. Because the emission units have not been replaced or modified since AQR Section 12 was adopted as the SIP-approved NSR regulation for Clark County, the emission units exempted under AQR Section 15 would remain exempt. However, emissions from these units are quantified, considered and tracked with regard to the source's status as a major or minor source for any regulated air pollutants. Table V-A-1 lists all of these exempt emission units.

Table V-A-1: Summary of Exempt Emission Units[1]

EU	Building	Description	SCC	Unit Install Date	Type[2]
EB001	20	State Water Heater, M/N: 5BT7575NE1, S/N: C95685192, 0.075 MMBtu/hr, Natural Gas	10300603	1995	F1
EB002	94	American Water Heater Water Heater, M/N: G51-50T40-3N, S/N: 9544353009, 0.04 MMBtu/hr, Natural Gas	10300603	1995	DM
EB003	102	Rheem Water Heater, M/N: 21V40-7, S/N: RHN0798146891, 0.034 MMBtu/hr, Natural Gas	10300603	1998	DM
EB004	201	Reliance Water Heater, M/N: 540N0RT0, S/N: L94911075, 0.032 MMBtu/hr, Natural Gas	10300603	1994	DM
EB005	220	Bradford White Water Heater, M/N: MI30T6LN10, S/N: PLO484487, 0.032 MMBtu/hr, Natural Gas	10300603	1997	DM
EB006	224	Reliance Water Heater, M/N: 130NOPT970C, S/N: H97496797, 0.028 MMBtu/hr, Natural Gas	10300603	1997	DM
EB007	237	Bradford White Water Heater, M/N: MI40T5LN8, S/N: HLR127241, 0.034 MMBtu/hr, Natural Gas	10300603	1991	DM
EB008	239	State Ind. Water Heater, M/N: VCV40NRTIH, S/N: 80028128, 0.046 MMBtu/hr, Natural Gas	10300603	1980	DM
EB009	242	A.O. Smith Water Heater, M/N: FSG40222, S/N: GK94-2054336-545, 0.032 MMBtu/hr, Natural Gas	10300603	1994	DM
EB010	242	Bradford White Water Heater, M/N: MI403SGEN12, S/N: J6717923, 0.04 MMBtu/hr, Natural Gas	10300603	1992	DM
EB011	245	Craftsman Water Heater, M/N: 6RGVF90-433T, S/N: 9232308150, 0.034 MMBtu/hr, Natural Gas	10300603	1992	DM
EB012	250	Rheem Water Heater, M/N: RRnG1298G04989, S/N: G75-75, 0.075 MMBtu/hr, Natural Gas	10300603	1998	DM
EB013	256	A.O. Smith Water Heater, M/N: BTP-200-600, S/N: SA87-17862-Y3, 0.7 MMBtu/hr, Natural Gas	10300603	1987	DM
EB014	264	American Water Heater Water Heater, M/N: G51-50T40, S/N: 9620350236, 0.04 MMBtu/hr, Natural Gas	10300603	1996	DM
EB015	282	Rheem Water Heater, M/N: 81V-80HE-1, S/N: 0794C07247, 0.04 MMBtu/hr, Natural Gas	10300603	1994	DM
EB016	300	Reliance Water Heater, M/N: 5 75 NORTG, S/N: L90075177, 0.075 MMBtu/hr, Natural Gas	10300603	1990	DM
EB017	312	Rheem Water Heater, M/N: 21440-7N, S/N: RN0194138857, 0.034 MMBtu/hr, Natural Gas	10300603	1994	DM
EB018	320	Hoyt Water Heater, M/N: A40HM, S/N: H87RNH1545957, 0.034 MMBtu/hr, Natural Gas	10300603	1987	DM
EB019	340	A.O. Smith Water Heater, M/N: BTC240A960, S/N: LC96-0505088-960, 0.24 MMBtu/hr, Natural Gas	10300603	1996	DM
EB020	425	America Water Heater, M/N: G51-40T34-3N, S/N: 9812354483, 0.034 MMBtu/hr, Natural Gas	10300603	1998	DM
EB021	428	Reliance Water Heater, M/N: 540NORTO, S/N: A94607698, 0.032 MMBtu/hr, Natural Gas	10300603	1994	DM

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EU	Building	Description	SCC	Unit Install Date	Type[2]
EB022	445	Rheem Water Heater, M/N: G100-75, S/N: RRNG1198G01002, 0.075 MMBtu/hr, Natural Gas	10300603	1998	DM
EB023	523	A.O. Smith Water Heater, M/N: HW399-932, S/N: C9736942, 0.399 MMBtu/hr, Natural Gas	10300603	1997	DM
EB024	554	A.O. Smith Water Heater, M/N: BTC500A960, S/N: LB97-0622005-960, 0.5 MMBtu/hr, Natural Gas	10300603	1997	DM
EB025	585	Bradford White Water Heater, M/N: D100L1993N, S/N: NM0007469, 0.2 MMBtu/hr, Natural Gas	10300603	1996	DM
EB026	585	Lochinvor Water Heater, M/N: CRN200-100, S/N: GC8569506, 0.2 MMBtu/hr, Natural Gas	10300603	1985	DM
EB027	595	Bradford White Water Heater, M/N: MI40T6LN10, S/N: NM8159673, 0.04 MMBtu/hr, Natural Gas	10300603	1996	DM
EB028	595	Lochinvor Water Heater, M/N: CBN0985, S/N: C974220, 0.985 MMBtu/hr, Natural Gas	10300603	1997	DM
EB029	595	Lochinvor Water Heater, M/N: CBN0986, S/N: C944227, 0.985 MMBtu/hr, Natural Gas	10300603	1994	DM
EB030	600	Rheem Water Heater, M/N: G60-50C, S/N: R0493D00001, 0.076 MMBtu/hr, Natural Gas	10300603	1993	DM
EB031	604	Rheem Water Heater, M/N: 22-40, S/N: RN0782M03551, 0.04 MMBtu/hr, Natural Gas	10300603	1982	DM
EB032	610	State Water Heater, M/N: PRV40NORTO, S/N: J96493966, 0.036 MMBtu/hr, Natural Gas	10300603	1996	DM
EB033	620	Reliance Water Heater, M/N: 540NORT970, S/N: LN7323809, 0.032 MMBtu/hr, Natural Gas	10300603	1994	DM
EB034	808	A.O. Smith Water Heater, M/N: FSG30206D, S/N: GE89-0172190-S06, 0.03 MMBtu/hr, Natural Gas	10300603	1989	DM
EB035	808	Landa Mfg Water Heater, M/N: VNG8-25021C, S/N: P1189-2515, 0.25 MMBtu/hr, Natural Gas	10300603	1989	DM
EB036	808	Landa Mfg Water Heater, M/N: VNG4-20021C, S/N: P1189-3343, 0.32 MMBtu/hr, Natural Gas	10300603	1989	DM
EB037	811	Rheem Water Heater, M/N: 22-40, S/N: 0982M12893, 0.08 MMBtu/hr, Natural Gas	10300603	1982	DM
EB038	812	A.O. Smith Water Heater, M/N: BTC120920, S/N: MD93-0266091-920, 0.12 MMBtu/hr, Natural Gas	10300603	1993	DM
EB039	826	Proline American Water Heater, M/N: G51-40T34-3N, S/N: 9551354880, 0.034 MMBtu/hr, Natural Gas	10300603	1995	DM
EB040	899	Rheem Water Heater, M/N: 22-40, S/N: RN0782M3529, 0.04 MMBtu/hr, Natural Gas	10300603	1982	DM
EB041	899	Teledyne Laars Water Heater, M/N: 230LG, S/N: 70-80179, 0.23 MMBtu/hr, Natural Gas	10300603	1970	DM
EB042	1037	A.O. Smith Water Heater, M/N: BT80931, S/N: ML88-0145198-931, 0.075 MMBtu/hr, Natural Gas	10300603	1988	DM
EB043	2996	Bradford White Water Heater, M/N: D100T1993N, S/N: PLO816328, 0.2 MMBtu/hr, Natural Gas	10300603	1997	DM
EB044	2999	Bradford White Water Heater, M/N: 50T653N, S/N: ML5604283, 0.065 MMBtu/hr, Natural Gas	10300603	1995	DM
EB045	10108	Sabh Water Htr Water Heater, M/N: EFR90-40D, S/N: 9320300465, 0.14 MMBtu/hr, Natural Gas	10300603	1993	DM
EB046	10120	American Water Heater Water Heater, M/N: G61-30T33-3N, S/N: 148129161, 0.033 MMBtu/hr, Natural Gas	10300603	1981	DM

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EU	Building	Description	SCC	Unit Install Date	Type[2]
EB047	10206	A.O. Smith Water Heater, M/N: DW-8405110E, S/N: J9633731, 0.84 MMBtu/hr, Natural Gas	10300603	1996	DM
EB048	10236	Rheem Water Heater, M/N: G9200, S/N: URNG0998G01125, 0.2 MMBtu/hr, Natural Gas	10300603	1998	DM
EB049	10237	Bradford White Water Heater, M/N: 100T883N, S/N: MM8787574, 0.088 MMBtu/hr, Natural Gas	10300603	1995	DM
EB050	10558	Rheem Water Heater, M/N: 21V30-6, S/N: RN0497136853, 0.032 MMBtu/hr, Natural Gas	10300603	1997	DM
EB051	61664	A.O. Smith Water Heater, M/N: 80202, S/N: MC93-0264749-202, 0.075 MMBtu/hr, Natural Gas	10300603	1993	DM
EB052	226	Bradford White Water Heater, M/N: MI40T6EN12, S/N: ZE3215094, 0.04 MMBtu/hr, Natural Gas	10300603	2003	DM
EB053	250	Bradford White Water Heater, M/N: MI40T6FBN2, S/N: ZM3994724, 0.04 MMBtu/hr, Natural Gas	10300603	2003	DM
EB054	258	Bradford White Water Heater, M/N: M17550BN12, S/N: ZM3976761, 0.076 MMBtu/hr, Natural Gas	10300603	2003	DM
EB055	278	Rheem Water Heater, M/N: 1PZ63, S/N: VGLN 0502 139557, 0.07 MMBtu/hr, Natural Gas	10300603	2002	DM
EB056	282	Rheem Water Heater, M/N: IPZ64, S/N: VGLN0202A07127, 0.036 MMBtu/hr, Natural Gas	10300603	2002	DM
EB057	350	America Water Heater, M/N: DLG31-100T199-GN, S/N: ZF3288241, 0.2 MMBtu/hr, Natural Gas	10300603	2003	DM
EB058	451	Rheem Water Heater, M/N: 1PZ55, S/N: VGLN01022 10570, 0.032 MMBtu/hr, Natural Gas	10300603	2002	DM
EB059	586	Bradford White Water Heater, M/N: MI40T6FBN4, S/N: ZM3994722, 0.04 MMBtu/hr, Natural Gas	10300603	2003	DM
EB060	600	Bradford White Water Heater, M/N: MI7556EN12, S/N: ZA2604288, 0.04 MMBtu/hr, Natural Gas	10300603	2003	DM
EB061	601	America Water Heater, M/N: DCG31-100T199-GN, S/N: ZF3254402, 0.2 MMBtu/hr, Natural Gas	10300603	2003	DM
EB062	603	A.O. Smith Water Heater, M/N: BTP300-600000, S/N: 3G02-96193Y3, 0.6 MMBtu/hr, Natural Gas	10300603	2002	DM
EB063	615	Bradford White Water Heater, M/N: MT5036FBN2, S/N: ZM4030453, 0.04 MMBtu/hr, Natural Gas	10300603	2003	DM
EB064	873	Bradford White Water Heater, M/N: MI40T6FBN2, S/N: ZM3994643-394, 0.004 MMBtu/hr, Natural Gas	10300603	2003	DM
EB065	3366	Bradford White Water Heater, M/N: MI40T6FBN2, S/N: ZM3994501, 0.04 MMBtu/hr, Natural Gas	10300603	2003	DM
EB066	10118	GE Smart Water Water Heater, M/N: G650T6A, S/N: 202111199, 0.036 MMBtu/hr, Natural Gas	10300603	2002	DM
EB067	10564	GE Smart Water Water Heater, M/N: 6G30T6A, S/N: GENG0303231149, 0.032 MMBtu/hr, Natural Gas	10300603	2003	DM
EB068	61663	American Water Htr Water Heater, M/N: DCG31-100T199-6N, S/N: ZS3288252, 0.199 MMBtu/hr, Natural Gas	10300603	2003	DM
EB069	61663	American Water Htr Water Heater, M/N: DCG31-100T199-6N, S/N: ZF3288252, 0.2 MMBtu/hr, Natural Gas	10300603	2003	DM
EB070	61697	State Water Heater, M/N: SBF100260NT, S/N: H02159238, 0.26 MMBtu/hr, Natural Gas	10300603	2002	DM
EB071	20	RBI Boiler, M/N: FHN-400-SV, S/N: 898851, 0.4 MMBtu/hr, Natural Gas	10300603	1989	F1

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EU	Building	Description	SCC	Unit Install Date	Type[2]
EB072	20	RBI Boiler, M/N: FHN-500-SV, S/N: 7988497, 0.5 MMBtu/hr, Natural Gas	10300603	1979	DM
EB073	100	Rite Boiler, M/N: 42X, S/N: 7415598, 0.42 MMBtu/hr, Natural Gas	10300603	1974	DM
EB074	102	Parker Boiler, M/N: T300, S/N: 48351, 0.16 MMBtu/hr, Natural Gas	10300603	1997	DM
EB075	118	Parker Boiler, M/N: T300, S/N: 50039, 0.16 MMBtu/hr, Natural Gas	10300603	1998	DM
EB076	175	Teledyne Laars Boiler, M/N: HH0400MN20CBAKX, S/N: M97A00940, 0.399 MMBtu/hr, Natural Gas	10300603	1997	DM
EB077	201	Rite Boiler, M/N: 55WGO, S/N: 8218612, 0.4 MMBtu/hr, Natural Gas	10300603	1982	DM
EB078	220	Ajax Boiler, M/N: WGFD700, S/N: 71-25286, 0.7 MMBtu/hr, Natural Gas	10300603	1971	DM
EB079	222	Ajax Boiler, M/N: WGFD700, S/N: 71-25352, 0.7 MMBtu/hr, Natural Gas	10300603	1971	DM
EB080	224	Ajax Boiler, M/N: WGFD700, S/N: 71-25284, 0.7 MMBtu/hr, Natural Gas	10300603	1971	DM
EB081	230	State Boiler, M/N: SB77575NE1, S/N: C95085203, 0.075 MMBtu/hr, Natural Gas	10300603	1995	DM
EB082	270	Ajax Boiler, M/N: WG-850S, S/N: 87-39412, 0.85 MMBtu/hr, Natural Gas	10300603	1987	DM
EB083	270	Ajax Boiler, M/N: WG-850S, S/N: 87-39409, 0.85 MMBtu/hr, Natural Gas	10300603	1987	DM
EB084	270	Ajax Boiler, M/N: WG-850-D, S/N: N/A, 0.85 MMBtu/hr, Natural Gas	10300603	1981	DM
EB085	270	Ajax Boiler, M/N: WG-850-D, S/N: 87-39404, 0.85 MMBtu/hr, Natural Gas	10300603	1987	DM
EB086	272	Raypak Boiler, M/N: H-0724A-CCARCCA, S/N: 1088106940, 0.726 MMBtu/hr, Natural Gas	10300603	1988	DM
EB087	277	Teledyne Laars Boiler, M/N: HH0520MN20CBABX, S/N: M97B01513, 0.52 MMBtu/hr, Natural Gas	10300603	1997	DM
EB088	282	Parker Boiler, M/N: T300, S/N: 48296, 0.3 MMBtu/hr, Natural Gas	10300603	1997	DM
EB089	283	Rite Boiler, M/N: 76X, S/N: 7616247, 0.76 MMBtu/hr, Natural Gas	10300603	1976	F1
EB090	283	Rite Boiler, M/N: 76X, S/N: 7616246, 0.76 MMBtu/hr, Natural Gas	10300603	1976	DM
EB091	283	Rite Boiler, M/N: 76X, S/N: 7616245, 0.76 MMBtu/hr, Natural Gas	10300603	1976	DM
EB092	300	Teledyne Laars Boiler, M/N: HH0400MN20CBAKX, S/N: M97A00925, 0.399 MMBtu/hr, Natural Gas	10300603	1997	DM
EB093	320	Teledyne Laars Boiler, M/N: HH0520MN20CBABX, S/N: M97B01419, 0.52 MMBtu/hr, Natural Gas	10300603	1997	DM
EB094	324	Teledyne Laars Boiler, M/N: HHO715EN09FBACW, S/N: C97D02924, 0.715 MMBtu/hr, Natural Gas	10300603	1997	DM
EB095	328	Rite Boiler, M/N: N76X, S/N: 8999M10, 0.76 MMBtu/hr, Natural Gas	10300603	1989	DM
EB096	428	Teledyne Laars Boiler, M/N: HH040MN20CBAKX, S/N: M97A00941, 0.399 MMBtu/hr, Natural Gas	10300603	1997	DM
EB097	445	Ajax Boiler, M/N: WGFD-700, S/N: 89-4200, 0.812 MMBtu/hr, Natural Gas	10300603	1989	DM

PROPOSED

EU	Building	Description	SCC	Unit Install Date	Type[2]
EB098	451	Raypak Boiler, M/N: H0403A-CCAUBCA, S/N: 1287108074, 0.399 MMBtu/hr, Natural Gas	10300603	1987	DM
EB099	470	Ajax Boiler, M/N: WGDFD-525, S/N: 88-4041G, 0.8 MMBtu/hr, Natural Gas	10300603	1988	DM
EB100	536	Teledyne Laars Boiler, M/N: PW0400CN120, S/N: 8891780, 0.4 MMBtu/hr, Natural Gas	10300603	1988	DM
EB101	538	Teledyne Laars Boiler, M/N: HH0320MN20CBAKX, S/N: M97A01035, 0.32 MMBtu/hr, Natural Gas	10300603	1997	DM
EB102	540	Teledyne Laars Boiler, M/N: VW0400CN12BACX, S/N: A95CE0043, 0.2 MMBtu/hr, Natural Gas	10300603	1995	DM
EB103	545	Ruscio Bro Boiler, M/N: FHN350-SV, S/N: 7988437, 0.35 MMBtu/hr, Natural Gas	10300603	1979	DM
EB104	545	Teledyne Laars Boiler, M/N: PW0400CN12KBAEN, S/N: A94CJ0163, 0.4 MMBtu/hr, Natural Gas	10300603	1994	DM
EB105	567	Teledyne Laars Boiler, M/N: HH040MN20CBAKX, S/N: M97A00924, 0.399 MMBtu/hr, Natural Gas	10300603	1997	DM
EB106	580	Teledyne Laars Boiler, M/N: HH052OMN20CBABX, S/N: M97B01512, 0.52 MMBtu/hr, Natural Gas	10300603	1997	DM
EB107	588	Teledyne Laars Boiler, M/N: HH0400MN20CBAKX, S/N: M97A00670, 0.399 MMBtu/hr, Natural Gas	10300603	1997	DM
EB108	617	Teledyne Laars Boiler, M/N: HH0320MN20CBAKX, S/N: M97A01040, 0.32 MMBtu/hr, Natural Gas	10300603	1997	DM
EB109	620	Teledyne Laars Boiler, M/N: HH0520MN20CBABX, S/N: M97B01418, 0.52 MMBtu/hr, Natural Gas	10300603	1997	F1
EB110	625	RBI Boiler, M/N: SWD200E, S/N: 84914000, 0.2 MMBtu/hr, Natural Gas	10300603	1984	DM
EB111	716	Teledyne Laars Boiler, M/N: HH0320MN20CBAKX, S/N: M97A01040, 0.32 MMBtu/hr, Natural Gas	10300603	1997	DM
EB112	790	Teledyne Laars Boiler, M/N: HHO400MN20CBAKX, S/N: M97A00667, 0.399 MMBtu/hr, Natural Gas	10300603	1997	DM
EB113	811	Teledyne Laars Boiler, M/N: PW0400CN12C, S/N: 91110089C, 0.4 MMBtu/hr, Natural Gas	10300603	1991	DM
EB114	812	Smith Cast Iron Boiler, M/N: G300-S/W-10INT, S/N: A93-166, 0.675 MMBtu/hr, Natural Gas	10300603	1993	DM
EB115	828	Teledyne Laars Boiler, M/N: HH0320MN20CBAKX, S/N: M97801039, 0.32 MMBtu/hr, Natural Gas	10300603	1997	DM
EB116	858	Ajax Boiler, M/N: WG600, S/N: 90-42319, 0.6 MMBtu/hr, Natural Gas	10300603	1990	DM
EB117	878	Rite Boiler, M/N: 48, S/N: 8319044, 0.25 MMBtu/hr, Natural Gas	10300603	1983	DM
EB118	880	Rite Boiler, M/N: 48, S/N: 8319045, 0.25 MMBtu/hr, Natural Gas	10300603	1983	DM
EB119	882	Rite Boiler, M/N: 48, S/N: 8319040, 0.25 MMBtu/hr, Natural Gas	10300603	1983	DM
EB120	1032	Hydrotherm Corp Boiler, M/N: AM-300, S/N: 9736944, 0.299 MMBtu/hr, Natural Gas	10300603	1997	DM
EB121	1032	Hydrotherm Corp Boiler, M/N: AM-300, S/N: 9736941, 0.299 MMBtu/hr, Natural Gas	10300603	1997	DM
EB122	1032	Hydrotherm Corp Boiler, M/N: AM-300, S/N: 9736940, 0.299 MMBtu/hr, Natural Gas	10300603	1997	DM
EB123	1032	Hydrotherm Corp Boiler, M/N: AM-300, S/N: 9736924, 0.299 MMBtu/hr, Natural Gas	10300603	1997	DM

PRELIMINARY

EU	Building	Description	SCC	Unit Install Date	Type[2]
EB124	1037	Rite Boiler, M/N: 48WG, S/N: 8921706, 1 MMBtu/hr, Natural Gas	10300603	1989	DM
EB125	2201	RBI Boiler, M/N: LB0400N0E2A0CA, S/N: 90436550, 0.399 MMBtu/hr, Natural Gas	10300603	1990	DM
EB126	2221	RBI Boiler, M/N: LB0400N0E2A0CA, S/N: 90436551, 0.399 MMBtu/hr, Natural Gas	10300603	1990	DM
EB127	2261	RBI Boiler, M/N: 750, S/N: 9043543, 0.7 MMBtu/hr, Natural Gas	10300603	1990	DM
EB128	2945	Teledyne Laars Boiler, M/N: BW0400ANY20, S/N: 8891539, 0.4 MMBtu/hr, Natural Gas	10300603	1988	DM
EB129	10116	Flexaire Boiler, M/N: SDF-500FU, S/N: 893-849, 0.62 MMBtu/hr, Natural Gas	10300603	1989	DM
EB130	10210	Raypak Boiler, M/N: W1-0263B-BCDRDAA, S/N: 9309110415, 0.204 MMBtu/hr, Natural Gas	10300603	1993	DM
EB131	10210	Raypak Boiler, M/N: H1-0024C-CEARCAA, S/N: 9309110498, 0.627 MMBtu/hr, Natural Gas	10300603	1993	DM
EB132	10234	Teledyne Laars Boiler, M/N: PW0400CN12C, S/N: 8891537, 0.4 MMBtu/hr, Natural Gas	10300603	1988	F1
EB133	10234	Fournost Boiler, M/N: DSID525-80-1, S/N: 902500302, 0.505 MMBtu/hr, Natural Gas	10300603	1990	DM
EB134	61663	Raypak Boiler, M/N: W1-0333B-CCDRBDA, S/N: 9301105478, 0.333 MMBtu/hr, Natural Gas	10300603	1993	DM
EB135	202	Raypak Boiler, M/N: H3-0502, S/N: 030G209004, 0.5 MMBtu/hr, Natural Gas	10300603	2003	DM
EB136	252	Raypak Boiler, M/N: H1-0260, S/N: 303206045, 0.264 MMBtu/hr, Natural Gas	10300603	2003	DM
EB137	284	Raypak Boiler, M/N: H1-0133, S/N: 205194445, 0.136 MMBtu/hr, Natural Gas	10300603	2002	DM
EB138	295	Raypak Boiler, M/N: H1-0253C-CEAHBAA, S/N: 9501121275, 0.254 MMBtu/hr, Natural Gas	10300603	2003	DM
EB139	601	Raypak Boiler, M/N: WH3-0502, S/N: 207197594, 0.5 MMBtu/hr, Natural Gas	10300603	2002	DM
EB140	791	Laars Boiler, M/N: HH0715EN09CBACJX, S/N: C03J08167, 0.715 MMBtu/hr, Natural Gas	10300603	2003	DM
EB141	791	Laars Boiler, M/N: HH0715EN09CBACJX, S/N: C03J08166, 0.715 MMBtu/hr, Natural Gas	10300603	2003	DM
EB142	805	Raypak Boiler, M/N: H1-0260, S/N: 212202758, 0.264 MMBtu/hr, Natural Gas	10300603	2002	DM
EB143	10301	Ajax Boiler, M/N: WOD-350, S/N: 92-43805, 0.35 MMBtu/hr, Diesel	10300503	1992	DM
EB144	10406	Ajax Boiler, M/N: WOFD-600, S/N: 90-42671, 0.6 MMBtu/hr, Diesel	10300503	1990	DM
EB145	10402	Ajax Boiler, M/N: SX08FD-600, S/N: 86-39118, 0.6 MMBtu/hr, Diesel	10300503	1986	DM
EB146	10416	Hurst Boiler, M/N: ABC-1000, S/N: V61-15-17, 0.863 MMBtu/hr, Diesel	10300503	2002	DM
EB147	10416	Ajax Boiler, M/N: WOFD-600, S/N: 90-42671, 0.6 MMBtu/hr, Diesel	10300503	1990	DM

[1]Type codes for billing: F1 = Fuel burning equipment; DM = De minimis unit (not subject to fees). Refer to AQR Section 18 for annual fee information.

PROPOSED

Table V-A-2: Summary of Regulated Emission Units

EU	Building	Description	SCC	Type[1]
RB001	2	Raypak Boiler, M/N: H3-0400, S/N: 207197573, 0.399 MMBtu/hr, Natural Gas	10300603	F1
RB002	6	Rite Boiler, M/N: 700, S/N: 52198H, 0.45 MMBtu/hr, Natural Gas	10300603	DM
RB003	11	Raypak Boiler, M/N: N/A, S/N: 8821213, 3.0 MMBtu/hr, Natural Gas	10300603	DM
RB004	11	New Unit Boiler, M/N: TBD, S/N: TBD, 3.0 MMBtu/hr, Natural Gas	10300603	DM
RB005	47	Rheem Water Heater, M/N: E61-50R-045D, S/N: 401123663, 0.045 MMBtu/hr, Natural Gas	10300603	DM
RB006	66	Bradford White Water Heater, M/N: MI40T6EN12, S/N: C040611541, 0.04 MMBtu/hr, Natural Gas	10300603	DM
RB007	94	Raypak Boiler, M/N: 202T, S/N: 1250050, 0.199 MMBtu/hr, Natural Gas	10300603	DM
RB008	98	Thermodale Boiler, M/N: GWA-215, S/N: 9911, 0.215 MMBtu/hr, Natural Gas	10300603	DM
RB009	118	A. O. Smith Water Heater, M/N: BT80230, S/N: MA99-0798581-230, 0.075 MMBtu/hr, Natural Gas	10300603	DM
RB010	199	Armstrong Humidifier, M/N: GFH-100, S/N: 202, 0.133 MMBtu/hr, Natural Gas	10300603	DM
RB011	199	Armstrong Humidifier, M/N: GFH-100, S/N: 201, 0.133 MMBtu/hr, Natural Gas	10300603	DM
RB012	199	Armstrong Humidifier, M/N: GFH-100, S/N: 203, 0.133 MMBtu/hr, Natural Gas	10300603	DM
RB013 [2]	199	Rite Boiler, M/N: A650WG, S/N: 27930, 6.5 MMBtu/hr, Natural Gas	10300603	DM
RB014	200	Lochinvar Boiler, M/N: CHN0991, S/N: G04H00166648, 0.99 MMBtu/hr, Natural Gas	10300603	DM
RB015	200	Lochinvar Boiler, M/N: CHN0991, S/N: G04H00166647, 0.99 MMBtu/hr, Natural Gas	10300603	DM
RB016	201	Rite Boiler, M/N: 105W, S/N: 29456, 1.05 MMBtu/hr, Natural Gas	10300603	DM
RB017	202	Lochinvor Water Heater, M/N: CNR155-035-DF9, S/N: YF1660311, 0.155 MMBtu/hr, Natural Gas	10300603	DM
RB018	202	Lattner Boiler, M/N: HE, S/N: 52292, 0.97 MMBtu/hr, Natural Gas	10300603	F1
RB019	220	RBI Boiler, M/N: LB0400N0E2A0CA, S/N: 90436550, 0.399 MMBtu/hr, Natural Gas	10300603	DM
RB020	222	RBI Boiler, M/N: LB0400N0E2A0CA, S/N: 90436551, 0.399 MMBtu/hr, Natural Gas	10300603	DM
RB021	224	RBI Boiler, M/N: LB0400N0E2A2CA, S/N: 100436593, 0.399 MMBtu/hr, Natural Gas	10300603	DM
RB022	226	RBI Boiler, M/N: 750, S/N: 9043543, 0.7 MMBtu/hr, Natural Gas	10300603	DM
RB023 [2]	232	Rite Boiler, M/N: A165, S/N: 8319082, 1.65 MMBtu/hr, Natural Gas	10300603	DM
RB024	232	RBI Boiler, M/N: FB 1750, S/N: 120437366, 1.75 MMBtu/hr, Natural Gas	10300603	DM
RB025	233	America Water Heater, M/N: MA75-80H, S/N: B2OK93, 0.076 MMBtu/hr, Natural Gas	10300603	DM
RB026	233	RBI Boiler, M/N: LB0225, S/N: 120437419, 0.225 MMBtu/hr, Natural Gas	10300603	DM

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EU	Building	Description	SCC	Type[1]
RB027	242	RBI Boiler, M/N: GWA-301, S/N: 3R7, 0.301 MMBtu/hr, Natural Gas	10300603	DM
RB028	242	RBI Boiler, M/N: FB 0750, S/N: 110437043, 0.75 MMBtu/hr, Natural Gas	10300603	DM
RB029[2]	245	Ajax Boiler, M/N: WGH-2500S, S/N: 87-39903, 2.5 MMBtu/hr, Natural Gas	10300603	F1
RB030	245	Rite Boiler, M/N: 250, S/N: 1326B11, 2.5 MMBtu/hr, Natural Gas	10300603	DM
RB031	245	RBI Boiler, M/N: FB 1950, S/N: 120437381, 1.95 MMBtu/hr, Natural Gas	10300603	DM
RB032	245	RBI Boiler, M/N: FB 1950, S/N: 120437382, 1.95 MMBtu/hr, Natural Gas	10300603	DM
RB033	250	Thermopak Boiler, M/N: GWA-301, S/N: 3R8, 0.301 MMBtu/hr, Natural Gas	10300603	DM
RB133	252	Tennant Boiler, M/N: PNCH 400, S/N: TBD, 0.4 MMBtu/hr, Natural Gas	10300603	DM
RB134	252	RITE Boiler, M/N: PNCH 300, S/N: TBD, 0.301 MMBtu/hr, Natural Gas	10300603	DM
RB034	256	JBI Furnace, M/N: CFA-275, S/N: 225-4, 2.365 MMBtu/hr, Natural Gas	10300603	DM
RB035	256	JBI Furnace, M/N: CFA-275, S/N: 225-5, 2.365 MMBtu/hr, Natural Gas	10300603	DM
RB036	256	RBI Boiler, M/N: FB1950, S/N: 110436943, 1.95 MMBtu/hr, Natural Gas	10300603	F1
RB037	256	RBI Boiler, M/N: FB1950, S/N: 20537821, 1.95 MMBtu/hr, Natural Gas	10300603	DM
RB038	258	Thermodale Boiler, M/N: GWA-301, S/N: 3129, 0.301 MMBtu/hr, Natural Gas	10300603	DM
RB039	258	RBI Boiler, M/N: LB0400N0E2A2CA, S/N: 100436594, 0.399 MMBtu/hr, Natural Gas	10300603	DM
RB040	262	Patterson-Kelley Boiler, M/N: N-2000-2, S/N: CL47-02-24302, 2.0 MMBtu/hr, Natural Gas	10300603	DM
RB041	264	Thermopak Boiler, M/N: GWA559, S/N: 2R32, 0.559 MMBtu/hr, Natural Gas	10300603	DM
RB042	2701	RBI Boiler, M/N: FB 0750, S/N: 110437044, 0.75 MMBtu/hr, Natural Gas	10300603	DM
RB043	2701	RBI Boiler, M/N: FB 0750, S/N: 100436870, 0.75 MMBtu/hr, Natural Gas	10300603	DM
RB044	2701	RBI Boiler, M/N: FB 0750, S/N: 120437333, 0.75 MMBtu/hr, Natural Gas	10300603	DM
RB045	270	Rheem Water Heater, M/N: 6E706, S/N: VGNG0599176106, 0.036 MMBtu/hr, Natural Gas	10300603	DM
RB046	277	State Water Heater, M/N: PR075NRRT, S/N: E01308213, 0.075 MMBtu/hr, Natural Gas	10300603	DM
RB047	283	Bradford White Water Heater, M/N: MI40T6FBN4, S/N: AP4531669, 0.04 MMBtu/hr, Natural Gas	10300603	DM
RB048	285	Lochinvor Water Heater, M/N: RWN360PM, S/N: C014100, 0.36 MMBtu/hr, Natural Gas	10300603	F1
RB049[2]	285	Parker Boiler, M/N: T2160, S/N: 52994, 1.995 MMBtu/hr, Natural Gas	10300603	DM
RB050[2]	292	Parker Boiler, M/N: T-1995LR, S/N: N/A, 1.995 MMBtu/hr, Natural Gas	10300603	DM
RB051	295	Bradford White Water Heater, M/N: MI40T6FBN4, S/N: AC4384686, 0.04 MMBtu/hr, Natural Gas	10300603	DM

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EU	Building	Description	SCC	Type[1]
RB052 [2]	312	Ajax Boiler, M/N: WGB-2000, S/N: 73-26966, 2.0 MMBtu/hr, Natural Gas	10300603	DM
RB053	312	New Unit Boiler, M/N: TBD, S/N: TBD, 2.0 MMBtu/hr, Natural Gas	10300603	DM
RB054	340	Raypak Boiler, M/N: H9-1802, S/N: 405221558, 1.8 MMBtu/hr, Natural Gas	10300603	F1
RB055	362	Patterson-Kelley Boiler, M/N: N-700, S/N: AL26-03-25166, 0.7 MMBtu/hr, Natural Gas	10300603	DM
RB056	362	Bradford White Water Heater, M/N: MI40T6FBN4, S/N: AL5486141, 0.04 MMBtu/hr, Natural Gas	10300603	DM
RB057	415	A. O. Smith Water Heater, M/N: BTR 154 110, S/N: MM001000004, 0.154 MMBtu/hr, Natural Gas	10300603	DM
RB058	415	Ajax Boiler, M/N: WNG450, S/N: 54813, 0.45 MMBtu/hr, Natural Gas	10300603	DM
RB059	423	America Water Heater, M/N: CG32100T884N, S/N: TG6135042, 0.088 MMBtu/hr, Natural Gas	10300603	DM
RB060	425	Laars Boiler, M/N: DC1CB0007, S/N: 189076, 0.329 MMBtu/hr, Natural Gas	10300603	DM
RB061 [2]	432	Patterson Kelly Boiler, M/N: N-2000-2, S/N: N/A, 2.0 MMBtu/hr, Natural Gas	10300603	DM
RB062 [2]	432	Patterson Kelly Boiler, M/N: N-2000-2, S/N: N/A, 2.0 MMBtu/hr, Natural Gas	10300603	DM
RB063	432	Sellers Engr Boiler, M/N: 80HP-W-LN490, S/N: 101181, 3.348 MMBtu/hr, Natural Gas	10300603	DM
RB064	462	Ressanaire Furnace, M/N: HC-20TMI-521, S/N: 94-7391-1, 1.728 MMBtu/hr, Natural Gas	10300603	F1
RB065 [2]	467	Burnham Boiler, M/N: 3W-125-SPL-G-GP, S/N: 24943, 5.25 MMBtu/hr, Natural Gas	10300603	DM
RB066 [2]	467	Burnham Boiler, M/N: 3W-125-SPL-G-GP, S/N: 24351, 5.25 MMBtu/hr, Natural Gas	10300603	F1
RB067	536	Patterson-Kelley Boiler, M/N: N-700, S/N: AL22-03-25014, 0.7 MMBtu/hr, Natural Gas	10300603	DM
RB068	538	Weben Jarco Water Heater, M/N: AJH35, S/N: 4935, 0.35 MMBtu/hr, Natural Gas	10300603	DM
RB069	540	Jarco Water Heater, M/N: AJ435, S/N: AJ43535-3816, 0.35 MMBtu/hr, Natural Gas	10300603	DM
RB070 [2]	542	Raypak Boiler, M/N: W1468A-DCDRDEA, S/N: 789104891, 1.467 MMBtu/hr, Natural Gas	10300603	DM
RB071	552	Futura/RBI Boiler, M/N: FWN1250E00, S/N: 11002410, 1.25 MMBtu/hr, Natural Gas	10300603	DM
RB072	552	Futura/RBI Boiler, M/N: FWN1250E00, S/N: 11002408, 1.25 MMBtu/hr, Natural Gas	10300603	DM
RB073	552	Futura/RBI Boiler, M/N: FWN1250E00, S/N: 11002407, 1.25 MMBtu/hr, Natural Gas	10300603	DM
RB074	552	Futura/RBI Boiler, M/N: FWN1250E00, S/N: 11002409, 1.25 MMBtu/hr, Natural Gas	10300603	DM
RB075	554	Rheem Water Heater, M/N: G100-Z70A, S/N: URNGOGO1G04386, 0.27 MMBtu/hr, Natural Gas	10300603	DM
RB076	554	Patterson-Kelley Boiler, M/N: N-700, S/N: AF31933365, 0.7 MMBtu/hr, Natural Gas	10300603	DM
RB077	556	Parker Boiler, M/N: T3900, S/N: 55743, 3.9 MMBtu/hr, Natural Gas	10300603	F1
RB078	556	Parker Boiler, M/N: T3900, S/N: 55744, 3.9 MMBtu/hr, Natural Gas	10300603	DM

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EU	Building	Description	SCC	Type[1]
RB079	556	Parker Boiler, M/N: T3900, S/N: 55745, 3.9 MMBtu/hr, Natural Gas	10300603	DM
RB080 [2]	567	Patterson Kelly Boiler, M/N: N-1500-2, S/N: N/A, 1.5 MMBtu/hr, Natural Gas	10300603	F1
RB081 [2]	567	Patterson Kelly Boiler, M/N: N-1500-2, S/N: N/A, 1.5 MMBtu/hr, Natural Gas	10300603	DM
RB082	584	Lochinvor Water Heater, M/N: CBN1700, S/N: D906792, 1.694 MMBtu/hr, Natural Gas	10300603	DM
RB083	584	New Unit Water Heater, M/N: TBD, S/N: TBD, 1.694 MMBtu/hr, Natural Gas	10300603	DM
RB084	584	Bradford White Water Heater, M/N: MI40T6FBN4, S/N: AJ5155040, 0.04 MMBtu/hr, Natural Gas	10300603	DM
RB085	585	Lochinvor Water Heater, M/N: CB-N1700, S/N: C906562, 1.694 MMBtu/hr, Natural Gas	10300603	DM
RB086	585	New Unit Water Heater, M/N: TBD, S/N: TBD, 1.694 MMBtu/hr, Natural Gas	10300603	DM
RB087	588	Bradford White Water Heater, M/N: MI40T6FBN4, S/N: AF4818726, 0.04 MMBtu/hr, Natural Gas	10300603	DM
RB088	589	Patterson-Kelley Boiler, M/N: N-700, S/N: AL26-03-25107, 0.7 MMBtu/hr, Natural Gas	10300603	F1
RB089 [2]	600	Parker Boiler, M/N: T1140LR, S/N: N/A, 1.14 MMBtu/hr, Natural Gas	10300603	DM
RB090	603	Seasons-4 Furnace, M/N: 1SSK53-1344-PN16-46HR, S/N: A 7397-0102 RTU-1, 1.65 MMBtu/hr, Natural Gas	10300603	DM
RB091	615	Teledyne Laars Boiler, M/N: HH0320MN20CBAKX, S/N: N/A, 0.32 MMBtu/hr, Natural Gas	10300603	DM
RB092	615	American Water Heater, M/N: G61-40T34-39, S/N: 9927117311, 0.034 MMBtu/hr, Natural Gas	10300603	DM
RB093	620	Lochinvar Boiler, M/N: OWN0495PM, S/N: C004038, 0.495 MMBtu/hr, Natural Gas	10300603	DM
RB094	620	Camus Boiler, M/N: MFNH 1600-E-02, S/N: 20501489, 1.6 MMBtu/hr, Natural Gas	10300603	DM
RB095	625	Raypak Boiler, M/N: H-401, S/N: 409225732, 0.399 MMBtu/hr, Natural Gas	10300603	DM
RB096 [2]	625	RBI Boiler, M/N: FHN12503-02, S/N: 30020547, 1.25 MMBtu/hr, Natural Gas	10300603	DM
RB097 [2]	625	Patterson-Kelley Boiler, M/N: No Info., S/N: No Info., 1.25 MMBtu/hr,	10300603	DM
RB098	711	Rite Boiler, M/N: 300WG, S/N: 8821213, 3.0 MMBtu/hr, Natural Gas	10300603	F1
RB099	807	State Water Heater, M/N: PR650NBRT, S/N: C01112594, 0.04 MMBtu/hr, Natural Gas	10300603	DM
RB100	807	Rite Boiler, M/N: 275WG, S/N: 8921705, 2.0 MMBtu/hr, Natural Gas	10300603	DM
RB101	807	New Unit Boiler, M/N: TBD, S/N: TBD, 2.0 MMBtu/hr, Natural Gas	10300603	DM
RB102	811	Lochinvar Water Heater, M/N: ETN040, S/N: PM0518692, 0.034 MMBtu/hr, Natural Gas	10300603	DM
RB103	854	Ajax Boiler, M/N: WG350, S/N: 22J3-35-8W, 0.35 MMBtu/hr, Natural Gas	10300603	DM
RB104	868	Rupp Furnace, M/N: N/A, S/N: S85181, 3.025 MMBtu/hr, Natural Gas	10300603	DM
RB105	1032	A. O. Smith Boiler, M/N: BTR400110, S/N: MA040006660, 1.0 MMBtu/hr, Natural Gas	10300603	DM

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EU	Building	Description	SCC	Type[1]
RB106	1037	New Unit Water Heater, M/N: N/A, S/N: N/A, 1.0 MMBtu/hr, Natural Gas	10300603	DM
RB107	1100	American Water Htr Water Heater, M/N: G62-75T75-4NV, S/N: 401131700, 0.075 MMBtu/hr, Natural Gas	10300603	DM
RB108	1100	Patterson-Kelley Boiler, M/N: N700, S/N: AF13933032, 0.7 MMBtu/hr, Natural Gas	10300603	DM
RB109 [2]	1301	Fulton Boiler, M/N: VMP-W40, S/N: 101204, 1.595 MMBtu/hr, Natural Gas/diesel	10300603	DM
RB110 [2]	1301	Fulton Boiler, M/N: VMP-W40, S/N: 101257, 1.595 MMBtu/hr, Natural Gas/diesel	10300603	DM
RB111 [2]	1301	Fulton Boiler, M/N: VMP-W40, S/N: 101235, 1.595 MMBtu/hr, Natural Gas/diesel	10300603	F1
RB112 [2]	1301	Fulton Boiler, M/N: TCS-60, S/N: 101205, 2.52 MMBtu/hr, Natural Gas/diesel	10300603	DM
RB113 [2]	1301	Fulton Boiler, M/N: TCS-60, S/N: 101236, 2.52 MMBtu/hr, Natural Gas/diesel	10300603	DM
RB114 [2]	1301	Fulton Boiler, M/N: TCS-60, S/N: 101195, 2.52 MMBtu/hr, Natural Gas/diesel	10300603	F1
RB115	2999	Rite Boiler, M/N: 76, S/N: 24968, 0.75 MMBtu/hr, Natural Gas	10300603	DM
RB116	3362	Rheem Water Heater, M/N: 1PZ59, S/N: VGLN1201409025, 0.038 MMBtu/hr, Natural Gas	10300603	DM
RB117	10177	Rheem Water Heater, M/N: RHLN0200141342, S/N: 41VR40N, 0.04 MMBtu/hr, Natural Gas	10300603	DM
RB118 [2]	10206	Parker Boiler, M/N: 40L, S/N: N/A, 1.68 MMBtu/hr, Natural Gas	10300603	DM
RB119	10236	Lochinvor Boiler, M/N: CWW0475, S/N: H913330, 0.475 MMBtu/hr, Natural Gas	10300603	DM
RB120	10423	Lochinvar Boiler, M/N: RBN270-F9, S/N: N/A, 0.27 MMBtu/hr, Natural Gas	10300603	DM
RB121	10423	Boiler Water Heater, M/N: N/A, S/N: N/A, 0.05 MMBtu/hr, Natural Gas	10300603	DM
RB122	10650	Royce Indust Water Heater, M/N: 6225, S/N: 67035, 1.2 MMBtu/hr, Natural Gas	10300603	DM
RB123	10650	Royce Indust Water Heater, M/N: 6225, S/N: 67036, 1.2 MMBtu/hr, Natural Gas	10300603	DM
RB135	SS	Natural Gas Boiler, M/N: TBD, S/N: TBD, 3.0 MMBtu/hr	10300603	DM
RB136	VMS	Natural Gas Boiler, M/N: TBD, S/N: TBD, 1.728 MMBtu/hr	10300603	DM
RB124 [2]	61664	Parker Boiler, M/N: T1460LR, S/N: N/A, 1.46 MMBtu/hr, Natural Gas	10300603	DM
RB125	61697	Parker Boiler, M/N: T760R, S/N: 55298, 0.76 MMBtu/hr, Natural Gas	10300503	DM
RB126	10304	Burnham Boiler, M/N: 4FF127507GP, S/N: 9947, 1.063 MMBtu/hr, Diesel	10300503	DM
RB127	10304	New Unit Boiler, M/N: TBD, S/N: TBD, 1.063 MMBtu/hr, Diesel	10300503	DM
RB128	10405	Whiel-Mclain Boiler, M/N: P-666HE-WT, S/N: CP1314447, 0.207 MMBtu/hr, Diesel	10300503	F1
RB129	10413	Oil Fired Boiler, M/N: N/A, S/N: N/A, 0.15 MMBtu/hr, Diesel	10300503	DM
RB130	10414	Oil Fired Boiler, M/N: N/A, S/N: N/A, 0.3 MMBtu/hr, Diesel	10300503	DM

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EU	Building	Description	SCC	Type[1]
RB131	10418	Columbia Boiler, M/N: WL60, S/N: N/A, 0.833 MMBtu/hr, Diesel	10300603	DM
RB132	10439	Ajax Boiler, M/N: WFG250, S/N: 55921, 0.125 MMBtu/hr, Propane	10300603	DM

[1]Type codes for billing: F1 = Fuel burning equipment; DM = De minimis unit (not subject to fees). Refer to AQR Section 18 for annual fee information.

[2] Existing, permitted units prior to the first external combustion unit consolidation on April 30, 2007.

B. Calculation of Potential to Emit (PTE)

The natural gas-fired combustion emissions are calculated using AP-42 emission factors from Chapter 1.4 *Natural Gas Combustion*. The NO_X and CO emission factors are from Table 1.4-1 *Emission Factors for Nitrogen Oxides (NO_X) and Carbon Monoxide (CO) from Natural Gas Combustion* for small boilers (<100 MMBtu/hour). The other criteria pollutant emission factors are from Table 1.4-2 *Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion* for small boilers (<100 MMBtu/hour). The HAP emission factors are from Table 1.4-3 Emission Factors for Speciated Organic Compounds from Natural Gas Combustion.

The diesel-fired combustion emissions are calculated using AP-42 emission factors from Chapter 1.3 *Fuel Oil Combustion*. The criteria pollutant emission factors were from Table 1.3-1 and 1.3-3, *Criteria Pollutant Emission Factors For Fuel Oil Combustion* for small boilers (<100 MMBTU/hour) burning distillate oil. The HAPs emission factors were from Table 1.3-9 *Emission Factors For Speciated Organic Compounds From Fuel Oil Combustion*.

The propane-fired external combustion emissions are calculated using AP-42 emission factors from Chapter 1.5 *Liquefied Petroleum Gas Combustion*. The criteria pollutant emission factors were from Table 1.5-1 *Emission Factors For LPG Combustion* for commercial boilers burning propane.

Table V-B-3 outlines the different emission factors used in estimating the PTE from the source's boilers.

Table V-B-3: AP-42 Emission Factors for External Combustion

Fuel Type	Emission Control	NO_X	CO	PM	SO_2	VOC	HAPs
Natural Gas[1]	No Control	100	84	7.6	0.6	5.5	1.89
	Low NO_X Burner	50	84	7.6	0.6	5.5	1.89
	Low NO_X/FGR	32	84	7.6	0.6	5.5	1.89
Diesel[2]	No Control	20	5	2.0	0.71	0.34	1.37E-01
Propane[3]	No Control	14	1.9	0.4	0.1	0.5	0.0

[1] AP-42 Section 1.4 Natural Gas Combustion Table 1.4-1 Criteria Pollutants (lb/10^6 scf) and Table 1.4-3 HAPS (lb/10^6 scf).

[2] AP-42 Section 1.3 Fuel Oil Combustion Tables 1.3-1,1.3-2,1.3-3 and 1.4-2 for Criteria Pollutants (lb/10^3 gal) and Table 1.3-9 and 1.3-10 for HAPS (lb/hr).

[3] AP-42 Section 1.5 Liquefied Petroleum Gas Combustion Table 1.5-1 Emission Factors for LPG Combustion (lb/10^3 gal).

Tables V-B-4 and V-B-5 outline the potential to emit of individual boilers in the source. Table V-B-4 quantifies the emissions from each of the exempt boilers while Table V-B-5 compiles the emissions from all of the source's regulated boilers

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Table V-B-4: Potential Emissions from Exempt Units[1, 2]

EU	Rating	Conditions	PM_{10}		NO_X		CO		SO_X		VOC		HAP	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	Lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
EB001	0.075 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.03	0.01	0.03	0.01	0.01	0.01	0.01	1.39E-04	6.08E-04
EB002	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
EB003	0.034 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	6.29E-05	2.76E-04
EB004	0.032 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	5.92E-05	2.59E-04
EB005	0.032 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	5.92E-05	2.59E-04
EB006	0.028 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	5.18E-05	2.27E-04
EB007	0.034 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	6.29E-05	2.76E-04
EB008	0.046 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.01	8.51E-05	3.73E-04
EB009	0.032 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	5.92E-05	2.59E-04
EB010	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
EB011	0.034 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	6.29E-05	2.76E-04
EB012	0.075 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.03	0.01	0.03	0.01	0.01	0.01	0.01	1.39E-04	6.08E-04
EB013	0.7 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.30	0.06	0.25	0.01	0.01	0.01	0.02	1.30E-03	5.67E-03
EB014	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
EB015	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
EB016	0.075 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.03	0.01	0.03	0.01	0.01	0.01	0.01	1.39E-04	6.08E-04
EB017	0.034 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	6.29E-05	2.76E-04
EB018	0.034 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	6.29E-05	2.76E-04
EB019	0.24 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.10	0.02	0.09	0.01	0.01	0.01	0.01	4.44E-04	1.95E-03
EB020	0.034 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	6.29E-05	2.76E-04
EB021	0.032 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	5.92E-05	2.59E-04
EB022	0.075 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.03	0.01	0.03	0.01	0.01	0.01	0.01	1.39E-04	6.08E-04
EB023	0.399 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.39E-04	3.23E-03
EB024	0.5 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.05	0.21	0.04	0.18	0.01	0.01	0.01	0.01	9.25E-04	4.05E-03
EB025	0.2 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.09	0.02	0.07	0.01	0.01	0.01	0.01	3.70E-04	1.62E-03
EB026	0.2 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.09	0.02	0.07	0.01	0.01	0.01	0.01	3.70E-04	1.62E-03
EB027	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
EB028	0.985 MMBtu/hr	8,760 hrs/yr	0.01	0.03	0.10	0.42	0.08	0.36	0.01	0.01	0.01	0.02	1.82E-03	7.99E-03
EB029	0.985 MMBtu/hr	8,760 hrs/yr	0.01	0.03	0.10	0.42	0.08	0.36	0.01	0.01	0.01	0.02	1.82E-03	7.99E-03
EB030	0.076 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.03	0.01	0.03	0.01	0.01	0.01	0.01	1.41E-04	6.16E-04
EB031	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
EB032	0.036 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	6.66E-05	2.92E-04
EB033	0.032 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	5.92E-05	2.59E-04
EB034	0.03 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	5.55E-05	2.43E-04

EU	Rating	Conditions	PM_{10}		NO_X		CO		SO_X		VOC		HAP	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	Lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
EB035	0.25 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.11	0.02	0.09	0.01	0.01	0.01	0.01	4.63E-04	2.03E-03
EB036	0.32 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.14	0.03	0.12	0.01	0.01	0.01	0.01	5.92E-04	2.59E-03
EB037	0.08 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.03	0.01	0.03	0.01	0.01	0.01	0.01	1.48E-04	6.49E-04
EB038	0.12 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.05	0.01	0.04	0.01	0.01	0.01	0.01	2.22E-04	9.73E-04
EB039	0.034 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	6.29E-05	2.76E-04
EB040	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
EB041	0.23 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.10	0.02	0.08	0.01	0.01	0.01	0.01	4.26E-04	1.86E-03
EB042	0.075 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.03	0.01	0.03	0.01	0.01	0.01	0.01	1.39E-04	6.08E-04
EB043	0.2 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.09	0.02	0.07	0.01	0.01	0.01	0.01	3.70E-04	1.62E-03
EB044	0.065 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.03	0.01	0.02	0.01	0.01	0.01	0.01	1.20E-04	5.27E-04
EB045	0.14 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.06	0.01	0.05	0.01	0.01	0.01	0.01	2.59E-04	1.13E-03
EB046	0.033 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	6.11E-05	2.68E-04
EB047	0.84 MMBtu/hr	8,760 hrs/yr	0.01	0.03	0.08	0.36	0.07	0.30	0.01	0.01	0.01	0.02	1.55E-03	6.81E-03
EB048	0.2 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.09	0.02	0.07	0.01	0.01	0.01	0.01	3.70E-04	1.62E-03
EB049	0.088 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.04	0.01	0.03	0.01	0.01	0.01	0.01	1.63E-04	7.13E-04
EB050	0.032 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	5.92E-05	2.59E-04
EB051	0.075 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.03	0.01	0.03	0.01	0.01	0.01	0.01	1.39E-04	6.08E-04
EB052	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
EB053	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
EB054	0.076 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.03	0.01	0.0	0.01	0.01	0.01	0.01	1.41E-04	6.16E-04
EB055	0.07 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.03	0.01	0.03	0.01	0.01	0.01	0.01	1.30E-04	5.67E-04
EB056	0.036 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	6.66E-05	2.92E-04
EB057	0.2 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.09	0.02	0.07	0.01	0.01	0.01	0.01	3.70E-04	1.62E-03
EB058	0.032 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	5.92E-05	2.59E-04
EB059	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
EB060	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
EB061	0.2 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.09	0.02	0.07	0.01	0.01	0.01	0.01	3.70E-04	1.62E-03
EB062	0.6 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.06	0.26	0.05	0.22	0.01	0.01	0.01	0.01	1.11E-03	4.86E-03
EB063	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
EB064	0.004 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-06	3.24E-05
EB065	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
EB066	0.036 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	6.66E-05	2.92E-04
EB067	0.032 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	5.92E-05	2.59E-04
EB068	0.199 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.09	0.02	0.07	0.01	0.01	0.01	0.01	3.68E-04	1.61E-03
EB069	0.2 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.09	0.02	0.07	0.01	0.01	0.01	0.01	3.70E-04	1.62E-03
EB070	0.26 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.11	0.02	0.09	0.01	0.01	0.01	0.01	4.81E-04	2.11E-03

EU	Rating	Conditions	PM_{10}		NO_X		CO		SO_X		VOC		HAP	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	Lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
EB071	0.4 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.40E-04	3.24E-03
EB072	0.5 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.05	0.21	0.04	0.18	0.01	0.01	0.01	0.01	9.25E-04	4.05E-03
EB073	0.42 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.18	0.03	0.15	0.01	0.01	0.01	0.01	7.77E-04	3.40E-03
EB074	0.16 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.07	0.01	0.06	0.01	0.01	0.01	0.01	2.96E-04	1.30E-03
EB075	0.16 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.07	0.01	0.06	0.01	0.01	0.01	0.01	2.96E-04	1.30E-03
EB076	0.399 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.39E-04	3.23E-03
EB077	0.4 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.40E-04	3.24E-03
EB078	0.7 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.30	0.06	0.25	0.01	0.01	0.01	0.02	1.30E-03	5.67E-03
EB079	0.7 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.30	0.06	0.25	0.01	0.01	0.01	0.02	1.30E-03	5.67E-03
EB080	0.7 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.30	0.06	0.25	0.01	0.01	0.01	0.02	1.30E-03	5.67E-03
EB081	0.075 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.03	0.01	0.03	0.01	0.01	0.01	0.01	1.39E-04	6.08E-04
EB082	0.85 MMBtu/hr	8,760 hrs/yr	0.01	0.03	0.08	0.37	0.07	0.31	0.01	0.01	0.01	0.02	1.57E-03	6.89E-03
EB083	0.85 MMBtu/hr	8,760 hrs/yr	0.01	0.03	0.08	0.37	0.07	0.31	0.01	0.01	0.01	0.02	1.57E-03	6.89E-03
EB084	0.85 MMBtu/hr	8,760 hrs/yr	0.01	0.03	0.08	0.37	0.07	0.31	0.01	0.01	0.01	0.02	1.57E-03	6.89E-03
EB085	0.85 MMBtu/hr	8,760 hrs/yr	0.01	0.03	0.08	0.37	0.07	0.31	0.01	0.01	0.01	0.02	1.57E-03	6.89E-03
EB086	0.726 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.31	0.06	0.26	0.01	0.01	0.01	0.02	1.34E-03	5.89E-03
EB087	0.52 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.05	0.22	0.04	0.19	0.01	0.01	0.01	0.01	9.62E-04	4.22E-03
EB088	0.3 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.13	0.02	0.11	0.01	0.01	0.01	0.01	5.55E-04	2.43E-03
EB089	0.76 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.33	0.06	0.27	0.01	0.01	0.01	0.02	1.41E-03	6.16E-03
EB090	0.76 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.33	0.06	0.27	0.01	0.01	0.01	0.02	1.41E-03	6.16E-03
EB091	0.76 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.33	0.06	0.27	0.01	0.01	0.01	0.02	1.41E-03	6.16E-03
EB092	0.399 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.39E-04	3.23E-03
EB093	0.52 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.05	0.22	0.04	0.19	0.01	0.01	0.01	0.01	9.62E-04	4.22E-03
EB094	0.715 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.31	0.06	0.26	0.01	0.01	0.01	0.02	1.32E-03	5.80E-03
EB095	0.76 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.33	0.06	0.27	0.01	0.01	0.01	0.02	1.41E-03	6.16E-03
EB096	0.399 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.39E-04	3.23E-03
EB097	0.812 MMBtu/hr	8,760 hrs/yr	0.01	0.03	0.08	0.35	0.07	0.29	0.01	0.01	0.01	0.02	1.50E-03	6.58E-03
EB098	0.399 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.39E-04	3.23E-03
EB099	0.8 MMBtu/hr	8,760 hrs/yr	0.01	0.03	0.08	0.34	0.07	0.29	0.01	0.01	0.01	0.02	1.48E-03	6.49E-03
EB100	0.4 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.40E-04	3.24E-03
EB101	0.32 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.14	0.03	0.12	0.01	0.01	0.01	0.01	5.92E-04	2.59E-03
EB102	0.2 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.09	0.02	0.07	0.01	0.01	0.01	0.01	3.70E-04	1.62E-03
EB103	0.35 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.15	0.03	0.13	0.01	0.01	0.01	0.01	6.48E-04	2.84E-03
EB104	0.4 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.40E-04	3.24E-03
EB105	0.399 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.39E-04	3.23E-03
EB106	0.52 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.05	0.22	0.04	0.19	0.01	0.01	0.01	0.01	9.62E-04	4.22E-03

EU	Rating	Conditions	PM_{10}		NO_X		CO		SO_X		VOC		HAP	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	Lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
EB107	0.399 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.39E-04	3.23E-03
EB108	0.32 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.14	0.03	0.12	0.01	0.01	0.01	0.01	5.92E-04	2.59E-03
EB109	0.52 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.05	0.22	0.04	0.19	0.01	0.01	0.01	0.01	9.62E-04	4.22E-03
EB110	0.2 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.09	0.02	0.07	0.01	0.01	0.01	0.01	3.70E-04	1.62E-03
EB111	0.32 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.14	0.03	0.12	0.01	0.01	0.01	0.01	5.92E-04	2.59E-03
EB112	0.399 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.39E-04	3.23E-03
EB113	0.4 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.40E-04	3.24E-03
EB114	0.675 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.29	0.06	0.24	0.01	0.01	0.01	0.02	1.25E-03	5.47E-03
EB115	0.32 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.14	0.03	0.12	0.01	0.01	0.01	0.01	5.92E-04	2.59E-03
EB116	0.6 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.06	0.26	0.05	0.22	0.01	0.01	0.01	0.01	1.11E-03	4.86E-03
EB117	0.25 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.11	0.02	0.09	0.01	0.01	0.01	0.01	4.63E-04	2.03E-03
EB118	0.25 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.11	0.02	0.09	0.01	0.01	0.01	0.01	4.63E-04	2.03E-03
EB119	0.25 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.11	0.02	0.09	0.01	0.01	0.01	0.01	4.63E-04	2.03E-03
EB120	0.299 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.13	0.02	0.11	0.01	0.01	0.01	0.01	5.53E-04	2.42E-03
EB121	0.299 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.13	0.02	0.11	0.01	0.01	0.01	0.01	5.53E-04	2.42E-03
EB122	0.299 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.13	0.02	0.11	0.01	0.01	0.01	0.01	5.53E-04	2.42E-03
EB123	0.299 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.13	0.02	0.11	0.01	0.01	0.01	0.01	5.53E-04	2.42E-03
EB124	1 MMBtu/hr	8,760 hrs/yr	0.01	0.03	0.10	0.43	0.08	0.36	0.01	0.01	0.01	0.02	1.85E-03	8.11E-03
EB125	0.399 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.39E-04	3.23E-03
EB126	0.399 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.39E-04	3.23E-03
EB127	0.7 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.30	0.06	0.25	0.01	0.01	0.01	0.02	1.30E-03	5.67E-03
EB128	0.4 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.40E-04	3.24E-03
EB129	0.62 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.06	0.27	0.05	0.22	0.01	0.01	0.01	0.01	1.15E-03	5.03E-03
EB130	0.204 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.09	0.02	0.07	0.01	0.01	0.01	0.01	3.78E-04	1.65E-03
EB131	0.627 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.06	0.27	0.05	0.23	0.01	0.01	0.01	0.01	1.16E-03	5.08E-03
EB132	0.4 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.40E-04	3.24E-03
EB133	0.505 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.05	0.22	0.04	0.18	0.01	0.01	0.01	0.01	9.35E-04	4.09E-03
EB134	0.333 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.14	0.03	0.12	0.01	0.01	0.01	0.01	6.16E-04	2.70E-03
EB135	0.5 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.05	0.21	0.04	0.18	0.01	0.01	0.01	0.01	9.25E-04	4.05E-03
EB136	0.264 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.11	0.02	0.10	0.01	0.01	0.01	0.01	4.89E-04	2.14E-03
EB137	0.136 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.06	0.01	0.05	0.01	0.01	0.01	0.01	2.52E-04	1.10E-03
EB138	0.254 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.11	0.02	0.09	0.01	0.01	0.01	0.01	4.70E-04	2.06E-03
EB139	0.5 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.05	0.21	0.04	0.18	0.01	0.01	0.01	0.01	9.25E-04	4.05E-03
EB140	0.715 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.31	0.06	0.26	0.01	0.01	0.01	0.02	1.32E-03	5.80E-03
EB141	0.715 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.31	0.06	0.26	0.01	0.01	0.01	0.02	1.32E-03	5.80E-03
EB142	0.264 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.11	0.02	0.10	0.01	0.01	0.01	0.01	4.89E-04	2.14E-03

EU	Rating	Conditions	PM_{10}		NO_X		CO		SO_X		VOC		HAP	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	Lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
EB143[3]	0.35 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.05	0.22	0.01	0.05	0.01	0.01	0.01	0.01	4.79E-05	2.22E-07
EB144[3]	0.6 MMBtu/hr	8,760 hrs/yr	0.01	0.04	0.09	0.38	0.02	0.09	0.01	0.01	0.01	0.01	8.20E-05	3.80E-07
EB145[3]	0.6 MMBtu/hr	8,760 hrs/yr	0.01	0.04	0.09	0.38	0.02	0.09	0.01	0.01	0.01	0.01	8.20E-05	3.80E-07
EB146[3]	0.863 MMBtu/hr	8,760 hrs/yr	0.01	0.05	0.12	0.54	0.03	0.13	0.01	0.02	0.01	0.02	1.18E-04	5.47E-07
EB147[3]	0.6 MMBtu/hr	8,760 hrs/yr	0.01	0.04	0.09	0.38	0.02	0.09	0.01	0.01	0.01	0.01	8.20E-05	3.80E-07

[1] Emissions listed are not federally enforceable limits and are provided for emissions quantification and tracking purposes only.

[2] Emissions are based on emission factors provided by AP-42 Tables 1.4-1,1.4-2,1.4-3, and 1.4-4 for uncontrolled small boilers unless noted otherwise.

[3] Emissions are based on emissions factors provided by AP-42 Tables 1.3-1, 1.3-3, 1.3-9 (for HAPs), and 1.3-10 (HAPs) for small distillate oil-fired boilers.

Table V-B-5: Regulated Emission Units Potential to Emit[1]

EU	Rating	Conditions	PM_{10}		NO_X		CO		SO_X		VOC		HAP	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
RB001	0.399 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.39E-04	3.23E-03
RB002	0.45 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.19	0.04	0.16	0.01	0.01	0.01	0.01	8.33E-04	3.65E-03
RB003	3.0 MMBtu/hr	8,760 hrs/yr	0.02	0.1	0.29	1.29	0.25	1.08	0.01	0.01	0.02	0.07	5.55E-03	2.43E-02
RB004	3.0 MMBtu/hr	8,760 hrs/yr	0.02	0.1	0.15	0.64	0.25	1.08	0.01	0.01	0.02	0.07	5.55E-03	2.43E-02
RB005	0.045 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.01	8.33E-05	3.65E-04
RB006	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
RB007	0.199 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.09	0.02	0.07	0.01	0.01	0.01	0.01	3.68E-04	1.61E-03
RB008	0.215 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.09	0.02	0.08	0.01	0.01	0.01	0.01	3.98E-04	1.74E-03
RB009	0.075 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.03	0.01	0.03	0.01	0.01	0.01	0.01	1.39E-04	6.08E-04
RB010	0.133 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.06	0.01	0.05	0.01	0.01	0.01	0.01	2.46E-04	1.08E-03
RB011	0.133 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.06	0.01	0.05	0.01	0.01	0.01	0.01	2.46E-04	1.08E-03
RB012	0.133 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.06	0.01	0.05	0.01	0.01	0.01	0.01	2.46E-04	1.08E-03
RB013[2]	6.5 MMBtu/hr	8,760 hrs/yr	0.05	0.21	0.20	0.87	0.24	1.06	0.01	0.02	0.04	0.15	1.20E-02	5.25E-02
RB014	0.99 MMBtu/hr	8,760 hrs/yr	0.01	0.03	0.1	0.43	0.08	0.36	0.01	0.01	0.01	0.02	1.83E-03	8.03E-03
RB015	0.99 MMBtu/hr	8,760 hrs/yr	0.01	0.03	0.1	0.43	0.08	0.36	0.01	0.01	0.01	0.02	1.83E-03	8.03E-03
RB016	1.05 MMBtu/hr	8,760 hrs/yr	0.01	0.03	0.1	0.45	0.09	0.38	0.01	0.01	0.01	0.02	1.94E-03	8.51E-03
RB017	0.155 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.07	0.01	0.06	0.01	0.01	0.01	0.01	2.87E-04	1.26E-03
RB018	0.97 MMBtu/hr	8,760 hrs/yr	0.01	0.03	0.1	0.42	0.08	0.35	0.01	0.01	0.01	0.02	1.80E-03	7.86E-03
RB019	0.399 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.39E-04	3.23E-03
RB020	0.399 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.39E-04	3.23E-03
RB021	0.399 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.39E-04	3.23E-03
RB022	0.7 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.3	0.06	0.25	0.01	0.01	0.01	0.02	1.30E-03	5.67E-03
RB023	1.65 MMBtu/hr	8,760 hrs/yr	0.01	0.05	0.16	0.71	0.14	0.60	0.01	0.01	0.01	0.04	3.05E-03	1.34E-02
RB024	1.75 MMBtu/hr	8,760 hrs/yr	0.01	0.06	0.09	0.38	0.14	0.63	0.01	0.01	0.01	0.04	3.24E-03	1.42E-02

EU	Rating	Conditions	PM_{10}		NO_X		CO		SO_X		VOC		HAP	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
RB025	0.076 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.03	0.01	0.03	0.01	0.01	0.01	0.01	1.41E-04	6.16E-04
RB026	0.225 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.1	0.02	0.08	0.01	0.01	0.01	0.01	4.16E-04	1.82E-03
RB027	0.301 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.13	0.02	0.11	0.01	0.01	0.01	0.01	5.57E-04	2.44E-03
RB028	0.75 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.32	0.06	0.27	0.01	0.01	0.01	0.02	1.39E-03	6.08E-03
RB029	2.5 MMBtu/hr	8,760 hrs/yr	0.02	0.08	0.25	1.07	0.21	0.90	0.01	0.01	0.01	0.06	4.63E-03	2.03E-02
RB030	2.5 MMBtu/hr	8,760 hrs/yr	0.02	0.08	0.25	1.07	0.21	0.90	0.01	0.01	0.01	0.06	4.63E-03	2.03E-02
RB031	1.95 MMBtu/hr	8,760 hrs/yr	0.01	0.06	0.1	0.42	0.16	0.70	0.01	0.01	0.01	0.05	3.61E-03	1.58E-02
RB032	1.95 MMBtu/hr	8,760 hrs/yr	0.01	0.06	0.1	0.42	0.16	0.70	0.01	0.01	0.01	0.05	3.61E-03	1.58E-02
RB033	0.301 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.13	0.02	0.11	0.01	0.01	0.01	0.01	5.57E-04	2.44E-03
RB133	0.40 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.39E-04	3.23E-03
RB134	0.30 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.13	0.02	0.11	0.01	0.01	0.01	0.01	5.57E-04	2.44E-03
RB034	2.365 MMBtu/hr	8,760 hrs/yr	0.02	0.08	0.23	1.02	0.19	0.85	0.01	0.01	0.01	0.06	4.38E-03	1.92E-02
RB035	2.365 MMBtu/hr	8,760 hrs/yr	0.02	0.08	0.23	1.02	0.19	0.85	0.01	0.01	0.01	0.06	4.38E-03	1.92E-02
RB036	1.95 MMBtu/hr	8,760 hrs/yr	0.01	0.06	0.1	0.42	0.16	0.70	0.01	0.01	0.01	0.05	3.61E-03	1.58E-02
RB037	1.95 MMBtu/hr	8,760 hrs/yr	0.01	0.06	0.1	0.42	0.16	0.70	0.01	0.01	0.01	0.05	3.61E-03	1.58E-02
RB038	0.301 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.13	0.02	0.11	0.01	0.01	0.01	0.01	5.57E-04	2.44E-03
RB039	0.399 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.39E-04	3.23E-03
RB040	2.0 MMBtu/hr	8,760 hrs/yr	0.01	0.07	0.1	0.43	0.16	0.72	0.01	0.01	0.01	0.05	3.70E-03	1.62E-02
RB041	0.559 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.05	0.24	0.05	0.20	0.01	0.01	0.01	0.01	1.03E-03	4.53E-03
RB042	0.75 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.04	0.16	0.06	0.27	0.01	0.01	0.01	0.02	1.39E-03	6.08E-03
RB043	0.75 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.04	0.16	0.06	0.27	0.01	0.01	0.01	0.02	1.39E-03	6.08E-03
RB044	0.75 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.04	0.16	0.06	0.27	0.01	0.01	0.01	0.02	1.39E-03	6.08E-03
RB045	0.036 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	6.66E-05	2.92E-04
RB046	0.075 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.03	0.01	0.03	0.01	0.01	0.01	0.01	1.39E-04	6.08E-04
RB047	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
RB048	0.36 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.15	0.03	0.13	0.01	0.01	0.01	0.01	6.66E-04	2.92E-03
RB049	1.995 MMBtu/hr	8,760 hrs/yr	0.01	0.07	0.1	0.43	0.16	0.72	0.01	0.01	0.01	0.05	3.69E-03	1.62E-02
RB050	1.995 MMBtu/hr	8,760 hrs/yr	0.01	0.07	0.1	0.43	0.16	0.72	0.01	0.01	0.01	0.05	3.69E-03	1.62E-02
RB051	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
RB052	2.0 MMBtu/hr	8,760 hrs/yr	0.01	0.07	0.2	0.86	0.16	0.72	0.01	0.01	0.01	0.05	3.70E-03	1.62E-02
RB053	2.0 MMBtu/hr	8,760 hrs/yr	0.01	0.07	0.1	0.46	0.16	0.72	0.01	0.01	0.01	0.05	3.70E-03	1.62E-02
RB054	1.8 MMBtu/hr	8,760 hrs/yr	0.01	0.06	0.09	0.39	0.15	0.65	0.01	0.01	0.01	0.04	3.33E-03	1.46E-02
RB055	0.7 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.03	0.15	0.06	0.25	0.01	0.01	0.01	0.02	1.30E-03	5.67E-03
RB056	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
RB057	0.154 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.07	0.01	0.06	0.01	0.01	0.01	0.01	2.85E-04	1.25E-03
RB058	0.45 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.19	0.04	0.16	0.01	0.01	0.01	0.01	8.33E-04	3.65E-03

EU	Rating	Conditions	PM_{10}		NO_X		CO		SO_X		VOC		HAP	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
RB059	0.088 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.04	0.01	0.03	0.01	0.01	0.01	0.01	1.63E-04	7.13E-04
RB060	0.329 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.14	0.03	0.12	0.01	0.01	0.01	0.01	6.09E-04	2.67E-03
RB061	2.0 MMBtu/hr	8,760 hrs/yr	0.01	0.07	0.10	0.43	0.16	0.72	0.01	0.01	0.01	0.05	3.70E-03	1.62E-02
RB062	2.0 MMBtu/hr	8,760 hrs/yr	0.01	0.07	0.10	0.43	0.16	0.72	0.01	0.01	0.01	0.05	3.70E-03	1.62E-02
RB063	3.348 MMBtu/hr	8,760 hrs/yr	0.02	0.11	0.16	0.72	0.28	1.21	0.01	0.01	0.02	0.08	6.20E-03	2.71E-02
RB064	1.728 MMBtu/hr	8,760 hrs/yr	0.01	0.06	0.17	0.74	0.14	0.62	0.01	0.01	0.01	0.04	3.20E-03	1.40E-02
RB065	5.25 MMBtu/hr	8,760 hrs/yr	0.04	0.17	0.26	1.13	0.43	1.89	0.01	0.01	0.03	0.12	9.72E-03	4.26E-02
RB066	5.25 MMBtu/hr	8,760 hrs/yr	0.04	0.17	0.26	1.13	0.43	1.89	0.01	0.01	0.03	0.12	9.72E-03	4.26E-02
RB067	0.7 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.03	0.15	0.06	0.25	0.01	0.01	0.01	0.02	1.30E-03	5.67E-03
RB068	0.35 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.15	0.03	0.13	0.01	0.01	0.01	0.01	6.48E-04	2.84E-03
RB069	0.35 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.15	0.03	0.13	0.01	0.01	0.01	0.01	6.48E-04	2.84E-03
RB070	1.467 MMBtu/hr	8,760 hrs/yr	0.01	0.05	0.14	0.63	0.12	0.53	0.01	0.01	0.01	0.03	2.72E-03	1.19E-02
RB071	1.25 MMBtu/hr	8,760 hrs/yr	0.01	0.04	0.06	0.27	0.1	0.45	0.01	0.01	0.01	0.03	2.31E-03	1.01E-02
RB072	1.25 MMBtu/hr	8,760 hrs/yr	0.01	0.04	0.06	0.27	0.1	0.45	0.01	0.01	0.01	0.03	2.31E-03	1.01E-02
RB073	1.25 MMBtu/hr	8,760 hrs/yr	0.01	0.04	0.06	0.27	0.1	0.45	0.01	0.01	0.01	0.03	2.31E-03	1.01E-02
RB074	1.25 MMBtu/hr	8,760 hrs/yr	0.01	0.04	0.06	0.27	0.1	0.45	0.01	0.01	0.01	0.03	2.31E-03	1.01E-02
RB075	0.27 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.12	0.02	0.10	0.01	0.01	0.01	0.01	5.00E-04	2.19E-03
RB076	0.7 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.03	0.15	0.06	0.25	0.01	0.01	0.01	0.02	1.30E-03	5.67E-03
RB077	3.9 MMBtu/hr	8,760 hrs/yr	0.03	0.13	0.19	0.84	0.32	1.41	0.01	0.01	0.02	0.09	7.22E-03	3.16E-02
RB078	3.9 MMBtu/hr	8,760 hrs/yr	0.03	0.13	0.19	0.84	0.32	1.41	0.01	0.01	0.02	0.09	7.22E-03	3.16E-02
RB079	3.9 MMBtu/hr	8,760 hrs/yr	0.03	0.13	0.19	0.84	0.32	1.41	0.01	0.01	0.02	0.09	7.22E-03	3.16E-02
RB080	1.5 MMBtu/hr	8,760 hrs/yr	0.01	0.05	0.07	0.32	0.12	0.54	0.01	0.01	0.01	0.04	2.78E-03	1.22E-02
RB081	1.5 MMBtu/hr	8,760 hrs/yr	0.01	0.05	0.07	0.32	0.12	0.54	0.01	0.01	0.01	0.04	2.78E-03	1.22E-02
RB082	1.694 MMBtu/hr	8,760 hrs/yr	0.01	0.06	0.17	0.73	0.14	0.61	0.01	0.01	0.01	0.04	3.14E-03	1.37E-02
RB083	1.694 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
RB084	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.06	0.09	0.37	0.14	0.61	0.01	0.01	0.01	0.04	3.14E-03	1.37E-02
RB085	1.694 MMBtu/hr	8,760 hrs/yr	0.01	0.06	0.17	0.73	0.14	0.61	0.01	0.01	0.01	0.04	3.14E-03	1.37E-02
RB086	1.694 MMBtu/hr	8,760 hrs/yr	0.01	0.06	0.09	0.37	0.14	0.61	0.01	0.01	0.01	0.04	3.14E-03	1.37E-02
RB087	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
RB088	0.7 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.03	0.15	0.06	0.25	0.01	0.01	0.01	0.02	1.30E-03	5.67E-03
RB089	1.14 MMBtu/hr	8,760 hrs/yr	0.01	0.04	0.06	0.24	0.09	0.41	0.01	0.01	0.01	0.03	2.11E-03	9.24E-03
RB090	1.65 MMBtu/hr	8,760 hrs/yr	0.01	0.05	0.16	0.71	0.14	0.60	0.01	0.01	0.01	0.04	3.05E-03	1.34E-02
RB091	0.32 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.14	0.03	0.12	0.01	0.01	0.01	0.01	5.92E-04	2.59E-03
RB092	0.034 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	6.29E-05	2.76E-04
RB093	0.495 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.05	0.21	0.04	0.18	0.01	0.01	0.01	0.01	9.16E-04	4.01E-03
RB094	1.6 MMBtu/hr	8,760 hrs/yr	0.01	0.05	0.16	0.69	0.13	0.58	0.01	0.01	0.01	0.04	2.96E-03	1.30E-02

EU	Rating	Conditions	PM_{10}		NO_X		CO		SO_X		VOC		HAP	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
RB095	0.399 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.09	0.02	0.07	0.01	0.01	0.01	0.01	3.70E-04	1.62E-03
RB096	1.25 MMBtu/hr	8,760 hrs/yr	0.01	0.04	0.06	0.27	0.1	0.45	0.01	0.01	0.01	0.03	2.31E-03	1.01E-02
RB097	1.25 MMBtu/hr	8,760 hrs/yr	0.01	0.04	0.06	0.27	0.1	0.45	0.01	0.01	0.01	0.03	2.31E-03	1.01E-02
RB098	3.0 MMBtu/hr	8,760 hrs/yr	0.02	0.1	0.29	1.29	0.25	1.08	0.01	0.01	0.02	0.07	5.55E-03	2.43E-02
RB099	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
RB100	2.0 MMBtu/hr	8,760 hrs/yr	0.01	0.07	0.2	0.86	0.16	0.72	0.01	0.01	0.01	0.05	3.70E-03	1.62E-02
RB101	2.0 MMBtu/hr	8,760 hrs/yr	0.01	0.07	0.1	0.43	0.16	0.72	0.01	0.01	0.01	0.05	3.70E-03	1.62E-02
RB102	0.034 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	6.29E-05	2.76E-04
RB103	0.35 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.15	0.03	0.13	0.01	0.01	0.01	0.01	6.48E-04	2.84E-03
RB104	3.025 MMBtu/hr	8,760 hrs/yr	0.02	0.1	0.3	1.3	0.25	1.09	0.01	0.01	0.02	0.07	5.60E-03	2.45E-02
RB105	1.0 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.04	0.17	0.03	0.14	0.01	0.01	0.01	0.01	7.39E-04	3.23E-03
RB106	1.0 MMBtu/hr	8,760 hrs/yr	0.01	0.03	0.05	0.21	0.08	0.36	0.01	0.01	0.01	0.02	1.85E-03	8.11E-03
RB107	0.075 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.03	0.01	0.03	0.01	0.01	0.01	0.01	1.39E-04	6.08E-04
RB108	0.7 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.03	0.15	0.06	0.25	0.01	0.01	0.01	0.02	1.30E-03	5.67E-03
RB109[3]	1.595 MMBtu/hr	8,760 hrs/yr	0.01	0.05	0.23	0.68	0.13	0.58	0.08	0.04	0.01	0.04	1.00E-02	1.00E-02
RB110[3]	1.595 MMBtu/hr	8,760 hrs/yr	0.01	0.05	0.23	0.68	0.13	0.58	0.08	0.04	0.01	0.04	1.00E-02	1.00E-02
RB111[3]	1.595 MMBtu/hr	8,760 hrs/yr	0.01	0.05	0.23	0.68	0.13	0.58	0.08	0.04	0.01	0.04	1.00E-02	1.00E-02
RB112[3]	2.52 MMBtu/hr	8,760 hrs/yr	0.02	0.08	0.36	1.08	0.21	0.91	0.13	0.07	0.01	0.06	1.00E-02	2.00E-02
RB113[3]	2.52 MMBtu/hr	8,760 hrs/yr	0.02	0.08	0.36	1.08	0.21	0.91	0.13	0.07	0.01	0.06	1.00E-02	2.00E-02
RB114[3]	2.52 MMBtu/hr	8,760 hrs/yr	0.02	0.08	0.36	1.08	0.21	0.91	0.13	0.07	0.01	0.06	1.00E-02	2.00E-02
RB115	0.75 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.32	0.06	0.27	0.01	0.01	0.01	0.02	1.39E-03	6.08E-03
RB116	0.038 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.03E-05	3.08E-04
RB117	0.04 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	7.40E-05	3.24E-04
RB118	1.68 MMBtu/hr	8,760 hrs/yr	0.01	0.05	0.08	0.36	0.14	0.61	0.01	0.01	0.01	0.04	3.11E-03	1.36E-02
RB119	0.475 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.05	0.2	0.04	0.17	0.01	0.01	0.01	0.01	8.79E-04	3.86E-03
RB120	0.27 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.12	0.02	0.10	0.01	0.01	0.01	0.01	5.00E-04	2.19E-03
RB121	0.05 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.01	9.25E-05	4.06E-04
RB122	1.2 MMBtu/hr	8,760 hrs/yr	0.01	0.04	0.12	0.52	0.1	0.43	0.01	0.01	0.01	0.03	2.22E-03	9.75E-03
RB123	1.2 MMBtu/hr	8,760 hrs/yr	0.01	0.04	0.12	0.52	0.1	0.43	0.01	0.01	0.01	0.03	2.22E-03	9.75E-03
RB135	3.0 MMBtu/hr	8,760 hrs/yr	0.20	0.10	0.07	0.32	0.11	0.49	0.01	0.01	0.02	0.07	5.54E-3	2.42E-02
RB136	1.728 MMBtu/hr	8,760 hrs/yr	0.01	0.06	0.06	0.28	0.13	0.56	0.01	0.01	0.01	0.04	3.19E-03	1.40E-02
RB124	1.46 MMBtu/hr	8,760 hrs/yr	0.01	0.05	0.07	0.31	0.12	0.53	0.01	0.01	0.01	0.03	2.70E-03	1.18E-02
RB125	0.76 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.07	0.33	0.06	0.27	0.01	0.01	0.01	0.02	1.41E-03	6.18E-03
RB126[4]	1.063 MMBtu/hr	8,760 hrs/yr	0.02	0.07	0.15	0.67	0.04	0.17	0.01	0.02	0.01	0.02	1.45E-04	6.37E-04
RB127[4]	1.063 MMBtu/hr	8,760 hrs/yr	0.02	0.07	0.08	0.34	0.04	0.17	0.01	0.02	0.01	0.02	1.45E-04	6.37E-04
RB128[4]	0.207 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.03	0.13	0.01	0.03	0.01	0.01	0.01	0.01	2.83E-05	1.24E-04

EU	Rating	Conditions	PM_{10}		NO_X		CO		SO_X		VOC		HAP	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
RB129[4]	0.15 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.09	0.01	0.02	0.01	0.01	0.01	0.01	2.05E-05	8.98E-05
RB130[4]	0.3 MMBtu/hr	8,760 hrs/yr	0.01	0.02	0.04	0.19	0.01	0.05	0.01	0.01	0.01	0.01	4.10E-05	1.80E-04
RB131[4]	0.833 MMBtu/hr	8,760 hrs/yr	0.01	0.05	0.12	0.52	0.03	0.13	0.01	0.02	0.01	0.01	1.14E-04	4.99E-04
RB132[5]	0.125 MMBtu/hr	8,760 hrs/yr	0.01	0.01	0.02	0.08	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

[1] Emissions are based on emission factors for small boilers from AP-42, Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4 unless noted otherwise.

[2] NO_X and CO emissions are based on manufacturer's data.

[3] Emissions are based on worst-case scenario of 8,760 hours/year of natural gas firing or 1,020 hours/year of #2 diesel fuel firing.

[4] Emissions are based on emissions factors provided by AP-42, Tables 1.3-1, 1.3-3, 1.3-9 (for HAPs), and 1.3-10 (HAPs) for small distillate oil-fired boilers. Conversion Factor 140 MMbtu/Mgal.

[5] Emissions are based on emissions factors provided by AP-42, Tables 1.5-1 for LPG combustion. Conversion Factor 91.5 MMBtu/Mgal.

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The source-wide emissions from the boilers are calculated as follows: the annual emissions (tons per year) from natural gas-fired combustion are calculated based on the source-wide cap of 180 MMscf for natural gas use. The maximum hourly emission rate is calculated by multiplying the AP-42 emission factor by the total calculated natural gas usage for all units operating at 100% capacity plus a 15% safety margin to account for fluctuations in various units.

The annual emissions (tons per year) from diesel-fired combustion except the hospital boilers (Building 1301, EUs: RB126-RB131, EB143-EB147) are calculated based on the source-wide cap of 200,000 gallons of diesel fuel for external combustion usage in the Weapons Storage Area (WSA). The maximum hourly emission rate is calculated by multiplying the AP-42 emission factor by the total calculated diesel usage for all units operating at 100% capacity plus a 15% safety margin to account for fluctuations in various units.

The annual emissions (tons per year) from diesel-fired combustion from the dual fuel hospital boilers (EUs: RB109 -RB114) are calculated based on 1,020 hours per year of operation, which corresponds to an annual diesel limit of 89,943 gallons per year of diesel.

The source-wide emissions are outlined in Tables V-B-6 through V-B-9.

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Table V-B-6: Source–wide Emissions from Natural Gas-fired Boilers (Exempt and Non-Exempt Emission Units)

Description	Fuel Usage Limits		PM_{10}		NO_X		CO		SO_X		VOC		HAP	
	scf/hr	scf/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
Boilers with no control	126,962 (129.5 MMBtu/hr[1])	95,988,521 (97,908.2 MMBtu/yr[1])	0.96	0.36	12.70	4.80	10.66	4.03	0.08	0.03	0.70	0.26	2.40E-01	9.06E-02
Boilers with Low NO_X controls	111,120 (113.3 MMBtu/hr[1])	84,011,479 (85,691.7 MMBtu/yr[1])	0.84	0.32	5.56	2.10	9.33	3.53	0.07	0.03	0.61	0.23	2.10E-01	7.93E-02
Total	**238,082 [(2)] (242.8 MMBtu/hr)**	**180,000,000 [(2)] (183,600 MMBtu/yr)**	**1.80**	**0.68**	**18.26**	**6.90**	**19.99**	**7.56**	**0.15**	**0.06**	**1.31**	**0.49**	**0.45**	**0.17**

[1] Conversion Factor – 1,020 Btu/scf.

[2] Voluntary caps proposed by source. Annual limits are based on a twelve-month rolling total.

Table V-B-7: Source–wide Emissions from Diesel-fired Boilers (Exempt and Non-Exempt Emission Units)

Description	Fuel Usage Limits		PM_{10}		NO_X		CO		SO_X		VOC		HAP	
	gal/hr	gal/yr[1]	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
WSA Boilers (EUs: RB126-RB131, EB143-EB147)	53.73	200,000	0.06	0.11	1.07	2.00	0.27	0.50	0.38	0.71	0.02	0.03	7.35E-03	1.37E-02
Hospital Boilers[2] (EUs: RB109 –RB114)	88.18	89,943	0.10	0.05	1.76	0.90	0.44	0.22	0.63	0.32	0.03	0.02	0.06	0.06
Total	**141.91**	**289,943**	**0.16**	**0.16**	**2.83**	**2.90**	**0.71**	**0.72**	**1.01**	**1.03**	**0.05**	**0.05**	**0.07**	**0.07**

[1] Annual limits are based on a twelve-month rolling total.

[2] Fuel limits and emissions are based on 1,020 hours/year of operation for each boiler. Conversion Factor – 140 MMBtu/Mgal.

Table V-B-8: Source–wide Emissions from Propane-fired Boilers

Description	Rating	Conditions	PM_{10}		NO_X		CO		SO_X		VOC		HAP	
			lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
EU: RB132	0.125 MMBtu/hr[1]	8,760 hrs/yr	0.01	0.01	0.02	0.08	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

[1] Conversion Factor – 91.5 MMBtu/Mgal.

Table V-B-9: Source Potential to Emit from External Combustion Units

	PM_{10}		NO_X		CO		SO_X		VOC		HAP	
	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
Total from Natural Gas, Propane & Diesel	**1.97**	**0.85**	**22.01**	**9.88**	**20.8**	**8.29**	**1.17**	**1.10**	**1.37**	**0.55**	**0.53**	**0.25**

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C. Production Limitation and Control Technology Summary

- Each of the six (6) dual fuel boilers located at Building #1301 (EUs: RB109 through RB114), shall be permitted to operate without limitation on operating hours while on natural gas firing, and 1,020 hours per rolling, twelve-month period on #2 diesel fuel.
- The total amount natural gas consumed by source's external combustion units shall exceed neither 238,082 scf per hour nor 180 MMscf per year (twelve-month rolling total) as presented in Table V-B-6.
- The total amount of diesel fuel consumed by source's boilers shall exceed neither 142 gallons per hour nor 289,943 gallons per year (twelve-month rolling total) as presented in Table V-B-7.
- DAQEM determined the control technology requirement and emission limitations for the source's boilers and water heaters. These are discussed in detail below.
  - Natural gas-fired boilers:
    - Based on the size of the boilers, DAQEM is requiring to have specific NO_X and CO emission limitations as BACT for these pollutants for some of the natural gas-fired boilers as applicable. These limits shall be accomplished by the use of Low-NO_X burners and/or flue gas recirculation as control devices coupled with good combustion practices. Table V-C-1 outlines the NO_X and CO emission limitations for the source's boilers. Good combustion practices were selected as BACT for NO_X and CO for all of the remaining natural gas-fired boilers at the source. The list of boilers that shall have Low-NO_X burner and/or flue gas recirculation as control devices is outlined in Table V-C-2.
    - BACT for PM_{10}, SO_2, VOC and HAPs shall be the exclusive use of pipeline-quality natural gas and good combustion practices.

Table V-C-1: NO_X and CO Concentration Limitations for Source's Boilers

EU	Rating	NO_X (ppmvd @ 3% O_2)	CO (ppmvd @ 3% O_2)
RB003	3.0 MMBtu/hr	20	50
RB004	3.0 MMBtu/hr	20	50
RB013[1]	6.5 MMBtu/hr	25	50
RB016	1.05 MMBtu/hr	30	100
RB024	1.75 MMBtu/hr	30	100
RB030	2.5 MMBtu/hr	20	50
RB031	1.95 MMBtu/hr	30	100
RB032	1.95 MMBtu/hr	30	100
RB036	1.95 MMBtu/hr	30	100
RB037	1.95 MMBtu/hr	30	100
RB040	2.0 MMBtu/hr	30	100
RB049[1]	1.995 MMBtu/hr	20	50
RB050[1]	1.995 MMBtu/hr	20	50
RB053	2.0 MMBtu/hr	30	100
RB054	1.8 MMBtu/hr	30	100
RB061[1]	2.0 MMBtu/hr	20	50
RB062[1]	2.0 MMBtu/hr	20	50
RB063	3.348 MMBtu/hr	20	50
RB065[1]	5.25 MMBtu/hr	30	400
RB066[1]	5.25 MMBtu/hr	30	400
RB071	1.25 MMBtu/hr	30	100
RB072	1.25 MMBtu/hr	30	100
RB073	1.25 MMBtu/hr	30	100

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EU	Rating	NO_X (ppmvd @ 3% O_2)	CO (ppmvd @ 3% O_2)
RB074	1.25 MMBtu/hr	30	100
RB077	3.9 MMBtu/hr	20	50
RB078	3.9 MMBtu/hr	20	50
RB079	3.9 MMBtu/hr	20	50
RB080[1]	1.5 MMBtu/hr	20	50
RB081[1]	1.5 MMBtu/hr	20	50
RB082	1.694 MMBtu/hr	30	100
RB083	1.694 MMBtu/hr	30	100
RB085	1.694 MMBtu/hr	30	100
RB086	1.694 MMBtu/hr	30	100
RB089[1]	1.14 MMBtu/hr	20	50
RB090	1.65 MMBtu/hr	30	100
RB094	1.6 MMBtu/hr	30	100
RB098	3.0 MMBtu/hr	20	50
RB100	2.0 MMBtu/hr	30	100
RB101	2.0 MMBtu/hr	30	100
RB104	3.025 MMBtu/hr	20	50
RB106	1.0 MMBtu/hr	30	100
RB118	1.68 MMBtu/hr	20	50
RB122	1.2 MMBtu/hr	30	100
RB123	1.2 MMBtu/hr	30	100
RB124	1.46 MMBtu/hr	20	50
RB126	1.063 MMBtu/hr	30	100
RB127	1.063 MMBtu/hr	30	100
RB135	3.0 MMBtu/hr	20	50
RB136	1.728 MMBtu/hr	30	100

[1] Existing, permitted boilers prior to the external combustion permit issued April 30, 2007.

Table V-C-2: Boilers Equipped with Control Devices

EU	Rating	Control Device(s)
RB003	3.0 MMBtu/hr	Low-NO_X burner
RB004	3.0 MMBtu/hr	Low-NO_X burner
RB013[1]	6.5 MMBtu/hr	Low-NO_X burner and flue gas recirculation
RB014	0.99 MMBtu/hr	Low-NO_X burner
RB015	0.99 MMBtu/hr	Low-NO_X burner
RB016	1.05 MMBtu/hr	Low-NO_X burner
RB024	1.75 MMBtu/hr	Low-NO_X burner
RB030	2.5 MMBtu/hr	Low-NO_X burner
RB031	1.95 MMBtu/hr	Low-NO_X burner
RB032	1.95 MMBtu/hr	Low-NO_X burner
RB036	1.95 MMBtu/hr	Low-NO_X burner
RB037	1.95 MMBtu/hr	Low-NO_X burner
RB040	2.0 MMBtu/hr	Low-NO_X burner
RB042	0.75 MMBtu/hr	Low-NO_X burner
RB043	0.75 MMBtu/hr	Low-NO_X burner
RB044	0.75 MMBtu/hr	Low-NO_X burner
RB049	1.995 MMBtu/hr	Low-NO_X burner
RB050	1.995 MMBtu/hr	Low-NO_X burner
RB052	2.0 MMBtu/hr	Low-NO_X burner
RB053	2.0 MMBtu/hr	Low-NO_X burner

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EU	Rating	Control Device(s)
RB054	1.8 MMBtu/hr	Low-NO_X burner
RB055	0.7 MMBtu/hr	Low-NO_X burner
RB061[1]	2.0 MMBtu/hr	Low-NO_X burner
RB062[1]	2.0 MMBtu/hr	Low-NO_X burner
RB063	3.348 MMBtu/hr	Low-NO_X burner
RB065[1]	5.25 MMBtu/hr	Ability to achieve 30 ppm NO_X
RB066[1]	5.25 MMBtu/hr	Ability to achieve 30 ppm NO_X
RB071	1.25 MMBtu/hr	Low-NO_X burner
RB072	1.25 MMBtu/hr	Low-NO_X burner
RB073	1.25 MMBtu/hr	Low-NO_X burner
RB074	1.25 MMBtu/hr	Low-NO_X burner
RB076	0.7 MMBtu/hr	Low-NO_X burner
RB077	3.9 MMBtu/hr	Low-NO_X burner
RB078	3.9 MMBtu/hr	Low-NO_X burner
RB079	3.9 MMBtu/hr	Low-NO_X burner
RB080[1]	1.5 MMBtu/hr	Low-NO_X burner
RB081[1]	1.5 MMBtu/hr	Low-NO_X burner
RB082	1.694 MMBtu/hr	Low-NO_X burner
RB083	1.694 MMBtu/hr	Low-NO_X burner
RB085	1.694 MMBtu/hr	Low-NO_X burner
RB086	1.694 MMBtu/hr	Low-NO_X burner
RB088	0.7 MMBtu/hr	Low-NO_X burner
RB089[1]	1.14 MMBtu/hr	Low-NO_X burner
RB090	1.65 MMBtu/hr	Low-NO_X burner
RB094	1.6 MMBtu/hr	Low-NO_X burner
RB096	1.25 MMBtu/hr	Low-NO_X burner
RB097	1.25 MMBtu/hr	Low-NO_X burner
RB098	3.0 MMBtu/hr	Low-NO_X burner
RB100	2.0 MMBtu/hr	Low-NO_X burner
RB101	2.0 MMBtu/hr	Low-NO_X burner
RB104	3.025 MMBtu/hr	Low-NO_X burner
RB106	1.0 MMBtu/hr	Low-NO_X burner
RB108	0.7 MMBtu/hr	Low-NO_X burner
RB118	1.68 MMBtu/hr	Low-NO_X burner
RB122	1.2 MMBtu/hr	Low-NO_X burner
RB123	1.2 MMBtu/hr	Low-NO_X burner
RB124	1.46 MMBtu/hr	Low-NO_X burner
RB126	1.063 MMBtu/hr	Low-NO_X burner
RB127	1.063 MMBtu/hr	Low-NO_X burner
RB135	3.0 MMBtu/hr	Low-NO_X burner
RB136	1.728 MMBtu/hr	Ability to achieve 30 ppm NO_X

[1] Existing, permitted boilers prior to the consolidation of external combustion units on April 30, 2007.

- Diesel-fired boilers:

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- These are the boilers located at the weapons storage area (WSA) of the source. The source ruled out natural gas boilers because the diesel-fired boilers are located in a restricted area where natural gas cannot be supplied due to national security and safety requirements. Due to the small size of these boilers (all are less than 1.1 MMBtu/hr), good combustion practices were selected as BACT for NO_X, CO, PM_{10}, VOC and HAPs. The use of low sulfur (less than 0.05% by weight) was selected as BACT for SO_2 emissions from these boilers.
- Good combustion practices were also selected as BACT for all the regulated pollutants for the one (1) propane-fired boiler (EU: RB132 rated at 0.125 MMBtu/hr).

D. Other Applicable Regulations

Boiler operations at NAFB are subject to AQR Sections 12, 26, 40, 43 and 55.

E. Compliance Demonstration

- Nellis AFB shall demonstrate compliance with the natural gas cap by the following:
  - Installing non-resettable hour or gas meters to the burners of boilers/water heaters with low-NO_X burners and/or FGR to record hours of operation or gas consumption.
  - On a monthly basis, the hours of operation shall be multiplied by the individual boiler/water heater heat input and then converted to natural gas usage using 1,020 Btu/scf. The low-NO_X burner and/or FGR natural gas usage shall then be summed to determine the base usage of natural gas for low-NO_X burners and low-NO_X burners with FGR.
  - The base has a main natural gas meter for all natural gas entering the base. The base also has meters located at various points such as family housing and base hospital. From this natural gas meter reading, the meter readings for family housing, base hospital, and other non-Nellis AFB natural gas usage shall be subtracted out. A weighted average shall be used to subtract out the natural gas usage associated with exempt comfort heating external combustion units. The weighted average shall be based on 38.571 MMBTU/hr heat input for comfort heating and 209.69 MMBTU/hr total source heat input. The amount associated with comfort heating shall then be subtracted out of the total source natural gas usage. The amount of natural gas usage associated with low-NO_X burners and/or FGR that was found using steps 1 and 2 would then be subtracted out of the natural gas usage. The resulting natural gas usage shall reflect the total natural gas usage associated with permitted external combustion units with no controls. This process shall be done on a monthly basis.
  - Record keeping and reporting of boiler use, as explained above, shall be used to demonstrate compliance with the emission limitations outlined in the Part 70 permit.
- Nellis AFB shall demonstrate compliance with the diesel fuel cap by the following:
  - Maintaining a log of the fuel drops to the diesel-fired boiler storage tanks. It shall be assumed that amount of fuel issued since the last drop is the amount of fuel that was burned in the boiler. This process shall be done on a monthly basis.
  - Record keeping and reporting of boiler use, as explained above, shall be used to demonstrate compliance with the emission limitations outlined in the Part 70 permit.

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F. Performance Testing

Performance testing may be requested by the Control Officer to demonstrate the control efficiencies and/or emissions outlined in the Part 70 permit.

VI. INTERNAL COMBUSTION

A. Description of Action

The internal combustion activity results in emissions of air pollutants from generator operations (including emergency standby generators used to provide back-up power to various buildings or water supplies at NAFB), fire pump operations, and aircraft engine arrestor operations. The summary of generators is outlined in Table VI-A-1. NAFB employs 12 aircraft arrestors that stop aircraft with brake failures and mechanical breakdowns. The aircraft arrestors have internal combustion gasoline engines, and are considered new emission units. Table VI-A-2 presents these emission units. NAFB employs 11 generators that are exempt pursuant to Clark County Air Quality Regulations (AQR) Section 12. These units are less than 35 hp and are intended for emergency use only. Table VI-A-3 presents exempt emission units for informational purposes. The first consolidated permit for these activities at NAFB was issued on April 27, 2007.

Table VI-A-1: Summary of Generator Emission Units

EU	Description
G001[1]	Onan Generator, M/N: 35DGBB, S/N: F970690597, 68 hp, Bldg 2
G002[1]	Onan Generator, M/N 250DFC-5628120, S/N G030523516, 317 hp, Bldg 6
G003[1]	Cummins Generator, M/N: DGCB-5664728, S/N: CO40611541, 99 hp, Bldg 47
G004[1]	Caterpillar Fire Pump, M/N: 3306B, S/N: 64Z0870, 287 hp, Bldg 199
G005	Onan Generator, M/N: 350DFCC, S/N: K950593560, 535 hp, Bldg 200
G006	Onan Generator, M/N: 350DFCC, S/N: H960614359, 535 hp, Bldg 200
G007[1]	Onan Generator, M/N: 350DFCC, S/N: 30370204, 535 hp, Bldg 200
G008	Kohler Generator, M/N: 1200D560, S/N: 365684, 1,750 hp, Bldg 201
G009[1]	Onan Generator, M/N: D1250FRV4, S/N: WA535055, 1,250 hp, Bldg 202
G010[1]	Onan Generator, M/N: DFHC-5586668, S/N: L020451403, 1,350 hp, Bldg 215
G011[1]	Onan Generator, M/N: 250DFAC, S/N: H970645976, 380 hp, Bldg 216
G012[1]	Onan Generator, M/N: DFCC-5586711, S/N: L020451856, 535 hp, Bldg 217
G013[1]	Cummins Fire Pump, M/N: N855F, S/N: 10164265, 350 hp, Bldg 256
G014	Caterpillar Generator, M/N: 3412, S/N: 81Z15171, 676 hp, Bldg 276
G015[1]	Onan Generator, M/N: 30.0DL6-15R/24510D, S/N: H870917822, 50 hp, Bldg 277
G016[1]	Caterpillar Fire Pump, M/N: 3208, S/N: 03Z04601, 235 hp, Bldg 283
G017[1]	Detroit Diesel Fire Pump, M/N: 503348-012, S/N: 3D0300584, 35 hp, Bldg 431
G018[1]	Cummings Generator, M/N: 285HC4AL/2A, S/N: 30730, 390 hp, Bldg 589
G019[1]	Onan Generator, M/N: DGAB-4485844, S/N: H000145362, 380 hp, Bldg 603
G021[1]	Onan Generator, M/N: DGFC-5690289, S/N: H040682522, 317 hp, Bldg 620
G022[1]	Onan Generator, M/N: 60.0DGCB-L, S/N: K870946221, 99 hp, Bldg 807
G023[1]	Onan Generator, M/N 80.0DGDA, S/N: H930515481, 170 hp, Bldg 809
G024[1]	Cummins Generator, M/N DGGD-5564189, S/N: G020391974, 50 hp, Bldg 812
G025[1]	Onan Generator, M/N: DGBB, S/N: F010251383, 68 hp, Bldg 814
G026[1]	Onan Generator, M/N: 60DGCA-4494082, S/N: A010195339, 99 hp, Bldg 830
G027[1]	Libby Generator, M/N: MEP-9B, S/N: RZ00787, 268 hp, Bldg 841
G028[1]	Onan Generator, M/N: DGCA-4494082, S/N: A010195338, 99 hp, Bldg 856
G029[1]	Onan Generator, M/N: DGCB-5679848, S/N: H040677994, 99 hp, Bldg 890
G030[1]	Onan Generator, M/N: DGFA, S/N: F010251389, 277 hp, Bldg 941
G031[1]	Cummins Generator, M/N: DFCA, S/N: H970645976, 380 hp, Bldg 941
G032	Caterpillar Generator, M/N: 3512TA, S/N: 5TD01138, 1,593 hp, Bldg 1301
G033	Caterpillar Generator, M/N: 3512TA, S/N: 5TD01144, 1,593 hp, Bldg 1301

EU	Description
G034[1]	Onan Generator, M/N: 35DGBB, S/N: H980789624, 68 hp, Bldg 1602
G035[1]	Generac Generator, M/N: 3543120400, S/N: 2074369, 80 hp, Bldg 1606
G036[1]	Waukesha Water Pump, M/N: VRD220SU, S/N: 365170, 67 hp, Bldg 1998
G037[1]	Onan Generator, M/N: 250DFAC, S/N: L990035025, 380 hp, Bldg 2060
G038[1]	Onan Generator, M/N: 150.0DGFA-L, S/N: J890274327, 277 hp, Bldg 2064
G039[1]	Libby Generator, M/N: MEP-6A, S/N: DZ03721, 80 hp, Bldg 2068
G040[1]	Onan Generator, M/N: DGCB-4477253, S/N: C0000075370, 68 hp, Bldg 2345
G041	Onan Generator, M/N: 900.0DFJC, S/N: K910434479, 1,340 hp, Bldg 10307
G042[1]	Perkins Deluge Pump, M/N: YB70326, S/N: Y721785F, 160 hp, Bldg 10460
G043[1]	Leroy Somer Generator, M/N: A43.2 L6 J6/4, S/N: GL103727/39, 78 hp, Bldg 10558
G044[1]	Onan Generator, M/N: DGBB-5586668, S/N: J020424648, 68 hp, Bldg 10770
G046[1]	Onan Generator, M/N: DGDB-5673920, S/N: F040652185, 170 hp, Bldg 61663
G047[1]	Onan Generator, M/N: 175.0DGFB, S/N: F010250889, 277 hp, Bldg 61664
G048[1]	Cummins Deluge Pump, M/N: 6BTA5-9-F1, S/N: 44954338, 182 hp, Bldg 61672
G049[1]	Cummins Deluge Pump, M/N: 6BTA5-9-F1, S/N: 44958692, 182 hp, Bldg 61672
G050[1]	Onan Generator, M/N: DCAC-5634769, S/N: K030567407, 380 hp, Bldg 61697
G051[1]	Caterpillar Generator, M/N: 3456, S/N: N/A, 418 hp, Fuel Hydrant

[1]Emission units which were permitted as new on April 27, 2007.

Table VI-A-2: Summary of Aircraft Arrestors Emission Units

EU	Description
G052[1]	Wisconsin Arrestor, M/N: V465D, S/N: N/A, 65 hp, Outside South 1
G053[1]	Wisconsin Arrestor, M/N: V465D, S/N: N/A, 65 hp, Outside South 2
G054[1]	Wisconsin Arrestor, M/N: V465D, S/N: N/A, 65 hp, Outside North 1
G055[1]	Wisconsin Arrestor, M/N: V465D, S/N: N/A, 65 hp, New Building
G056[1]	Wisconsin Arrestor, M/N: V465D, S/N: N/A, 65 hp, Inside South 1
G057[1]	Wisconsin Arrestor, M/N: V465D, S/N: N/A, 65 hp, Inside South 2
G058[1]	Wisconsin Arrestor, M/N: V465D, S/N: N/A, 65 hp, Inside South O/R 1
G059[1]	Wisconsin Arrestor, M/N: V465D, S/N: N/A, 65 hp, Inside South O/R 2
G060[1]	Wisconsin Arrestor, M/N: V465D, S/N: N/A, 65 hp, Inside North 1
G061[1]	Wisconsin Arrestor, M/N: V465D, S/N: N/A, 65 hp, Inside North 2
G062[1]	Wisconsin Arrestor, M/N: V465D, S/N: N/A, 65 hp, Inside North O/R 1
G063[1]	Wisconsin Arrestor, M/N: V465D, S/N: N/A, 65 hp, New

[1]Emission units which were permitted as new on April 27, 2007.

Table VI-A-3: Exempt Emission Units (for informational purposes only)

Building #	Description	Rating
2060	Onan Generator, M/N: DKAC-3384290	15 kW
2070	Onan Generator, M/N: DKAC-3376326	15 kW
2364	Onan Generator, M/N: DKAC-3376326	15 kW
2353	Onan Generator, M/N: DNAD-4477910	11.5 kW
2354	Onan Generator, M/N: DNAD-447910	11.5 kW
277	Onan Generator, DKAF-5628430	25 kW
805	Onan Generator, DKAF-3378621	25 kW
222	Onan Generator, DNAF-5632181	20 kW
807	Onan Generator, DKAF-4961010	25 kW
328	Onan Generator, 20.0DL4-15R	20 kW
10220	Onan Generator, 7.5DKD-3CR	25 kW

PROPOSED

B. Calculation of Potential to Emit (PTE)

NAFB requested the flexibility to combust either diesel fuel or JP-8 fuel in the internal combustion engines. The heating value of JP-8 is higher than the heating value of diesel, and the emission factors for the combustion of diesel are higher than the emission factors for the combustion of JP-8. In order to account for the worst case potential to emit (PTE) scenario, NAFB requested the PTE for the internal combustion engines be calculated with the heating value ratio of JP-8 fuel to diesel fuel and the emission factors for the combustion of diesel fuel. The ratio for the conversion of diesel emission factors to JP-8 is based on heating value is 1.058 (130,319 British thermal units (Btu) per gallon of diesel divided by 123,138 Btu per gallon of JP-8).

The PTE for the emergency generators was calculated using 24 hours per day and 90 hours per year at maximum load for testing and maintenance. NAFB provided manufacturer's emission data for some of the generators. AP-42 emission factors were used for the remaining generators. Table VI-B-1 outlines the manufacturer's emission factors by model and horsepower rating that were used to calculate PTE for this process. Where not listed, the emission factors listed in AP-42 Section 3.3 and 3.4 were used to calculate emissions. Emission factors in Table VI-B-1 are in gram per brake horsepower. A sample calculation is as follows:

- 1,350 hp CO lb/hr = (1,350 Bhp-hr)(1.058 HV)[(0.21 grams/Bhp-hr)/(453.59 grams/lb)] = 0.67 lb/hr CO
- 1,350 hp CO ton/year = (1,350 Bhp-hr)(1.058 HV) (90 hrs/yr)(2,000 lb/ton)[(0.21 grams/Bhp-hr)/(453.59 grams/lb)]
- = 0.03 ton/yr CO

The PTE for the fire pumps (EU: G004, G013, G016, G017, G036, G042, G048 and G049) was calculated using 24 hours per day and 50 hours per year at maximum for testing and maintenance. Tables VI-B-8 and VI-B-9 present the emissions from the aircraft arrestors. The aircraft arrestors were calculated based on 225 hours per year for each aircraft arrestor, with an emissions cap based on 1,900 hours per year collectively for all aircraft arrestors.

Table VI-B-1: Manufacturer's Emission Factors (g/bhp-hr) for Internal Combustion Engines

Manufacturer	Model	hp	PM_{10}	NO_X	CO	SO_2	VOC	HAPs
Cummins	LTA-1061	380	0.50	9.30	1.00	0.56	0.48	AP-42
Onan	DGBB	68	AP-42	7.45	4.79	0.64	0.27	AP-42
Onan	DGFC	317	0.14	3.66	0.47	AP-42	0.14	AP-42
Onan	DGCB	102	0.16	9.16	1.19	0.60	0.31	AP-42
Onan	DFHC	1,350	0.08	7.58	0.21	AP-42	0.19	AP-42
Onan	DFAC	380	0.50	9.3	1	0.56	0.48	AP-42
Onan	DFCC	535	0.17	9.25	2.25	0.59	0.30	AP-42
Onan	285HC4AL/2A	390	0.5	10.8	0.6	0.62	0.18	AP-42
Onan	DGDA	208	AP-42	7.47	1.49	0.59	0.19	AP-42
Onan	DGCA	99	0.16	9.16	1.19	0.6	0.31	AP-42
Onan	DGFA	277	0.15	5.34	0.52	0.62	0.19	AP-42
Onan	DFJC	1,340	0.07	12	0.43	0.59	0.15	AP-42
Onan	DGDB	170	AP-42	7.47	1.49	0.59	0.19	AP-42
Onan	DGDA	170	0.33	8.92	2.33	AP-42	0.14	AP-42
Onan	DGFB	277	0.15	5.34	0.52	0.62	0.19	AP-42
Onan	DGCB	99	0.16	9.16	1.19	0.60	0.31	AP-42

PROPOSED

Table VI-B-5: AP-42 Emission Factors for Internal Combustion Engines

Description	PM_{10} (lb/Bhp)	NO_X (lb/Bhp)	CO (lb/Bhp)	SO_2 (lb/Bhp)	VOC (lb/Bhp)	HAP (lb/Bhp)
Internal Combustion Gasoline <600 Bhp	7.21E-04	0.011	0.439	5.91E-04	0.015	1.00E-07[2]
Internal Combustion Diesel <600 Bhp	0.0022	0.031	0.00668	0.00205	0.00247	4.46E-05
Internal Combustion Diesel >600 Bhp	0.0007	0.024	0.0055	0.00809 (%S[1])	0.000705	1.04E-05

[1]%S=Sulfur content of fuel.

[2]NAFB application identified this emission factor as 0.00E00; therefore, DAQEM assumed this value to be 1.00E-07 based on calculations provided by Nellis in the application.

Table VI-B-6: PTE for Internal Combustion Engines (pounds per hour)

EU	Rating (Bhp)	PM_{10}	NO_X	CO	SO_2	VOC	HAP
G001	68	0.16	1.18	0.76	0.10	0.04	0.01
G002	317	0.74	10.40	2.24	0.69	0.83	0.02
G003	99	0.23	3.25	0.70	0.22	0.26	0.01
G004	287	0.67	9.41	2.03	0.62	0.75	0.01
G005	535	0.21	11.54	2.81	0.74	0.37	0.03
G006	535	0.21	11.54	2.81	0.74	0.37	0.03
G007	535	0.21	11.54	2.81	0.74	0.37	0.03
G008	1,750	1.30	44.44	10.18	0.08	1.31	0.02
G009	1,250	1.24	42.50	9.74	0.07	1.25	0.02
G010	1,350	0.25	23.87	0.66	0.06	0.60	0.06
G011	380	0.44	8.23	0.89	0.50	0.42	0.02
G012	535	0.21	11.54	2.81	0.74	0.37	0.03
G013	350	0.82	11.48	2.47	0.76	0.92	0.02
G014	676	0.50	17.17	3.93	0.03	0.50	0.01
G015	50	0.12	1.64	0.35	0.11	0.13	0.01
G016	235	0.55	7.71	1.66	0.51	0.61	0.01
G017	35	0.08	1.15	0.25	0.08	0.09	0.01
G018	390	0.46	9.83	0.55	0.56	0.16	0.02
G019	380	0.44	8.23	0.89	0.50	0.42	0.02
G021	317	0.10	2.71	0.35	0.69	0.10	0.02
G022	99	0.04	2.12	0.28	0.14	0.07	0.01
G023	170	0.13	3.54	0.92	0.37	0.06	0.01
G024	50	0.12	1.64	0.35	0.11	0.13	0.01
G025	68	0.16	1.18	0.76	0.10	0.04	0.01
G026	99	0.04	2.12	0.28	0.14	0.07	0.01
G027	268	0.62	8.79	1.89	0.58	0.70	0.01
G028	99	0.04	2.12	0.28	0.14	0.07	0.01
G029	99	0.04	2.12	0.28	0.14	0.07	0.01
G030	277	0.10	3.45	0.34	0.40	0.12	0.01
G031	380	0.44	8.23	0.89	0.50	0.42	0.02
G032	1,593	1.18	40.45	9.27	0.07	1.19	0.02

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EU	Rating (Bhp)	PM_{10}	NO_X	CO	SO_2	VOC	HAP
G033	1,593	1.18	40.45	9.27	0.07	1.19	0.02
G034	68	0.16	1.81	0.76	0.10	0.04	0.01
G035	80	0.19	2.62	0.57	0.17	0.21	0.01
G036	67	0.16	2.20	0.47	0.15	0.18	0.01
G037	380	0.44	8.24	0.89	0.50	0.43	0.02
G038	277	0.10	3.45	0.34	0.40	0.12	0.01
G039	80.4	0.19	2.62	0.57	0.17	0.21	0.01
G040	68	0.16	2.23	0.48	0.15	0.18	0.01
G041	1,340	0.22	37.51	1.34	1.84	0.47	0.06
G042	160	0.37	5.25	1.13	0.35	0.42	0.01
G043	78	0.18	2.56	0.55	0.17	0.20	0.01
G044	68	0.16	1.18	0.76	0.10	0.04	0.01
G046	170	0.13	2.96	0.59	0.23	0.08	0.01
G047	277	0.01	3.45	0.34	0.40	0.12	0.01
G048	182	0.42	5.97	1.29	0.40	0.48	0.01
G049	182	0.42	5.97	1.29	0.40	0.48	0.01
G050	380	0.44	8.23	0.89	0.50	0.42	0.02
G051	418	0.05	5.80	0.20	0.04	0.06	0.02
Totals		**16.83**	**467.62**	**86.16**	**17.37**	**18.14**	**0.81**

Table VI-B-7: PTE for Generators (tons per year)

EU	Rating (Bhp)	PM_{10}	NO_X	CO	SO_2	VOC	HAP
G001	68	0.01	0.05	0.03	0.01	0.01	0.01
G002	317	0.03	0.47	0.10	0.03	0.04	0.01
G003	99	0.01	0.15	0.03	0.01	0.01	0.01
G004	287	0.02	0.24	0.05	0.02	0.02	0.01
G005	535	0.01	0.52	0.13	0.03	0.02	0.01
G006	535	0.01	0.52	0.13	0.03	0.02	0.01
G007	535	0.01	0.52	0.13	0.03	0.02	0.01
G008	1,750	0.06	2.00	0.46	0.01	0.06	0.01
G009	1,250	0.06	1.91	0.44	0.01	0.06	0.01
G010	1,350	0.01	1.07	0.03	0.01	0.03	0.01
G011	380	0.02	0.37	0.04	0.02	0.02	0.01
G012	535	0.01	0.52	0.13	0.03	0.02	0.01
G013	350	0.02	0.29	0.06	0.02	0.02	0.01
G014	676	0.02	0.77	0.18	0.01	0.02	0.01
G015	50	0.01	0.07	0.02	0.01	0.01	0.01
G016	235	0.01	0.19	0.04	0.01	0.02	0.01
G017	35	0.01	0.03	0.01	0.01	0.01	0.01
G018	390	0.02	0.44	0.03	0.03	0.01	0.01
G019	380	0.02	0.37	0.04	0.02	0.02	0.01
G021	317	0.01	0.12	0.02	0.03	0.01	0.01
G022	99	0.01	0.10	0.01	0.01	0.01	0.01
G023	170	0.01	0.16	0.04	0.02	0.01	0.01
G024	50	0.01	0.07	0.02	0.01	0.01	0.01
G025	68	0.01	0.05	0.03	0.01	0.01	0.01
G026	99	0.01	0.10	0.01	0.01	0.01	0.01
G027	268	0.03	0.40	0.09	0.03	0.03	0.01
G028	99	0.01	0.10	0.01	0.01	0.01	0.01
G029	99	0.01	0.10	0.01	0.01	0.01	0.01
G030	277	0.01	0.16	0.02	0.02	0.01	0.01

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EU	Rating (Bhp)	PM_{10}	NO_X	CO	SO_2	VOC	HAP
G031	380	0.02	0.37	0.04	0.02	0.02	0.01
G032	1,593	0.05	1.82	0.42	0.01	0.05	0.01
G033	1,593	0.05	1.82	0.42	0.01	0.05	0.01
G034	68	0.01	0.05	0.03	0.01	0.01	0.01
G035	80	0.01	0.12	0.03	0.01	0.01	0.01
G036	67	0.01	0.06	0.01	0.01	0.01	0.01
G037	380	0.02	0.37	0.04	0.02	0.02	0.01
G038	277	0.01	0.16	0.02	0.02	0.01	0.01
G039	80.4	0.01	0.12	0.03	0.01	0.01	0.01
G040	68	0.01	0.10	0.02	0.01	0.01	0.01
G041	1,340	0.01	1.69	0.06	0.08	0.02	0.01
G042	160	0.01	0.13	0.03	0.01	0.01	0.01
G043	78	0.01	0.12	0.03	0.01	0.01	0.01
G044	68	0.17	1.23	0.79	0.11	0.01	0.01
G046	170	0.01	0.13	0.03	0.01	0.01	0.01
G047	277	0.01	0.16	0.02	0.02	0.01	0.01
G048	182	0.01	0.15	0.03	0.01	0.01	0.01
G049	182	0.01	0.15	0.03	0.01	0.01	0.01
G050	380	0.02	0.37	0.04	0.02	0.02	0.01
G051	418	0.01	0.29	0.01	0.01	0.01	0.01
Totals		**0.96**	**21.27**	**4.47**	**0.93**	**0.88**	**0.49**

Table VI-B-8: PTE for Aircraft Arrestors (pounds per hour)

EU	Rating (Bhp)	PM_{10}	NO_X	CO	SO_2	VOC	HAP
G052	65	0.05	0.72	28.54	0.04	0.98	0.01
G053	65	0.05	0.72	28.54	0.04	0.98	0.01
G054	65	0.05	0.72	28.54	0.04	0.98	0.01
G055	65	0.05	0.72	28.54	0.04	0.98	0.01
G056	65	0.05	0.72	28.54	0.04	0.98	0.01
G057	65	0.05	0.72	28.54	0.04	0.98	0.01
G058	65	0.05	0.72	28.54	0.04	0.98	0.01
G059	65	0.05	0.72	28.54	0.04	0.98	0.01
G060	65	0.05	0.72	28.54	0.04	0.98	0.01
G061	65	0.05	0.72	28.54	0.04	0.98	0.01
G062	65	0.05	0.72	28.54	0.04	0.98	0.01
G063	65	0.05	0.72	28.54	0.04	0.98	0.01
Totals		**0.60**	**8.64**	**342.48**	**0.48**	**11.76**	**0.12**

Table VI-B-9: PTE for Aircraft Arrestors (tons per year)[1]

EU	Rating (Bhp)	PM_{10}	NO_X	CO	SO_2	VOC	HAP
G052	65	0.01	0.08	3.17	0.01	0.11	0.01
G053	65	0.01	0.08	3.17	0.01	0.11	0.01
G054	65	0.01	0.08	3.17	0.01	0.11	0.01
G055	65	0.01	0.08	3.17	0.01	0.11	0.01
G056	65	0.01	0.08	3.17	0.01	0.11	0.01
G057	65	0.01	0.08	3.17	0.01	0.11	0.01
G058	65	0.01	0.08	3.17	0.01	0.11	0.01
G059	65	0.01	0.08	3.17	0.01	0.11	0.01
G060	65	0.01	0.08	3.17	0.01	0.11	0.01
G061	65	0.01	0.08	3.17	0.01	0.11	0.01
G062	65	0.01	0.08	3.17	0.01	0.11	0.01

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EU	Rating (Bhp)	PM_{10}	NO_X	CO	SO_2	VOC	HAP
G063	65	0.01	0.08	3.17	0.01	0.11	0.01
Totals		**0.05**	**0.68**	**27.11**	**0.04**	**0.93**	**0.01**

[1]Tons per year sum is based on a maximum of 1,900 hours per year total.

In addition to the permitted emission units listed above, NAFB has 11 internal combustion engines that are exempt from regulatory requirements under Clark County AQR. However, the emissions from these units are counted in the facility-wide PTE. Therefore, the PTEs listed in Tables VI-B-11 and VI-B-12 are for informational purposes only. The emissions are calculated based on manufacturer's emission factors (Table VI-B-10) provided by NAFB and AP-42 emission factors (Table VI-B-5) and 120 hours of operation per year. Emission factors in Table VI-B-10 are in grams per brake horsepower except for the emission factors for SO_2, which are listed in pounds per brake horsepower. Additionally, the emission factors for the internal combustion engine, models 20.0DL4-15R and 7.5KD-3CR, are listed in pounds per brake horsepower.

Table VI-B-10: Manufacturer's Emission Factors for Internal Combustion Engines

Manufacturer	Model	hp	PM_{10}	NO_X	CO	SO_2[1]	VOC
Onan	DKAC-3384290	20.1	0.58	2.01	1.31	2.05E-03	0.05
Onan	DKAC-3376326	20.1	0.58	2.01	1.31	2.05E-03	0.05
Onan	DKAC-3376326	20.1	0.58	2.01	1.31	2.05E-03	0.05
Onan	DNAD-477910	15.41	0.66	12.6	3.13	2.05E-03	1.64
Onan	DNAD-477910	15.41	0.66	12.6	3.13	2.05E-03	1.64
Onan	DKAF-5628430	33.5	0.60	2.21	0.68	2.05E-03	0.04
Onan	DKAF-378621	33.5	0.60	2.21	0.68	2.05E-03	0.04
Onan	DNAF-5632181	26.8	0.20	10.5	1.49	2.05E-03	0.60
Onan	DKAF-4961010	33.5	0.60	2.21	0.68	2.05E-03	0.04
Onan[1]	20.0DL4-15R	26.8	0.31	4.41	0.95	2.05E-03	0.35
Onan[1]	7.5KD-3CR	10.05	0.31	4.41	0.95	2.05E-03	0.35

[1]Emission factors are in pounds per brake horsepower.

Table VI-B-11: PTE for Exempt Internal Combustion (pounds per hour)[1]

Building Number	Rating kW	PM_{10}	NO_X	CO	SO_2	VOC	HAP
2060	15	2.57E-02	8.91E-02	5.81E-02	9.00E-05	2.22E-03	8.97E-04
2070	15	2.57E-02	8.91E-02	5.81E-02	9.00E-05	2.22E-03	8.97E-04
2364	15	2.57E-02	8.91E-02	5.81E-02	9.00E-05	2.22E-03	8.97E-04
2353	11.5	2.24E-02	4.28E-01	1.06E-02	6.90E-05	5.57E-02	6.88E-04
2354	11.5	2.24E-02	4.28E-01	1.06E-02	6.90E-05	5.57E-02	6.88E-04
277	25	4.43E-02	1.63E-01	5.02E-02	1.50E-04	2.95E-03	1.49E-03
805	25	4.43E-02	1.63E-01	5.02E-02	1.50E-04	2.95E-03	1.49E-03
222	20	1.18E-02	6.20E-01	8.80E-02	1.20E-04	3.55E-02	1.20E-03
807	25	4.43E-02	1.63E-01	5.02E-02	1.50E-04	2.94E-03	1.49E-03
328	20	5.82E-03	8.27E-02	1.78E-02	3.81E-05	6.67E-03	1.20E-03
10220	25	2.18E-03	3.10E-02	6.68E-03	1.43E-05	2.46E-03	4.48E-04
Totals		**0.28**	**2.34**	**0.46**	**1.03E-03**	**0.17**	**1.14E-02**

[1] For informational purposes only.

PROPOSED

Table VI-B-12: PTE for Exempt Internal Combustion (tons per year)[1]

Building Number	Rating kW	PM_{10}	NO_X	CO	SO_2	VOC	HAP
2060	15	1.54E-03	5.34E-03	3.48E-03	5.40E-06	1.33E-04	5.38E-05
2070	15	1.54E-03	5.34E-03	3.48E-03	5.40E-06	1.33E-04	5.38E-05
2364	15	1.54E-03	5.34E-03	3.48E-03	5.40E-06	1.33E-04	5.38E-05
2353	11.5	1.35E-03	2.57E-02	6.38E-03	4.14E-06	3.34E-03	4.13E-05
2354	11.5	1.35E-03	2.57E-02	6.38E-03	4.14E-06	3.34E-03	4.13E-05
277	25	2.66E-03	9.79E-03	3.01E-03	9.00E-06	1.77E-04	8.97E-05
805	25	2.66E-03	9.79E-03	3.01E-03	9.00E-06	1.77E-04	8.97E-05
222	20	7.09E-04	3.72E-02	5.28E-03	7.20E-06	2.13E-03	7.17E-05
807	25	2.66E-03	9.79E-03	3.01E-03	9.00E-06	1.77E-04	8.97E-05
328	20	3.49E-04	4.96E-03	1.07E-03	2.28E-06	3.94E-04	7.17E-05
10220	25	1.31E-04	1.86E-03	4.01E-04	8.57E-07	1.48E-04	2.68E-05
Totals		**1.65E-02**	**1.41E-01**	**3.90E-02**	**6.18E-05**	**1.03E-02**	**6.38E-04**

[1] For informational purposes only.

Table VI-B-13: PTE for All Internal Combustion Activities (pounds per hour)

	PM_{10}	NO_X	CO	SO_2	VOC	HAPs
Emergency Generators and Fire/Deluge Pumps	16.83	467.62	86.16	17.37	18.14	0.81
Aircraft Arrestors	0.60	8.64	342.48	0.48	11.76	0.12
Exempt Generators[1]	0.28	2.35	0.46	0.01	0.17	0.01
Totals	**17.71**	**478.61**	**429.10**	**17.86**	**30.07**	**0.94**

[1] For informational purposes only.

Table VI-B-14: PTE for All Internal Combustion Activities (tons per year)

	PM_{10}	NO_X	CO	SO_2	VOC	HAPs
Emergency Generators and Fire/Deluge Pumps	0.96	21.27	4.47	0.93	0.88	0.49
Aircraft Arrestors [2]	0.05	0.68	27.11	0.04	0.93	0.01
Exempt Generators[1]	0.02	0.14	0.04	0.01	0.01	0.01
Totals	**1.03**	**22.09**	**31.62**	**0.98**	**1.82**	**0.51**

[1] For informational purposes only.
[2] Annual emissions for the aircraft arrestors are capped at an equivalent of 1,900 hours per year collectively.

C. Production Limitations and Control Technology Summary

- NAFB requested a limit on hours of operation for each emergency/standby generator and the fire/deluge pump. Each emergency/standby generator shall operate a maximum of 90 hours a year. Additionally, each fire/deluge pump shall operate a maximum of 50 hours per year. The gasoline aircraft arrestors shall share in a cap of 1,900 hours per year, collectively, and are allowed to operate up to 225 hours per year individually.
- Only low sulfur (0.05%) diesel and JP-8 fuel shall be combusted by the emergency generators and fire pumps. Only gasoline shall be combusted by the aircraft arrestors.
- NAFB submitted a BACT analysis for all new and modified emission units associated with the April 27, 2007 permitting action. The BACT analysis grouped generators into two categories, large capacity generators (600 Bhp or higher) and small capacity generators (600 Bhp or lower). Both categories shall be restricted to an annual utilization limitation for maintenance and testing equivalent to 90 hours of operation at maximum capacity.
- The following summarizes the BACT determinations made by DAQEM.

PROPOSED

- Internal Combustion Engines Greater Than 600 Bhp:
  - BACT for NO_X for the large capacity emergency generator engines (600 Bhp or higher) is a turbocharger and aftercooler, and limiting the hours of operation for testing and maintenance (not including hours of emergency operation) to 90 hours.
  - BACT for VOC emissions is good combustion practices.
  - BACT for PM/PM_{10} includes combustion of clean fuels and good combustion practices.
  - BACT for CO emissions are good combustion practices.
  - BACT for SO_X is considered to be combustion of JP-8 or low sulfur diesel fuel, good combustion practices and limitation of hours for maintenance and testing to 90 hours per year.
- Internal Combustion Engines Less Than 600 Bhp:
  - The generators are used as an emergency power source. The small capacity generators are presented in Table VI-C-1.

Table VI-C-1: Small Capacity Emergency Generators (600 Bhp or lower)

Building No.	Source Type (i.e. Engines, Generator)	Manufacturer	Model	Serial	Max. Power Rating	Units	Fuel Type
2	Generator	Onan	35DGBB	F970690597	68	hp	Diesel/JP8
6	Generator	Cummins	DGFC-5628120	G030523516	317	hp	Diesel/JP8
47	Generator	Cummins	DGCB-5664728	CO40611541	99	hp	Diesel/JP8
200	Generator	Onan	350DFCC	30370204	535	hp	Diesel/JP8
200	Generator	ONAN	350DFCC	K950593560	535	hp	Diesel/JP8
200	Generator	ONAN	350DFCC	H960614359	535	hp	Diesel/JP8
216	Generator	Onan	250DFAC	H970645976	380	hp	Diesel/JP8
217	Generator	Onan	DFCC-5586711	L020451856	535	hp	Diesel/JP8
277	Generator	Onan	30.0DL6-15R/24510D	H870917822	50	hp	Diesel/JP8
589	Generator	CUMMINS	285HC4AL/2A	307320	390	hp	Diesel/JP8
603	Generator	Onan	DGAB-4485844	H000145362	380	hp	Diesel/JP8
620	Generator	Onan	DGFC-5690289	H040682522	317	hp	Diesel/JP8
807	Generator	Onan	60.0DGCB-L	K870946221	99	hp	Diesel/JP8
809	Generator	Onan	80.0DGDA	H930515481	170	hp	Diesel/JP8
812	Generator	Cummins	DGGD-5564189	G020391974	50	hp	Diesel/JP8
814	Generator	Onan	DGBB	F0102511383	68	hp	Diesel/JP8
830	Generator	Onan	DGCA-4494082	A010195339	99	hp	Diesel/JP8
841	Generator	LIBBY	MEP-9B	RZ00787	200	kW	Diesel/JP8
856	Generator	Onan	DGCA-4494082	A010195338	99	hp	Diesel/JP8

PROPOSED

Building No.	Source Type (i.e. Engines, Generator)	Manufacturer	Model	Serial	Max. Power Rating	Units	Fuel Type
890	Generator	Onan	DGCB-5679848	H040677994	99	hp	Diesel/JP8
941	Generator	Onan	DGFA	F010251389	277	hp	Diesel/JP8
941	Generator	CUMMINS	DFAC	H970645976	380	hp	Diesel/JP8
1602	Generator	Onan	35DGBB	H980789624	68	hp	Diesel/JP8
1606	Generator	Generac	3543120400	2074369	80	kW	Diesel/JP8
2060	Generator	Onan	250DFAC	L990035025	380	hp	Diesel/JP8
2064	Generator	Onan	150.0DGFA-L	J890274327	277	hp	Diesel/JP8
2068	Generator	LIBBY	MEP-6A	DZ03721	60	kW	Diesel/JP8
2345	Generator	Onan	DGCB-4477253	C0000075370	102	hp	Diesel/JP8
61663	Generator	Onan	DGDB-5673920	F040652185	170	hp	Diesel/JP8
61664	Generator	Onan	175.0DGFB	F010250889	277	hp	Diesel/JP8
61697	Generator	Onan	DCAC-5634769	K030567407	380	hp	Diesel/JP8
199	Fire Pump	CAT	3306B	64Z08070	287	hp	Diesel/JP8
256	Fire Pump	CUMMINS	N855F	10164265	350	hp	Diesel/JP8
283	Fire Pump	CAT	3208	03Z04601	235	hp	Diesel/JP8
431	Fire Pump	DETROIT	503348-012	3D0300584	35	hp	Diesel/JP8
1998	Water Pump	WAUKESHAU	VRD220SU	365170	67	hp	Diesel/JP8
10460	Deluge Pump	PERKINS	YB70326	Y721785F	160	hp	Diesel/JP8
61672	Deluge Pump	CUMMINS	6BTA5-9-F1	44954338	182	hp	Diesel/JP8
61672	Deluge Pump	CUMMINS	6BTA5-9-F1	44958692	182	hp	Diesel/JP8

- The small capacity emergency generators shall be restricted to an annual utilization limitation for maintenance and testing equivalent to 90 hours of operation per year (not including hours of operation for emergency use) at maximum.
- BACT for NO_X emissions NAFB shall limit the hours of operation for maintenance and testing (not including hours of emergency operation) and maintain the turbocharger and aftercooler on the internal combustion units greater than 100 Bhp.
- BACT for VOC emissions from the small capacity emergency generators shall be good combustion practices.
- BACT for PM/PM_{10} includes the burning of only low sulfur (less than 0.05 percent sulfur) fuel and the implementation of good combustion practices to control PM emissions from the primary generator.
- BACT for CO shall be good combustion practices. BACT for SO_X emissions NAFB shall be combusting only low sulfur fuel and the implementation of good combustion practices. Additionally, NAFB shall limit the hours of operation of the internal combustion units less than 600 Bhp for maintenance and testing to 90 hours per year.

PROPOSED

- Gasoline Aircraft Arrestors
  - The aircraft arrestor engines are used to rewind a cord after engagement of the arrestor. Each aircraft arrestor engine shall be restricted to an annual utilization limitation of 225 hours of operation per year at maximum capacity with anticipated actual operation being lower.
  - Due to the unique nature of aircraft arrestors, the Air Force has developed an Air Force Technical Order for operation of these emission units. The Air Force Technical Order restricts the modifications that can be made to the engine in order to prevent loss of life from failure of the arrestor. Therefore, the only control technologies that could be considered for operation of the aircraft arrestors is limiting the hours of operation of the aircraft arrestors and good combustion practices.
  - After review of the requirements in the Air Force Technical Order and expected use for aircraft emergencies, the aircraft arrestors can be limited to 225 hours of operation per year. NAFB proposed that limiting the hours of operation to 225 hours per year as technically feasible for this BACT analysis.

D. Other Applicable Regulations

Internal Combustion operations at NAFB are subject to Clark County AQR Sections 25, 26, 29, 35, 40, 43, and 59.

E. Compliance Demonstration

NAFB shall demonstrate compliance with the emission limits for each generator, each fire pump, and each aircraft arrestor by maintaining a log of hours of operation of each unit. Additionally, the type of fuel shall be recorded in the log. Manufacturer's certification of the sulfur content of the fuel shall be maintained.

F. Performance Testing

Performance testing may be requested by the Control Officer to verify emission factors and emissions outlined in the Part 70 permit.

VII. HUSH HOUSE

A. Description of Action

Hush-house activities include the testing of jet engines to support the base mission. Hush house activities emit NO_X, CO, PM_{10}, SO_2, VOC and HAPs. NAFB currently has two (2) hush houses with aircraft engine test stands. These hush houses are located at building 61633 and building 61637. NAFB routinely tests three (3) types of aircraft engines: F-119, F100-PW-220 and F100-PW-229. The engines are tested in three (3) power settings, or modes, of operation: idle, military, and afterburner. These tests result in NO_X, CO, PM_{10}, SO_2, VOC and HAP emissions. Table VII-A-1 outlines the emission units. Table VII-A-2 outlines the annual hours needed to test each engine in the three (3) different modes of operation.

An update of emissions factors for hush-house activities was issued on September 27, 2006 as ATC/OP Modification 42. Because this was an update only, the hush house activity was not subject to New Source Review under Modification 42.

Table VII-A-1: Summary of Emission Units

EU #	Description
N001	Hush House Building 61633
N002	Hush House, Building 61637

PROPOSED

Table VII-A-2: Annual Engine Tests Conducted in Hush Houses

Type of Engine	Time in Mode (hours)		
	Idle	Military	Afterburner
F100-PW-220	240	120	20
F100-PW-229	150	75	8
F119-PW-100	50	25	6

B. Calculation of Potential to Emit (PTE)

The emission factors used for the calculation of Potential to Emit from hush house activities were developed by the Air Force Institute for Environment, Safety and Occupational Health Risk Analysis (IERA). These emission factors are listed in Table VII-B-1.

Table VII-B-1: Emission Factors for Aircraft Engines

Aircraft Engines	Power Setting	Fuel Flow Rate (lbs/hr)	PM_{10}	NO_X	CO	VOC
F100-PW-220[1]	Idle	2,084	2.06	4.61	35.3	7.94
	Military	9,679	1.33	29.32	0.86	1.79
	AB-1	41,682	1.15	8.37	11.99	1.53
F100-PW-229[1]	Idle	1,087	2.06	3.8	10.16	0.38
	Military	11,490	1.33	57.65	0.66	0.54
	AB-1	20,793	1.15	50.92	76.62	16.26
F119-PW-100[2]	Idle	1,367	3.43	4.10	66.3	9.40
	Military	18,626	20.92	368.8	14.0	0.01
	AB-1	49,973	20.92[3]	369.8	807.7	9.30

[1]Emission factors are in pounds per 1,000 pounds fuel burned.

[2]Emission factors are in pounds per hour.

[3]PM_{10} emission factor for afterburner for this engine type was not available so the emission factor for PM_{10} in military mode was assumed to be worst case for the emission factor for this engine type.

Table VII-B-2: PTE in Pounds per Hour

Aircraft Engines	Power Setting	PM_{10}	NO_X	CO	SO_2	VOC
F100-PW-220	Idle	4.29	9.61	73.57	2.08	16.56
	Military	12.87	283.79	8.32	9.68	17.33
	AB-1	47.93	348.88	499.77	41.68	63.77
F100-PW-229	Idle	2.24	4.13	11.03	1.09	0.41
	Military	15.28	662.40	7.58	11.49	6.21
	AB-1	23.92	1,058.78	1,593.16	20.79	338.09
F119-PW-100	Idle	3.43	4.10	66.30	1.37	9.40
	Military	20.92	368.80	14.00	18.63	0.01
	AB-1	20.92	369.80	807.70	49.97	9.30

Table VII-B-3: PTE in Tons per Year

Aircraft Engines	Power Setting	PM_{10}	NO_X	CO	SO_2	VOC
F100-PW-220	Idle	0.52	1.15	8.83	0.25	1.99
	Military	0.77	17.03	0.50	0.58	1.04
	AB-1	0.50	3.49	5.00	0.42	0.64
F100-PW-229	Idle	0.17	0.31	0.83	0.08	0.03
	Military	0.57	24.84	0.28	0.43	0.23
	AB-1	0.10	4.24	6.37	0.08	1.35
F119-PW-100	Idle	0.09	0.10	1.66	0.03	0.24
	Military	0.26	4.61	0.18	0.23	0.01

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Aircraft Engines	Power Setting	PM_{10}	NO_X	CO	SO_2	VOC
	AB-1	0.06	1.11	2.42	0.15	0.03

Because the emission factors for aircraft engines F100-PW-220 and F100-PW-229 were presented in pounds per thousand pounds of fuel burned, the fuel flow rate in each mode of operation was multiplied by the IERA value to determine the emission factors for PM_{10}, NO_X, CO and VOC. For example, in the Idle power setting for engine type F100-PW-220, the fuel flow rate is 2,084 pounds per hour. The emission factor that IERA developed is 2.06 pounds of PM_{10} per thousand pounds of fuel burned. Therefore, the PM_{10} emissions factor associated with this mode of operation is 2.06 pounds per 1,000 pounds of fuel burned multiplied by 2,086 pounds per hour of fuel burned. This equation yields an emission rate of 4.29 pounds of PM_{10} per hour.

To determine the tons of PM_{10} emitted per year associated with this power setting, 240 hours per year is multiplied by 4.29 pounds of PM_{10} per hour. This results in a value of 1,030.33 pounds of PM_{10} emitted per year. To determine this value in tons per year, the previous value is divided by 2,000 (1 ton = 2,000 pounds). Therefore, this value is 0.52 tons per year.

The SO_2 emissions for all engines in all modes of operation were calculated based on assuming that all of the sulfur in the fuel was converted to SO_2. The maximum allowable sulfur content of fuel oil in Clark County is 0.05 percent. Assuming all sulfur (molecular weight 32) converts to SO_2 (molecular weight 64), then the mass emissions of SO_2 equals twice the mass of sulfur content in the fuel. Therefore, the fuel flow rate is multiplied by twice the sulfur content to yield a result in pounds per hour for each type of engine testing (idle, military, afterburner). This is multiplied by the hours of operation per year in that mode of operation.

To convert to tons per year, the previous value is divided by 2,000 (1 ton = 2,000 pounds). These values were added to obtain the total tons per year of SO_2 emitted from engine testing in the hush houses.

HAP emission factors for aircraft engines were developed by IERA and are listed in Table VII-B-4. The HAP emissions for F100-220 and F100-229 are assumed to be the same. The HAP emissions are based on the fuel flow rates outlined in Table VII-B-1.

PROPOSED

Table VII-B-4: HAP Emission Factors

Engine Type	Power Setting	Formal-dehyde	Acetal-dehyde	Acrolein	Isobutyral-dehyde	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylene	Styrene
F100-PW-220/229[1]	Idle	0.82	0.20	0.097	0.02	0.064	0.098	0.02	0.0048	0.036	0.0048
	Military	0.006	0.011	<0.00001	0.003	0.00037	0.003	0.005	0.0024	0.026	<0.00001
	AB	0.015	0.013	<0.00001	0.004	0.00048	0.0077	0.012	0.0022	0.025	<0.00001
F119[2]	Idle	1.37	0.1527	0.0496	0.0916	<0.00001	0.1453	0.0877	0.0226	0.0923	0.043
	Military	0.1413	0.0155	<0.00001	<0.00001	<0.00001	0.0091	<0.00001	0.0034	0.0088	<0.00001
	AB	0.1413	0.0155	<0.00001	<0.00001	<0.00001	0.0091	<0.00001	0.0034	0.0088	<0.00001

[1]Emission factors are in pounds per 1,000 pounds of fuel burned.
[2]Emission factors are in pounds per hour.

Table VII-B-5 outlines the potential to emit for all hush house activities at NAFB. Table VII-B-6 outlines the specific HAPs and their emission rates that are associated with aircraft engine testing at NAFB.

Table VII-B-5: Potential to Emit

EU#	Buildings	Rate	PM_{10}	NO_X	CO	SO_X	VOC	HAPs
N001 and N002	61633/ 61637	lb/hr[1]	95.86	2,117.56	3,186.32	99.94	676.18	6.48
		tons/yr	**3.04**	**56.88**	**26.07**	**2.26**	**5.54**	**1.11**

[1]Pound per hour values are based on operating both emission units N001 and N002 at the same time.

Table VII-B-6: HAP Potential to Emit

HAPs	lbs/hr	tons/yr
Formaldehyde	1.653441	0.568986665
Acetaldehyde	0.183924	0.161800953
Acrolein	0.49807	0.0612493
Isobutyraldehyde	0.916038	0.044957561
Naphthalene	0.00009425	0.04075799
Benzene	0.1636087	0.0772981
Toluene	0.087757	0.035375
Ethylbenzene	0.0294094	0.010463532
Xylenes	0.109987	0.100234
Styrene	0.043025	0.004073
Total HAPs	**3.24**	**1.11**

PROPOSED

C. Production Limitations and Control Technology Summary

- Each of the hush houses (EUs: N001 and N002) is allowed to operate up to 8,760 hours per year.
- NAFB is limited by the amount of hours each test can be conducted by engine type and time in mode of operation.
- No add-on control devices are required at this time.

D. Other Applicable Regulations

Hush house operations at NAFB are subject to AQR Sections 26, 40, and 43.

E. Compliance Demonstration

Record keeping and reporting of type of aircraft engine tested, mode of operation tested and the time in mode shall be used to demonstrate compliance with the emission limitations outlined in the Part 70 permit.

F. Performance Testing

Performance testing may be requested by the Control Officer to verify emission factors and emissions outlined in the Part 70 permit.

VIII. LANDFILL

A. Description of Action

The 99 Civil Engineering Squadron (CES) at Nellis Air Force Base (NAFB) operates a small Class III Construction Debris Landfill. The landfill disposal is limited to inert materials, landscaping waste and construction debris that consist mainly of non-recyclable concrete, wood, asphalt and other construction related debris.

The first comprehensive ATC/OP for landfill activities was issued as Modification 34. Modification 34, Amendment 1 was for a change of signature block only. Modification 34, Amendment 2, issued on August 22, 2006, was for a correction in the reporting requirements and language corrections.

B. Calculation of Potential to Emit (PTE)

The Part 70 permit allows for record keeping and reporting to be in cubic yards. The conversion factor for tons to cubic yards was obtained from the State of Nevada Solid Waste Reporting Form for Municipal Solid Waste Landfills. This form outlines the conversion of cubic yards to tons by multiplying cubic yards by 0.55. The unit of the converted value is tons. The potential to emit is as follows:

- EU I001, Excavating: PM_{10} (pounds per day) = (100 tons per day) (0.08 pound per ton) (1-0.815) (1 ton per 2,000 pounds) = 1.48 pounds per day.
- EU I001, Excavating: PM_{10} (tons per year) = (3,000 tons per year) (0.08 pound per ton) (1-0.815) (1 ton per 2,000 pounds) = 0.02 tons per year.
- EU I002: PM_{10} (pounds per day) = (0.9 miles paved road) (1 load per ton) (100 tons per day) = 90 miles per day.
- (90 miles per day) (7.57 pounds per vehicle mile traveled) (1-0.98 control efficiency) = 13.63 pounds per day.
- EU I002: PM_{10} (tons per year) = (2700 miles per year) (7.57 pound per vehicle mile traveled) (1 ton per 2000 pounds) (1-0.98 control efficiency) = 0.20 tons per year.
- EU 1004: PM_{10} (pounds per day) = (18.98 acres) (1.66 pound per acre-day) (1-0.815 control efficiency) = 5.83 pounds per day.

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- EU I004: PM_{10} (tons per year) = (18.98 acres) (1.66 pound per acre-day) (1 ton per 2000 pounds) (365 days per year) (1-0.815 control efficiency) = 1.06 tons per year.

C. Production Limitations and Control Technology Summary

- Landfill operations at NAFB shall exceed neither 100 tons per day nor 3,000 tons per year of debris handling. These limits allow for a total of 182 cubic yards per day and 5,454 cubic yards per year of construction debris handling. The hourly limits shall equal the daily limits.
- The total vehicle miles traveled (VMT) from haul road traffic shall be limited to 90 miles per day and 2,700 miles per year on the paved portion of the haul road to the landfill, and 30 miles per day and 900 miles per year on the unpaved portion of the haul road to the landfill.
- The current controls that are required include for the landfill operations include:
  - at the end of each day that material has been added to the landfill, the material shall be compacted and covered with soil. Water shall be used to form a crust on the covered material;
  - a water truck shall be maintained at the site during unloading and transferring of material and excavation activity; and
  - the landfill shall be limited to the disposal of construction debris defined as inert building materials and wastes, noncontaminated soils, landscaping waste (i.e. tree and grass clippings), asphalt and concrete.
- Visible emissions from the excavation, unloading operation, transferring materials and vehicular traffic shall not exhibit opacity greater than 20 percent for a period or periods aggregating more than three (3) minutes in any 60-minute period.
- BACT for the normal use of unpaved haul roads shall be implemented by maintaining low vehicle speed on unpaved roads (i.e. 15 mph). In addition, water application or soil stabilization palliatives shall be applied to unpaved roads to prevent fugitive dust emissions from exceeding 20 percent opacity.
- Control measures shall be considered effectively implemented when stabilization observations for fugitive dust emissions from unpaved roads do not exceed applicable opacity standards, and do not equal or exceed either 0.33 ounces per square foot silt loading or do six (6) percent silt content.
- During high wind events (20 knots or higher), areas shall be watered where a visible plume is produced. Soil-disturbing activities which create a visible plume of 20 percent or greater shall be ceased until adequate control measures can be undertaken to reduce the visible emissions below 20 percent.

D. Other Applicable Regulations

The landfill is subject to AQR Sections 12, 26, 40, 43 and 55. NAFB must comply with its State Class III landfill permit.

E. Compliance Demonstration

- Records documenting the date and the amount of material deposited in the landfill shall be kept on-site by the owner/operator and made available to DAQEM upon request. Additionally, records documenting the amount of water used or soil stabilization palliatives applied to control emissions shall be kept on-site by the owner/operator and made available to DAQEM upon request.

PROPOSED

- Ongoing compliance with opacity limitations shall be demonstrated in accordance with 40 CFR 60 Reference Method 9 (Standards for Opacity). Ongoing compliance with production and emission limitations shall be demonstrated through record keeping and reporting.
- Compliance with the minimum moisture contents contained within the Part 70 permit shall be demonstrated by conducting and recording sampling and analysis of materials less than one-quarter inch in diameter in accordance with ASTM Standard C 566-97: *Standard Test Method for Total Moisture Content of Aggregate by Drying.* Once each calendar quarter, a moisture sample shall be taken from the material at the landfill and disturbed vacant areas associated with the landfill.
- Compliance with the maximum silt loading and silt content limits for the paved and unpaved roads, respectively, shall be verified annually by methods outlined in AQR Sections 91 and 93.

F. Performance Testing

Except for Method 9 observations, performance testing is not required for this permitting action. However, performance testing may be required at any time by the Control Officer to demonstrate the required control efficiencies.

IX. VACANT LAND

A. Description of Action

Nellis Air Force Base (NAFB) owns multiple acres of land in the northeast Las Vegas Valley. The majority of this land is undisturbed vacant land that is covered with natural vegetation. Nellis identified 40 acres that will routinely be disturbed in various locations throughout the entire property boundary of NAFB (excluding the landfill, mineral processing and areas identified in a dust permit).

Some of the vacant land is routinely disturbed by activities other than construction at various locations within the NAFB property boundary. Disturbance of unpaved parking lots, material handling and storage yards, vehicle and equipment storage yards, open areas and vacant land result in emissions of PM_{10}. Once an area is disturbed, stabilization is required.

The first consolidated permit for vacant land was ATC/OP Modification 35. Modification 35, Amendment 1, was to quantify emissions and regulate disturbed vacant land including unpaved parking lots, material handling and storage yards, vehicle equipment storage yards, open areas and vacant land. Modification, Amendment 2, issued on August 25, 2006, was for a change in the visible emissions observations from daily to monthly. Should a DAQEM inspection indicate that opacity limits are exceeded, a more strict frequency for visible emissions observations may be required.

B. Calculation of Potential to Emit (PTE)

The Potential to Emit (PTE) for PM_{10} emissions was calculated based on the DAQEM default emission factor of 1.66 pounds per acre per day. This emission factor was multiplied by the disturbed acreage to determine an emission limitation based upon 24 hours per day and 8,760 hours per year. The emissions associated with each disturbed area are presented in Table IX-B-1.

An example calculation is as follows: PM_{10} lbs/day = (1.8 acres)(1.66 lbs/acre-day) = 2.99 lbs/day

PROPOSED

Table IX-B-1: Potential to Emit from Disturbed Surfaces at NAFB

Emission Unit	Area	Disturbed Surface (Acres)	PM_{10} Emission Factor (lb/acre-day)	Emissions (lbs/day)	Emissions (lbs/hr)[1]	Emissions (tons/year)
K001	Storage Yard North of Car Wash	1.8	1.66	2.99	0.12	0.55
	Bldg 10099 Storage Lot	1.2	1.66	1.99	0.08	0.36
	Bldg 10093 Storage Lot	1.8	1.66	2.99	0.12	0.55
	Area behind Hospital	4.2	1.66	6.97	0.29	1.27
	Storage Yard	5.1	1.66	8.47	0.35	1.55
	Miscellaneous Storage Areas	25.9	1.66	42.99	1.79	7.85
Totals		**40**		**66.40**	**2.77**	**12.13**

[1] For informational purposes only.

C. Production Limitations and Control Technology Summary

- NAFB requested an ATC/OP for fugitive emissions associated with disturbing no more than 40 acres of vacant land (excluding the landfill and mineral processing) on the entire property boundary of NAFB. NAFB identified specific areas within the limit of 40 acres (excluding the landfill and mineral processing), however, NAFB may routinely disturb up to 40 acres (excluding the landfill and mineral processing) anywhere within its property boundary at any time. NAFB shall stabilize disturbed areas once the soil disturbing activity is complete.
- Where technically feasible, for unpaved parking lots, material handling and storage yards, and vehicle and equipment storage yards, NAFB shall control fugitive dust and stabilize soils by watering to maintain soils in a visibly moist condition; or paving through application and maintenance of asphalt, concrete, or other similar material on a roadway surface; or applying and maintaining per the manufacturer's recommendations dust palliatives as needed to maintain a stable surface; or maintaining gravel to at least two (2) inch minimum depth.
- Where technically feasible, NAFB shall control fugitive dust and stabilize soils located in open areas and vacant lands by preventing equipment, motor vehicles and off-road vehicle trespassing, parking, and/or access by installing effective control measures and establishing and maintaining a stable surface area at all times; by watering to maintain soils in a visibly moist condition; or crusting of the soils as determined by the Soil Crust Determination Test (the Drop Ball Test); or maintaining adequate vegetation cover on open areas and vacant lots; or applying clean well-graded gravel of at least 3/8 inch in diameter to cover the entire area; or applying and maintaining per the manufacturer's recommendations dust palliatives as needed to maintain a stable surface; or applying and maintaining an alternative control measure pre-approved by the control officer.
- Technical infeasibility for the above-described emission activities is considered to be: dust abatement efforts that would endanger personnel, property, and/or equipment; and/or lack of physical access to specific areas at specific times where no type of dust abatement efforts is possible.

PROPOSED

D. Other Applicable Regulations

Fugitive dust emissions from NAFB are also subject to AQR Sections 26 and 40.

E. Compliance Demonstration

- This facility shall report any upset/breakdown or malfunction which causes emissions of regulated air pollutants in excess of any limits set by the AQR or by the Part 70 permit.
- Fugitive dust from any area of NAFB shall not exceed 20 percent opacity for a period or periods aggregating more than three (3) minutes in any 60-minute period. Visible observations shall be made on a monthly basis to demonstrate compliance with the 20 percent opacity requirements.
- On a quarterly basis, a Soil Crust Determination Test (Drop Ball Test) shall be the method to determine compliance with sufficient crusting of the soils in open areas and vacant land located at NAFB. This test method shall be repeated as often as necessary on each portion of the stabilized soils to obtain an accurate assessment of stabilization effectiveness of the site.
- On a quarterly basis, a test to demonstrate compliance with site stabilization shall be conducted on unpaved parking lots, material handling and storage yards, and vehicle and equipment storage yards located at NAFB to ensure that the soil does not equal or exceed 0.33 oz/ft^2 silt loading or does not exceed six (6) percent silt content.
- The following records must be kept on-site and made available to DAQEM to demonstrate compliance:
  - the date and results of monthly visual observations for opacity of fugitive dust at NAFB;
  - the date and the amount of acres of unpaved parking lots, material handling and storage yards, vehicle and equipment storage yards, disturbed open areas and disturbed vacant land;
  - a log book of excess opacity, malfunctions, and any corrective actions taken;
  - the date, time, and results of the Soil Crust Determination Test (Drop Ball Test);
  - the date, time, and results of silt content and silt loading tests;
  - records of all fugitive dust abatement activities; and
  - the results of any additional performance testing.

F. Performance Testing

The Control Officer reserves the right at any time to require performance testing and/or additional control measures to ensure that the opacity, silt loading and silt content outlined in the Part 70 permit are not exceeded. DAQEM reserves the right at any time to quantify acreage of disturbed, vacant land/storage lots to demonstrate compliance with emission limitations outlined in the Part 70 permit.

X. MINERAL PROCESSING

A. Description of Action

The mineral processing activity at NAFB is comprised of three components: an asphalt batch plant, a concrete batch plant, and an aggregate processing facility. Additionally, five diesel generators are employed to support this activity. The asphalt batch plant and the concrete batch plant are located in the Las Vegas Valley Air Quality Planning Region (Hydrographic Area 212). The aggregate processing facility is located in the Black Mountains Area Air Quality Planning Region (Hydrographic Area 215). The first consolidated permitting action for mineral processing activities at NAFB was ATC/OP Modification 30 issued on August 29, 2007.

PROPOSED

The following tables detail the emission units associated with mineral processing activities at NAFB:

Table X-A-1: Asphalt Plant Emission Units

EU	Description	SCC
A001	Asphalt Plant, Aggregate Transfer	30501104
A002	Asphalt Plant/Hopper, Astec, M/N: PDM-636-C, S/N: NA	30501108
A003	Asphalt Plant/Conveyor, Astec, M/N: PDM-636-C, S/N: NA	30502503
A004	Asphalt Batch Plant Storage Piles, Gravel/Dirt, 0.15 acres	30500203
A005	Asphalt Plant Drum, Astec, M/N: PDM-636-C, S/N: 85151	30500258
A006	Asphalt Plant/Storage Tank Burner, Astec, M/N: PDM-636-C, S/N: 85151	30500212

Table X-A-2: Concrete Plant Emission Units

EU	Description	SCC
A007	Concrete Plant, Aggregate Transfer, M/N: NA, S/N: NA	30501108
A008	Concrete Plant, Sand Transfer, M/N: NA, S/N: NA	30501101
A009	Concrete Plant/Conveyor 1, Zimmerman, M/N: NA, S/N: ZM6-630-965-092	30501101
A010	Concrete Plant/Conveyor 2, Zimmerman, M/N: NA, S/N: ZM6-630-965-092	30501108
A011	Concrete Plant Silo, Zimmerman, M/N: NA, S/N: NA	30501115
A012	Concrete Plant/Silo, Belgrade, M/N: 225, S/N: 91701	30501106
A013	Concrete Plant/Silo, Belgrade, M/N: NA, S/N: NA	30501114
A014	Concrete Plant/Mixer, Zimmerman, M/N: NA, S/N: ZM6-630-965-092	30501109
A015	Concrete Plant/Conveyor, Johnson, M/N: SI1984, S/N: 80330-68-C-0028	30501109
A016	Concrete Plant Mixer, Haws, M/N: H-10, S/N: 3144	30501110
A017	Concrete Batch Plant Storage Piles, Gravel/Dirt, 0.10 acres	30501120
A018	Concrete Batch Plant Storage Piles, Sand, 0.05 acres	30502006

Table X-A-3: Aggregate Plant Emission Units

EU	Description	SCC
A019	Rock Crushing/Crusher, Eagle, M/N: 33D5510, S/N: 11375	30502033
A020	Rock Crushing/Screen, JCI, M/N: JCI516326, S/N: 00H03L26	30502003
A021	Rock Crushing/Conveyor, Cedar Rapids, M/N: NA, S/N: 38670	30502002
A022	Rock Crushing/Conveyor, Cedar Rapids, M/N: NA, S/N: 38671	30502006
A023	Rock Crushing/Conveyor, Cedar Rapids, M/N: NA, S/N: 38672	30502006
A024	Rock Crushing/Conveyor, Eagle, M/N: PRSC, S/N: 2701	30502006
A025	Rock Crushing/Conveyor, Eagle, M/N: PRSC, S/N: 2702	30502006
A026	Rock Crushing/Conveyor, Eagle, M/N: PRSC, S/N: 2694	30502006
A027	Aggregate Storage Piles, Gravel/Dirt, 2.0 acres	30502006

Table X-A-4: Haul Road Emission Units

EU	Description	SCC
A028	Haul Road, 5,475 Vehicle Miles Travel (VMT) per year, 14 VMT per hour	30502504

Table X-A-5: Generator Emission Units

EU	Description	SCC
A029	Asphalt Plant Generator, Cummins, M/N: 4B 3.9-GC, S/N: 180734, 30 kW (40.23 bhp)	20100101
A030	Asphalt Plant Generator, Cummins, M/N: 680FDR7128JJW, S/N: PK-19-51084-9125-4, 455 kW (610.16 bhp)	20100101
A031	Concrete Batch Plant Generator, Cummins, M/N: 6CTA8.3, S/N: 44389459, 80 kW (107.28 bhp)	20100101
A032	Rock Crushing Generator, Aggregate, M/N: Crusher, S/N: NA, 210 bhp	20100101
A033	Rock Crushing Generator, Olympian, M/N: D200P4, S/N: OLY00000KNN500557, 295 bhp	20100101

PROPOSED

B. Calculation of Potential to Emit (PTE)

The potential to emit (PTE) for the asphalt batch plant was calculated using emission factors stated in AP-42, Section 11.12, Table 11-2 (revision 6/06), AP-42, Section 11.1, Table 11.1.3 (revision 3/04), Table 11.1.7 (revision 3/04), Table 11.1.8 (revision 3/04), Table 11.1.9 (revision 3/04) and DAQEM default emission factors. An example calculation is as follows:

- A001 PM_{10} = (125 tons of asphalt per hour)(0.00330 pounds per ton)(1-0.815 control efficiency)
- = 0.08 pounds per hour

Table X-B-1: Potential to Emit for PM_{10} at Asphalt Plant

EU	Throughput (tons/hour)	Throughput (tons/year)	PM_{10} E.F. (lb/ton)	Control Efficiency (percent)	PM_{10} (lb/hr)	PM_{10} (ton/yr)
A001	125	18,000	0.00330	81.5	0.08	0.01
A002	125	18,000	0.00240	81.5	0.06	0.01
A003	125	18,000	0.01000	81.5	0.23	0.02
A004	0.15 acres		1.66 lb/acre-day	81.5	0.01	0.01
Totals					**0.38**	**0.05**

Activities at the asphalt batch plant result in emissions of PM_{10}, NO_X, CO, SO_2, VOC, and HAPs. Table X-B-2 presents these emissions. References for emission factors are specified in footnotes. A sample calculation for CO is as follows:

- A005 CO = (125 tons of asphalt per hour)(0.13 pounds per ton)
- = 16.25 pounds per hour

Table X-B-2: Asphalt Plant Combustion Emission Units and Criteria Pollutant Emissions

EU	Description	Pollutant	Emission factor (lb/ton)	lb/hr	ton/yr
A002/A003	Asphalt Plant Load Out, Astec, M/N: PDM-636-C, S/N: 85151	**PM_{10}**	0.000521937[1]	0.07	0.01
		NO_X	None identified	None identified	None identified
		CO	0.00134924[1]	0.17	0.01
		SO_2	None identified	None identified	None identified
		VOC	0.004158948[1]	0.52	0.04
		Total HAPs	None identified	Included in VOC	Included in VOC
A005	Asphalt Plant Drum, Astec, M/N: PDM-636-C, S/N: 85151	**PM_{10}**	0.023 fabric filter[2]	2.88	0.21
		NO_X	0.055[3]	6.88	0.50
		CO	0.13[3]	16.25	1.17
		SO_2	0.011[3]	1.38	0.10
		VOC	0.032[4]	4.00	0.29
		Total HAPs	0.0076[5]	0.95	0.07
A006	Asphalt Plant Burner, 1 MMBtu/hr, Astec, M/N: PDM-636-C, S/N: 85151, 16,800 gallons diesel fuel per year[7]	**PM_{10}**	2 lb/1,000 gal[6]	0.02	0.01
		NO_X	20 lb/1,000 gal[6]	0.14	0.17
		CO	5 lb/1,000 gal[6]	0.04	0.04
		SO_2	7.1 lb/1,000 gal[6]	0.05	0.06
		VOC	0.032 lb/1,000 gal[6]	0.01	0.01
		Total HAPs[8]	2.4E-04	0.01	0.01

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EU	Description	Pollutant	Emission factor (lb/ton)	lb/hr	ton/yr
A006	Asphalt Plant Storage Tank, Astec, M/N: PDM-636-C, S/N: 85151	**PM_{10}**	0.00	0.00	0.00
		NO_X	0.00	0.00	0.00
		CO	0.00	0.00	0.00
		SO_2	0.00	0.00	0.00
		VOC	None identified	0.01	0.01
		Total HAPs	None identified	0.01	0.01

[1] AP-42, Section 11.1, Table 11.1.14 (revision 3/04).
[2] AP-42, Section 11.1, Table 11.1.3 (revision 3/04).
[3] AP-42, Section 11.1, Table 11.1.7 (revision 3/04).
[4] AP-42, Section 11.1, Table 11.1.8 (revision 3/04).
[5] AP-42, Section 11.1, Table 11.1.9 (revision 3/04).
[6] AP-42, Section 1.3, Table 1.3-1 (revision 9/98).
[7] Diesel Heating Value = 140 MMBtu/1,000 gallons.
[8] HAP calculated at worse case emission factor (formaldehyde).

Table X-B-3: Asphalt Plant Emissions Summary

Pollutant	lb/hr	ton/year
PM_{10}	3.35	0.28
NO_X	7.02	0.67
CO	16.46	1.22
SO_2	1.38	0.10
VOC	4.53	0.34
Total HAPs	1.48	0.12

The PTE for the concrete batch plant was calculated using emission factors stated in AP-42, Section 11.12, Table 11-12.2 (revision 6/06) and DAQEM default emission factors. The concrete batch plant shall control particulate emissions by maintaining 1.5 percent moisture content in all of the material less than 0.25 inches in diameter. All three storage silos (EUs: A011 through A013, inclusive) are controlled individually with three separate bin vents each capable of at least 99 percent capture efficiency. Table X-B-4 presents the emissions associated with the concrete batch plant.

Table X-B-4: Potential to Emit for Concrete Plant

EU	Throughput (tons/hour)	Throughput (tons/year)	PM_{10} E.F. (lb/ton)	Control Efficiency (percent)	PM_{10} (lb/hr)	PM_{10} (ton/yr)
A007	200	15,000	0.00330	81.5	0.12	0.01
A008	200	15,000	0.00099	81.5	0.04	0.01
A009	200	15,000	0.00240	81.5	0.09	0.01
A010	200	15,000	0.01000	81.5	0.37	0.01
A011	200	15,000	0.46000	99.0	0.92	0.04
A012	200	15,000	0.46000	99.0	0.92	0.04
A013	200	15,000	0.46000	99.0	0.92	0.04
A014	200	15,000	0.13400	81.5	4.96	0.19
A015	200	15,000	0.27800	81.5	10.29	0.39
A016	200	15,000	0.13400	81.5	4.96	0.19
A017	0.10 acres		1.66 lb/acre-day	81.5	0.01	0.01
A018	0.05 acres		1.66 lb/acre-day	81.5	0.01	0.01

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EU	Throughput (tons/hour)	Throughput (tons/year)	PM_{10} E.F. (lb/ton)	Control Efficiency (percent)	PM_{10} (lb/hr)	PM_{10} (ton/yr)
Totals					**23.61**	**0.95**

The PTE for the aggregate processing plant was calculated using emission factors stated in AP-42, Section 11.19.2, Table 11.19.2-2 (revision 8/04) and DAQEM default emission factors. The aggregate processing plant shall control particulate emissions by maintaining 1.5 percent moisture content in all of the material less than 0.25 inches in diameter. Table X-B-5 presents the emissions associated with the aggregate processing plant.

Table X-B-5: Potential to Emit for Aggregate Plant

EU	Throughput (tons/hour)	Throughput (tons per year)	PM_{10} E.F. (lb/ton)	Control Efficiency	PM_{10} (lb/hr)	PM_{10} (ton/yr)
A019	200	100,000	0.00240	81.5	0.09	0.02
A020	200	100,000	0.00870	81.5	0.32	0.08
A021	200	100,000	0.00110	81.5	0.04	0.01
A022	200	100,000	0.00110	81.5	0.04	0.01
A023	200	100,000	0.00110	81.5	0.04	0.01
A024	200	100,000	0.04000	81.5	1.48	0.37
A025	200	100,000	0.04000	81.5	1.48	0.37
A026	200	100,000	0.04000	81.5	1.48	0.37
A027	2.00 acres		1.66 lb/acre-day	81.5	0.03	0.11
Totals					**5.00**	**1.35**

The PTE for the haul road was calculated using the DAQEM default emission factor. The haul road is paved resulting in a control efficiency of 98 percent. Table X-B-6 presents the emissions associated with haul road activity. A sample calculation is as follows: A028 PM_{10} = (14 VMT per hour)(7.57 lb/VMT)(1-0.98 control efficiency) = 2.1196 lbs/hr

Table X-B-6: Potential to Emit for Haul Road

EU	Vehicle Miles Traveled (VMT) Per Hour	VMT Per Year	PM_{10} Emission Factor (lb/VMT)	Control Efficiency	PM_{10} (lbs/hr)	PM_{10}(tons/yr)
A028	14	5,475	7.57	98%	2.12	0.42
Totals					**2.12**	**0.42**

The moisture content of all material less than 0.25 inches in diameter handled at the asphalt batch plant, concrete batch plant and aggregate processing plant is 1.5 percent. This equates to a control efficiency of 81.5 percent for PM_{10} emissions.

NAFB requested that the five full duty generators at the mineral processing plant be limited to 24 hours per day, seven days per week, and 2,080 hours per year at full capacity. A diesel fuel cap of 26,000 gallons per year is requested for the five (5) generators associated with the asphalt batch plant, concrete batch plant, and aggregate processing equipment. The fuel can be split in any combination between the generators as long as it does not exceed the annual cap.

PROPOSED

DAQEM agrees that an individual hourly limit and a fuel volume cap can be used to demonstrate ongoing compliance if the units operate at or near full load. At reduced load operation, the same volume of fuel burned results in more CO emissions than the linear equivalent, although the CO emissions between 80 percent and 100 percent capacity are reasonably linear with load. NAFB informed DAQEM that these generators are used at or near full capacity at all times in order to meet their intended purpose. Because this is the case, DAQEM believes the only way to demonstrate compliance with the emission limitations using both hourly and a fuel volume cap would be through an algebraic equation, which is derived as follows:

Table X-B-7: Derivation of Hourly and Fuel Volume Cap Equation

EU	Rating (Bhp)	Gallons per Hour (GPH)	GPH at 80 percent capacity
A029	40.23	2.07	1.66
A030	610.16	31.41	25.13
A031	107.28	5.52	4.42
A032	210.00	10.81	8.65
A033	295.00	15.17	12.14

- 1.66 * A + 25.13 * B + 4.42 * C + 8.65 * D + 12.14 * E <= 26,000 gallons, Where:
- A = hours of operation of 40.23 bhp generator
- B = hours of operation of 610.16 bhp generator
- C = hours of operation of 107.28 bhp generator
- D = hours of operation of 210.00 bhp generator
- E = hours of operation of 295.00 bhp generator

NAFB requested a fuel cap of 26,000 gallons per year and a limitation on hours of operation of 2,080 hours per year for each of the generators associated with the mineral processing facility. Additionally, NAFB requested that emissions from all of the generators associated with the mineral processing facility be calculated based on AP-42, emission factors for internal combustion engines utilizing diesel fuel for internal combustion engines less than 600 Bhp.

However, this method of calculating emissions results in higher emissions from the 610.16 Bhp generator (EU: A030) and the 295 Bhp generator (EU A033) than the emissions from the proposed fuel cap of 26,000 gallons per year. Therefore, the 610.16 Bhp generator (EU A030) must be limited to a maximum 850 hours per year to meet the emission limitations requested by the cap. Additionally, the 295 Bhp generator (EU: A033) must be limited to a maximum of 1,750 hours per year to meet the emission limitations requested by the fuel cap. The other generators can operate up to 2,080 hours per year as requested.

Table X-B-8: AP-42 Emission Factor for All Internal Combustion Engines at Mineral Processing Facility

Description	PM_{10} (lb/Bhp)	NO_X (lb/Bhp)	CO (lb/Bhp)	SO_2 (lb/Bhp)	VOC (lb/Bhp)	HAP (lb/Bhp)
Internal Combustion Diesel<600 Bhp	0.0022	0.031	0.00668	0.00205	0.00247	4.46E-05

[1]%S=Sulfur content of fuel.

Table X-B-9: PTE for Generators (pounds per hour)

EU	Rating (Bhp)	PM_{10}	NO_X	CO	SO_2	VOC	HAP
A029	40.23	0.09	1.25	0.27	0.08	0.10	1.79E-03
A030	610.16	0.43	18.92	4.08	1.25	1.51	2.72E-02
A031	107.28	0.24	3.32	0.72	0.22	0.27	4.78E-03

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EU	Rating (Bhp)	PM_{10}	NO_X	CO	SO_2	VOC	HAP
A032	210	0.46	6.51	1.40	0.43	0.52	9.37E-03
A033	295	0.65	9.15	1.97	0.61	0.73	1.32E-02
Totals		**1.87**	**39.15**	**8.44**	**2.59**	**3.13**	**0.06**

Table X-B-10: PTE for Generators (tons per year)

EU	Rating (Bhp)	PM_{10}	NO_X	CO	SO_2	VOC	HAP
A029	40.2	0.09	1.30	0.28	0.09	0.10	1.87E-03
A030	609.7	0.18	6.22	1.43	0.01	0.18	2.70E-03
A031	107.2	0.23	3.46	0.75	0.23	0.11	1.91E-03
A032	210	0.48	6.77	1.46	0.45	0.54	9.74E-03
A033	295	0.52	7.89	1.70	0.52	0.63	1.13E-02

Table X-B-11: PTE for All Mineral Processing Activities (pounds per hour)

	PM_{10}	NO_X	CO	SO_2	VOC	HAPs
Asphalt Plant	3.35	7.02	16.46	1.38	4.53	1.48
Concrete Plant	23.61	0.00	0.00	0.00	0.00	0.00
Aggregate Plant[1]	5.00	0.00	0.00	0.00	0.00	0.00
Haul Road	2.12	0.00	0.00	0.00	0.00	0.00
Generators	1.87	39.15	8.44	2.59	3.13	0.06
Totals	**35.95**	**46.17**	**24.90**	**3.97**	**7.66**	**1.54**

[1] Hydrographic Area 215.

Nellis requested that the generators (EUs: A029 though A033, inclusive) shall share a fuel cap of 26,000 gallons of diesel fuel per year. The annual emissions generated from fuel combustion shall be calculated using the emission factors specified in AP-42, Section 3.3 Gasoline and Diesel Industrial Engines, Table 3.3-1, Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines, Diesel Fuel, Emission Factors (lb/MMBtu)(fuel input). The average brake-specific fuel consumption of 7,000 Btu/hp-hr shall be used to convert from lb/MMBtu to lb/hp-hr.

Table X-B-12: PTE for All Mineral Processing Activities (tons per year)

	PM_{10}	NO_X	CO	SO_2	VOC	HAPs
Asphalt Plant	0.28	0.67	1.22	0.10	0.34	0.12
Concrete Plant	0.95	0.00	0.00	0.00	0.00	0.00
Aggregate Plant[1]	1.35	0.00	0.00	0.00	0.00	0.00
Haul Road	0.42	0.00	0.00	0.00	0.00	0.00
Generators[2]	0.56	8.03	1.73	0.53	0.64	0.01
Totals	**3.56**	**8.70**	**2.95**	**0.63**	**0.98**	**0.13**

[1] Hydrographic Area 215.

[2] Based on 26,000 gallons per year diesel fuel cap and AP-42, Section 3.3 Gasoline and Diesel Industrial Engines, Table 3.31.

C. Production Limitation and Control Technology Summary

- NAFB requested that the production limitation for the asphalt batch plant, the concrete batch plant and the aggregate processing plant remain the same as the production limits previously identified in Modification 15. The asphalt batch plant is allowed to produce up to 125 tons of material per hour and 18,000 tons of material per year. Additionally, the asphalt batch plant is allowed to combust 16,800 gallons of diesel fuel per year. The concrete batch plant is allowed to produce up to 200 tons of material per hour and up to 15,000 tons of material per year. The aggregate processing plant is allowed to produce up to 200 tons of material per hour and 100,000 tons of material per year. The haul road is permitted to allow up to 14 VMT per hour and 5,475 VMT per year.

PROPOSED

- The generators less than 250 bhp (EU: A029, A031, and A032) are allowed to operate up to 2,080 hours per year at full capacity. The 610 bhp generator (EU: A030) is permitted to operate up to 850 hours per year at full capacity. The 295 bhp generator (EU: A033) is permitted to operate up to 1,750 hours per year at full capacity. The generators shall share a fuel cap of 26,000 gallons of diesel fuel per year.
- Mineral Processing Equipment: BACT for PM_{10} emissions from the conveyors and stackers is a minimum moisture content of 1.5 percent in the material transferred by these emission units.
- Haul Road: BACT for the haul road has been determined to be paving and a silt loading no greater than 0.33 ounces per square foot.
- Generators:
  - All of the generators greater than 100 Bhp (EU: A028 through A033, inclusive) shall be turbocharged and aftercooled. Additionally, emission units A031 through A033, inclusive, shall employ injection timing retardation and lean burn combustion. The 610.16 Bhp generator (EU: A030) shall be limited to 850 hours per year. The 295 Bhp generator (EU: A033) shall be limited to 1,750 hours per year.
  - BACT for VOC emissions from generators associated with the mineral processing facility is good combustion practices.
  - BACT for PM_{10} emissions from the generators associated with the mineral processing facility is combustion of clean fuels (less than 0.05 percent sulfur diesel) and good combustion practices.
  - BACT for CO emissions is good combustion practices.
  - BACT for SO_X emissions from the generators located at the mineral processing facility is considered to be combustion low sulfur (less than 0.05 percent) diesel fuel, good combustion practices.

D. Other Applicable Regulations

The mineral processing facility at NAFB is subject to Clark County AQR Sections 14, 18, 25, 26, 29, 34, 35, 40, 41, 43, 58, 59,90, 91, 92, 93, and 94. Additionally, the asphalt batch plant is subject to 40 CFR 60 Subpart I and the aggregate processing plant is subject to 40 CFR 60 Subpart OOO.

E. Compliance Demonstration

- NAFB shall demonstrate compliance with the hourly emission limits for each aggregate processing plant, asphalt batch plant, and concrete batch plant by maintaining a log of the amount of material processed in an hour for each mineral processing plant. NAFB shall maintain a log of the annual amount of diesel fuel consumed by the asphalt plant burner.
- To demonstrate compliance with the emission limitation for the generators associated with the mineral processing facility, NAFB shall maintain a log of the date, the start and stop time of each generator, and the amount of diesel fuel consumed. A fuel meter or hour meter shall be installed on each of the generators. Manufacturer's certification of the sulfur content of the fuel shall be maintained.
- NAFB shall demonstrate compliance all emission units associated with the mineral processing facility by recordkeeping.

F. Performance Testing

However, performance testing may be requested by the Control Officer to verify emission factors and emissions outlined in the Part 70 permit.

PROPOSED

XI. REMEDIATION

A. Description of Action

The first permitting action for soil and groundwater remediation activities at NAFB was ATC/OP Modification 27 for site 267. ATC/OP Modification 27, Amendments 1 and 2 were for the moving of this activity to the aircraft revetments area. Amendment 2 was issued on November 20, 2006.

The soil and groundwater remediation system operations emit NO_X, CO, PM_{10}, SO_2, VOC and HAPs. Table XI-A-1 outlines the emission units associated with the current soil and groundwater remediation system.

Table XI-A-1: Summary of Emission Units

EU#	Description	SCC	Type[1]
F001	Extraction System including Thermal/Catalytic Oxidizer, Firecat 250, 0.40 MMBtu/hr, Propane, Aircraft Revetments	50410530	DM

[1]Billing Codes: DM = De minimis unit.

B. Calculation of Potential to Emit (PTE)

The emissions associated with the Regenerative Thermal Oxidation (RTO) combustion of propane gas were calculated using AP-42 emission factors from Chapter 1.5 *Liquefied Petroleum Gas Combustion,* Table 1.5-1 *Emission Factors for LPG Combustion*. For example, the emission factor for CO is 1.9 pound per thousand gallons. To convert this into pound per MMBtu, the CO emission factor is multiplied by the heat input capacity of propane in one gallon (in this case 0.0915MMBtu per gallon). The result is pounds per MMBtu (0.0043715). This is multiplied by the burner capacity (0.4 MMBtu), resulting in a pound per hour value (0.0017486). This value is multiplied by 8,760 hours in a year and divided by 2,000 pounds in one ton (0.007659 ton per year).

The VOC emissions associated with remediating contaminated soil and groundwater at the aircraft revetments site is calculated based on the inlet gas concentration to the RTO. The inlet concentration is based on the highest reading obtained from a Photoionization Detector (PID) plus a 20 percent safety margin. The calculation is:

- ER = [Q x C x MW x 2.68 x 10EE-3)/(kg/1,000 g)], where
- ER = emission rate (kg/hr)
- Q = blower pumping rate (m^3/min)
- C = soil gas concentration (ppm-v)
- MW = molecular weight of contaminant (g/g mole)

The constant (2.68 x 10EE-3) has units of [(g-mole min)/m^3 ppm-v-hr)] and was derived in the following manner:

- [(1/106 ppm-v) x (60 min/1 hr) x (1 g-mole/0.0224 m^3)] = 2.68 x 10EE-3
- Q = 7.28 m^3/min (maximum flow rate = 287 acfm x 0.028 m^3/ft^3)
- C = 2,352 ppm (maximum PID reading for the last year + 20% safety margin)
- MW = 170 g/g mole (average diesel MW)
- ER = (7.28 m^3/min x 2,352 ppm x 170 g/g mole x 0.00268)/1,000 g
- = (7.8 kg/hr) (2.2 lb/kg)
- = 17.24 lb/hr
- Controlled ER = (ER)(1-0.99)
- = 0.17 lb/hr

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- = (0.17 lb/hr)(8,760 hrs/yr)(1 ton/2,000 lbs)
- = 0.76 tons per year

The VOC emission limitations from the remediation process are added to the VOC emission limitations from the combustion process to determine a total VOC emission limitation. The HAP PTE was set equal to the VOC emissions.

Table XI-B-1 outlines the potential to emit of the remediation system associated with the current remediation system.

Table XI-B-1: Potential to Emit

EU#	Emission Rate	PM_{10}	NO_X	CO	SO_X	VOC	HAPs
F001	lbs/hour	0.01	0.06	0.01	0.01	0.18	0.18
	tons/year	0.01	0.27	0.04	0.01	0.77	0.77

C. Production Limitation and Control Technology Summary

- The remediation system located at the aircraft revetments area at NAFB is allowed to operate 8,760 hours per year. Only propane may be combusted as the auxiliary fuel for this soil and groundwater remediation system. This emission unit must implement a control capable of a 99 percent reduction in VOC/HAP emissions.
- The RTO shall be capable of 99 percent reduction in VOC/HAP emissions. NAFB shall control VOC emissions by using thermal oxidation when the VOC concentration of the vapor stream is above 3,000 ppmv; implement catalytic oxidation when the VOC concentration is below 3,000 ppmv and the volume of the supplemental fuel is less than the volume of the waste stream during combustion; and/or implement carbon absorption when the volume of the supplemental fuel is greater than the volume of the waste stream during combustion.
- Pipeline-quality propane and good combustion practices shall be implemented.

D. Other Applicable Regulations

This remediation system located at the aircraft revetments at NAFB is subject to AQR Sections 12, 26, 40, 43 and 55. It is not subject to 40 CFR 63.7880-63.7957 (Subpart GGGGG) because it is not a major source of HAP as required in 63.7881.

E. Compliance Demonstration

- PID monitoring shall be performed weekly to determine the quantity of VOC sent to the control device and the quantity of VOC emissions emitted to the atmosphere after the control device. The destruction efficiency of the control device shall be calculated as equal to one (1) minus the VOC outlet concentration measured by the PID/FID divided by the VOC inlet concentration measured by the PID/FID.
- Every quarter, air samples shall be collected at the inlet gas stream to the control device and the exhaust gas stream exiting the control device. The samples shall be submitted to an analytical laboratory to determine the concentrations of VOCs in the inlet gas stream and the exhaust gas stream. Air samples shall be analyzed for total petroleum hydrocarbons (TPH) by EPA Method 8015M (as modified for air use) for benzene, toluene, ethylbenzene and xylene (BTEX), and methyl tert-butyl ether (MTBE) by Method 8260 (as modified for air use). The destruction efficiency of the control device shall be calculated as equal to one (1) minus the VOC outlet concentration divided by the VOC inlet concentration.

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- The amount of VOCs shall be measured with a PID/FID. These readings shall be recorded at the same time that the air samples are collected for laboratory analysis. The PID/FID readings shall be correlated to the results of the laboratory analysis. The PID/FID shall be maintained and calibrated according to the manufacturer's recommendations.
- The flow rate (measured in standard cubic feet per minute, scfm) of the vapor stream to the control device shall be monitored and recorded with each sample collected.

F. Performance Testing

Performance testing may be requested by the Control Officer to demonstrate the control efficiencies and/or emissions outlined in the Part 70 permit.

XII. PAINT BOOTHS

A. Description of Action

Nellis Air Force Base (NAFB) owns and operates eight surface coating booths and eight media blasting booths at its facility located in the Las Vegas Valley. The surface coating operations emit PM_{10}, VOCs, and HAPs.

NAFB was issued a consolidated ATC/OP for the surface coating and media blasting operations on February 22, 2006 under ATC/OP Modification 38. The last consolidated ATC/OP for these activities was Modification 45 issued on April 13, 2007, which included D018 as a new paint booth.

Table XII-A-1: Emission Units

EU	Description	SCC	Type[1]
D001	JBI Spray Booth, Bldg 252-1, M/N: F-22, S/N: 30807-A, Size Unknown	40202499	SC1
D002	Binks Paint Booth, Bldg 253, M/N: N/A, S/N: N/A, Size: 60' x 20'	40202499	SC1
D003	JBI Paint Booth, Bldg 256-1, M/N: DB-7322-5, S/N: 20849, Size: 95'6" x 91'6" x 20'	40202499	SC1
D004	Pauli System Paint Booth, Bldg 256-2, M/N: Custom Design	40202499	SC1
D005	Binks Paint Booth, Bldg 807, M/N: N/A, S/N: 83-2448, Size: 15'7" x 7'7" x 8'	40202599	SC1
D006	Binks Paint Booth, Bldg 868, M/N: N/A, S/N: 83-2448, Size: N/A	40201699	SC1
D007	Paint Boot, Bldg 10144, M/N: N/A, S/N: N/A, Size 20' X 30'	40202599	SC1
D008	Paint Booth, Bldg 10131, M/N: N/A, S/N: N/A, Size Unknown	40201699	SC1
D009	Vehicle Maintenance Shop, Bleeker Bros Paint Booth, M/N: TSDT-40, S/N: N/A, Size Unknown	40201699	SC1
D010	Media Blasting, Bldg 255, M/N: N/A, S/N: N/A	30900201	DM
D011	Media Blasting, Abrasive Blast Systems, Inc., Bldg 256, M/N: N/A, S/N: 300902-03-48	30900201	DM
D012	Media Blasting, Clemco, Bldg 270, M/N: BNP220P 900R&DF, S/N: 52248	30900201	DM
D013	Media Blasting, Trinco, Bldg 474, M/N: 36DT2, S/N: 34529-0	30900201	DM
D014	Media Blasting, Snapon, Bldg 840, M/N: N/A, S/N: N/A	30900201	DM
D015	Media Blasting, Snapon, Bldg 861, M/N: YA434C, S/N: 50236793	30900201	DM
D016	Media Blasting, Econoline, Bldg 61664, M/N: 48-2, S/N: 2715	30900201	DM
D017	Media Blasting, Bldg 10144, M/N: N/A, S/N: N/A, 20' X 30'	30900201	DM

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EU	Description	SCC	Type[1]
D018	Pauli Systems Inc. Spray Booth, Building 252-2, M/N: TBD, S/N: TBD, 70' x 92.5' x 22'	40202499	SC1

[1]Type codes for billing: SC1 = surface coater; DM = De minimis unit. Refer to AQR Section 18 for annual fee information.

B. Calculation of Potential to Emit (PTE)

To calculate the potential to emit for each paint booth, the highest VOC and HAP content for each type of coating material (basecoat, primer, and thinner) was identified. These values were then multiplied by the gallons of paint used (by type) in each paint booth.

The new spray booth (EU: D018) shall have VOC controls capable of 90.0 percent destruction efficiency. A 99.0 percent PM_{10} control efficiency was also determined for the paint booth based on the filter cartridges that are used for the booths. An additional 65.0 percent control efficiency was used for all of the paint booths at NAFB because high-volume, low-pressure spray guns are utilized.

Table XII-B-1: Paint Booths and Media Blasting Allowable Emissions at NAFB

EU #	PM_{10} Emissions (lb/month)	PM_{10} Emissions (ton/yr)	VOC Emissions (lb/month)	VOC Emissions (ton/yr)	HAP Emissions (lbs/month)	HAP Emissions (ton/yr)
D001	6.37	0.03	91.71	0.46	46.60	0.23
D002	3.22	0.02	438.51	2.19	223.74	1.12
D003	26.18	0.13	362.28	1.81	184.43	0.92
D004	26.18	0.13	362.28	1.81	184.43	0.92
D005	1.29	0.01	88.47	0.42	21.07	0.09
D006	2.39	0.01	448.91	2.24	230.53	1.15
D007	0.64	0.01	88.78	0.44	47.38	0.24
D008	10.45	0.05	242.82	1.21	125.92	0.63
D009	6.85	0.03	254.22	1.27	131.62	0.66
D010[1]	0.03	0.01	0.0	0.0	0.0	0.0
D011[1]	0.03	0.01	0.0	0.0	0.0	0.0
D012[1]	0.03	0.01	0.0	0.0	0.0	0.0
D013[1]	0.03	0.01	0.0	0.0	0.0	0.0
D014[1]	0.03	0.01	0.0	0.0	0.0	0.0
D015[1]	0.03	0.01	0.0	0.0	0.0	0.0
D016[1]	0.03	0.01	0.0	0.0	0.0	0.0
D017[1]	0.03	0.01	0.0	0.0	0.0	0.0
D018	1.28	0.02	91.71	0.46	46.60	0.23
Totals	**85.09**	**0.52**	**2,469.69**	**12.31**	**1,242.32**	**6.19**

[1] PM_{10} emission factor for media blasting provided by NAFB.

- Sample calculation for VOCs: monthly emissions = 150 gallons per month (4.1 pounds of VOC per gallon) + 45 gallons per month (5.88 pounds of VOC per gallon) + 5 gallons per month (7.49 pounds of VOC per gallon) = 615 + 264.6 + 37.45 = (917.05 pounds per month) (1 - 0.90 destruction efficiency) = 91.71 pounds per month.
- Sample calculation for HAPs: monthly emissions = 150 gallons per month (2.05 pounds of HAPs per gallon) + 45 gallons per month (2.94 pounds of HAPs per gallon) + 5 gallons per month (5.24 pounds of HAPs per gallon) = 307.5 + 132.3 + 26.2 = (466 pounds per month) (1 - 0.90 destruction efficiency) = 46.60 pounds per month.

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- Sample calculation for PM_{10}: Building 252-2 yearly emissions = (1,500 gallons per year * 1.06 lbs/gallon solids + 450 gallons per year * 0.815 lbs/gallon solids + 50 gallons per year (no solid content)) (1 - 0.65 transfer efficiency) (1 - 0.99 control efficiency)] / 2000 = 0.02 tons per year.

C. Production Limitations and Control Technology Summary

Table XII-C-1: Maximum Allowable Gallons of Surface Coating Material Allowed for Each Paint Booth at NAFB

Building/ Emission Unit	Topcoat (gallons)		Primer (gallons)		Cleaning (gallons)	
	Monthly	Yearly	Monthly	Yearly	Monthly	Yearly
252-1/D001	150	1,500	45	450	5	50
253/D002	90	900	8	80	3	30
256-1/D003	700	7,000	100	1,000	22	215
256-2/D004	700	7,000	100	1,000	22	215
807/D005	35	350	2.5	25	3	25
868/D006	52	520	19	190	4	40
10144/D007	18	180	0	0	2	20
10131/D008	33	330	5	50	3	30
VMS/D009	35	350	5	50	3	30
252-2/D018	150	1,500	45	450	5	50

Table XII-C-2: Maximum Allowable VOC and HAP Content of Surface Coating Material Allowed for Each Paint Booth at NAFB

Building/ Emission Unit	Topcoat (lbs per gal)		Primer (lbs per gal)		Cleaning (lbs per gal)	
	Maximum VOC	Maximum HAP	Maximum VOC	Maximum HAP	Maximum VOC	Maximum HAP
252-1/D001	4.1	2.05	5.88	2.94	7.49	5.24
253/D002	4.1	2.05	5.88	2.94	7.49	5.24
256-1/D003	4.1	2.05	5.88	2.94	7.49	5.24
256-2/D004	4.1	2.05	5.88	2.94	7.49	5.24
807/D005	1.6	0.01	4.00	2.00	7.49	5.24
868/D006	5.7	2.85	6.45	3.23	7.49	5.24
10144/D007	4.1	2.05	5.88	2.94	7.49	5.24
10131/D008	5.7	2.85	6.45	3.23	7.49	5.24
VMS/D009	5.7	2.85	6.45	3.23	7.49	5.24
252-2/D018	4.1	2.05	5.88	2.94	7.49	5.24

- Carbon adsorption was determined to be BACT for the control of spray booth VOC emissions. Additionally, Nellis shall limit the usage of coatings, primers and solvents, and implement good operating practices.
- BACT for PM_{10} is the use of HVLP guns and particulate filters with at least 99.0 percent PM_{10} control efficiency.
- The filter system is designed to be compliant with 40 CFR Part 63, Subpart GG – NESHAP for Aerospace Manufacturing and Rework Facilities. Nellis is not required to comply with this NESHAP requirement because it is not a major source for HAPs.

PROPOSED

D. Other Applicable Regulations

In 2000, NAFB requested short-term limitations for all permitted paint booths. NAFB has consistently reported its annual emissions to be less than 10 tons per year of any single HAP and less than 25 tons per year of any combination of HAPs. Nellis is designated as a minor source of VOCs and HAPs. In addition, the surface coating operations are subject to AQR Section 12, 26, 40, 43 and 55. NAFB is not subject to 40 CFR 63 Subpart HHHHHH because it is a major stationary source.

E. Compliance Demonstration

Records demonstrating the VOC and HAP content of each VOC-containing compound shall be kept on-site by the owner/operator and made available to DAQEM upon request.

F. Performance Testing

Performance testing may be required at any time by the Control Officer to demonstrate the control efficiencies stipulated in the Part 70 permit.

XIII. COOLING TOWERS

A. Description of Action

Nellis Air Force Base (NAFB) owns and operates 16 cooling towers at its facility located in the Las Vegas Valley. Cooling towers are located around Nellis Air Force Base (NAFB) at various support operations to provide cooling. The cooling towers that are currently used at NAFB are wet cooling towers, which rely on the latent heat of water evaporation to exchange heat between the process and the atmosphere. Because wet cooling towers provide direct contact between the cooling stream and the air passing through the tower, some of the water may be entrained in the air stream and carried out of the tower as “drift” droplets. These droplets generally contain the same chemical impurities as the water circulating through the tower and can be converted to airborne emissions. PM_{10} is generated when the droplets evaporate resulting in fine particulate matter that is formed by crystallization of dissolved solids. According to AP-42 Section 13.4.2, the magnitude of the drift loss is influenced by the number and size of droplets produced within the cooling tower. This may be reduced by the installation of drift eliminators, which serve to remove as many droplets as practical by causing directional changes of the air stream prior to exiting the tower.

The largest cooling towers located on NAFB property are at the hospital to provide heating and cooling process for that installation. The hospital has three cooling towers that each pump water at a rate of 1,200 gallons per minute.

NAFB has installed after-market drift eliminators on some of the cooling towers. The after-market drift eliminators help reduce drift to levels below factory installed eliminators.

The Weapons Storage Area (WSA) has several completely enclosed cooling towers. The cooling towers circulate air back through the system so there are no PM_{10} emissions associated with these towers. The WSA cooling towers are not included because there are no emissions.

The first consolidated ATC/OP for cooling towers at NAFB was ATC/OP Modification 32 issued on March 15, 2006.

PROPOSED

B. Calculation of Potential to Emit (PTE)

The PM_{10} emissions from cooling towers are calculated by multiplying the water circulation rate through these towers by the total dissolved solids concentration, the drift loss, and the percent of the particulate matter emissions that are emitted as PM_{10}. The DAQEM default value of 2,400 milligrams per liter (0.02 pounds per gallon) for the total dissolved solids (TDS) in the circulating water was assumed in calculating the PTE calculations for EUs: C001 through C013, inclusive. 3,000 milligrams per liter (0.03 pounds per gallon) for the TDS was assumed for the cooling towers located at the hospital (EUs: C014 through C016, inclusive). The information regarding the percent drift for each emission unit was provided by the source. For cooling towers, DAQEM uses a default value of 47.3 percent for particulate matter emissions as PM_{10}. The PTE for each cooling towers is shown in Table XIII-B-1. An example calculation for EU: C001 is shown below:

- PTE (lbs/hr) = 325 gal/min * 0.02 lbs/gal * 60 min/hr * 0.00001 * 0.473 = 0.01 lbs/hr
- PTE (tons/yr) = 325 gal/min * 0.02 lbs/gal * 60 min/hr * 8,760 hr/yr / 2000 lbs/ton * 0.00001 * 0.473 = 0.01 tons/yr

Table XIII-B-1: Potential to Emit of Cooling Towers Located at NAFB

EU#	Throughput (gals/min)	TDS (lbs/gal)	Drift Percent	PM_{10} Emissions (lbs/hr)[1]	PM_{10} Emissions (lbs/day)[1]	PM_{10} Emissions (tons/yr)[1]
C001	325	0.02	0.001	0.01	0.04	0.01
C002	625	0.02	0.001	0.01	0.09	0.02
C003	625	0.02	0.001	0.01	0.09	0.02
C004	1,155	0.02	0.005	0.03	0.79	0.14
C005	700	0.02	0.005	0.02	0.48	0.09
C006	210	0.02	0.001	0.01	0.03	0.01
C007	500	0.02	0.002	0.01	0.14	0.02
C008	500	0.02	0.002	0.01	0.14	0.02
C009	675	0.02	0.003	0.01	0.28	0.05
C010	675	0.02	0.003	0.01	0.28	0.05
C011	340	0.02	0.005	0.01	0.23	0.04
C012	340	0.02	0.005	0.01	0.23	0.04
C013	937	0.02	0.005	0.03	0.64	0.12
C014	1,200	0.03	0.005	0.05	1.23	0.22
C015	1,200	0.03	0.005	0.05	1.23	0.22
C016	1,200	0.03	0.005	0.05	1.23	0.22
Total PM_{10} from Cooling Towers				**0.33**	**7.15**	**1.29**

[1] PTE calculations based on DAQEM default values that assume that 47.3 percent of total particulate matter emissions from the cooling towers are emitted as PM_{10}. The PTE calculations for each cooling tower were based on 24 hours per day and 8,760 hours per year of operation.

C. Production Limitations and Control Technology Summary

- Each of the cooling towers (EUs: C001 through C016, inclusive) shall be allowed to operate for 24 hours per day, seven (7) days per week, and 52 weeks per year, which is equivalent to 8,760 hours per year.
- The potential to emit for each of the cooling towers are enforceable limits.

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- Twelve cooling towers (EUs: C001 through C003, inclusive, C006 through C010, inclusive, C012, and C014 through C016, inclusive) are newer units compared to EUs: C004, C005, C011, and C013. Thus, the newer cooling towers are required to meet more stringent BACT controls. The PM_{10} emissions and percent drift for each of these cooling towers shall not exceed the limits shown in Table XIII-B-1.

D. Other Applicable Regulations

The cooling towers at NAFB are subject to AQR Sections 12, 26, 40, 43 and 55. 40 CFR 63 Subpart Q does not apply because the source does not use cooling towers that are operated with chromium-based water treatment chemicals.

E. Compliance Demonstration

The source shall monitor the total dissolved solids in each cooling tower on a quarterly basis using a DAQEM-approved method. The source shall also monitor and report hours of operation for each cooling tower on a quarterly basis.

F. Performance Testing

Performance testing may be requested at any time by the Control Officer to demonstrate the control efficiencies and/or emissions outlined in the Part 70 permit.

XIV. INCINERATOR

A. Description of Action

Nellis Air Force Base (NAFB) owns and operates a pathological waste incinerator that is located at the Michael O'Callahan Federal Hospital adjacent to Building 1301. The incinerator is used for the destruction of pathological medical waste. Base personnel hand-feed the pathological waste into the combustion chambers of the incinerator. Waste ash is periodically removed from the ash collection area at the bottom of the incinerator. Waste destruction in the incinerator results in emissions of CO, NO_X, SO_X, VOCs, HAPs, and PM_{10}.

The incinerator is model number P-50 that is manufactured by National Incinerator, Inc. It is a three-chamber unit with three burners that combust natural gas. The incinerator will consume approximately 425,000 Btu/hour operating at full capacity.

ATC/OP Modification 33, issued on July 6, 2006, to update the emission factors used to calculate emissions from the incineration of pathological waste. This permitting action also clarified the amount of pathological material to be incinerated: 50 pounds of pathological waste per hour and 5.2 tons of pathological waste per year.

ATC/OP Modification 33, Amendment 1 issued on August 22, 2006 incorporated the requirements of Air Quality Regulation (AQR) SIP Section 30, dated April 23, 1987. Section 30 – Incinerators was revised and locally approved on July 1, 2004 with the intention of this section replacing the SIP-approved Section 30.

EPA commented that while Section 30 has been part of the Nevada SIP for many years, it probably did not belong as part of the SIP, but part of the Clark County AQR as a local regulation. EPA, therefore, optioned not to SIP-approve the proposed, revised Section 30 submitted for its review. EPA commented that its intention was to formally remove Section 30 as part of the SIP and would work with NDEP to accomplish this. In the meantime, however, the original SIP-approved Section 30 and the revised local-only Section 30 are both enforceable regulations for applicable incinerators operating in Clark County. Amendment 1 was issued to clearly outline both sets of requirements.

PROPOSED

B. Calculation of Potential to Emit (PTE)

AP-42 Section 2.3, Medical Waste Incineration for Uncontrolled Emissions from Controlled Air Medical Waste Incinerator, details the emission factors used to calculate the Potential to Emit (PTE) for this process. Table 2.3-1 details the emission factors for NO_X, SO_X, and CO. The emission factor for VOC was taken from Table 2.3-2.

Table XIV-B-1: Medical Waste Incinerator Potential to Emit

EU#	Emission Rate	PM_{10}	NO_X	CO	SO_X	VOC
H001	lbs/hour	0.04	0.09	0.01	0.05	0.01
	tons/year	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**

Table XIV-B-2: HAP Emissions from Medical Waste Incinerator

CAS #	Pollutant (HAPs)	Emissions (lbs/hour)	Emissions (tons/year)
778205	Chlorine	2.63E-03	2.73E-04
7664393	Hydrogen Fluoride	3.73E-03	3.87E-04
7647010	Hydrogen Chloride	8.38E-01	8.71E-02
7440473	Chromium Metal	1.94E-05	2.02E-06
7440439	Cadmium	1.37E-04	1.43E-05
7440417	Beryllium Compounds	1.56E-07	1.60E-08
7440382	Arsenic	6.05E-06	6.29E-07
7440360	Antimony	3.20E-04	3.33E-05
7440020	Nickel Metal	1.48E-05	1.54E-06
7439976	Mercury Compounds	2.68E-03	2.78E-04
7439965	Manganese Compounds	1.42E-05	1.47E-06
7439921	Lead	1.82E-03	1.89E-04
1746016	Tetrachloro-Dibenzo-p-Dioxin	2.50E-08	3.00E-09
1336363	Polychlorinated Biphenyls	1.16E-06	1.21E-07
132649	Dibenzofuran	1.79E-06	1.86E-07
Totals		**8.49E-01**	**8.83E-02**

C. Production Limitations and Control Technology Summary

- The incinerator was originally issued permit limits based on hours of operation. NAFB requested that the method of calculation be changed to pounds of pathological medical waste burned per year. The emission factors for the incinerator are now based upon the amount of waste burned. The incinerator has a maximum capacity of 50 pounds per hour. The incinerator shall be limited to 10,400 pounds of pathological waste per year. The incinerator shall only combust natural gas.
- At the time this incinerator was installed, firing with natural gas and complying with manufacturer's recommended maintenance schedules met BACT. The incinerator was not modified so a BACT analysis was not required.

PROPOSED

- The incinerator shall be fired with natural gas only; no other fuel shall be used. The temperature of the incinerator shall be maintained at a temperature equal to or greater than 1,400 ºF but less than a temperature of 2,000 ºF. At no time shall the incinerator temperature be allowed to drop below the minimum temperature or above the maximum temperature during incineration. The incinerator shall be equipped with a temperature-measuring device installed in the primary chamber at a location that will provide accurate and representative temperature readings, and a temperature gauge shall be placed at a location that is clearly visible to the operator. This temperature device shall be operated at all times the incinerator is being charged. A recorder that records hourly temperature readings shall be installed, calibrated, and maintained. Operating instructions for the incinerator shall be conspicuously posted at or near the charging door of the incinerator.
- Visible emissions from the incinerator shall not exceed five percent opacity except for a period or periods aggregating more than one minute in any sixty-minute period during which time a visible emission not in excess of 20 percent opacity shall be permitted.
- No odors shall be released by the operation of the incinerator.

D. Other Applicable Regulations

- The medical waste incinerator is subject to AQR Sections 12, 26, 30 (both local and SIP-approved regulations), 40, 43 and 55.
- On October 31, 2002 NAFB submitted notification to DAQEM that the medical waste incinerator located at the base hospital is exempt from the requirements of 40 CFR Part 62 Subpart HHH, as described in Subsection 62.14400(b)(1).
- The provisions of 40 CFR 60 Subpart Ce do not apply to this incinerator because it does not combust anything other than pathological waste. In order to maintain the exemption from this Subpart, NAFB must notify the Administrator of the exemption claim, which it has done, and must keep quarterly records of the time when pathological waste is incinerated.
- SIP Section 30 (April 23, 1987) limits particulate emissions from incinerators of less than one (1) ton per hour rated burn capacity and which received an operating permit after August 25, 1971 by the following formula:
- $E = 80 \times 10^{-5} C$, where E is the maximum allowable rate of emission of particulate in pounds per hour and C is the rate of dry refuse charged in pounds per hour. For Nellis, the formula becomes:
  - $E = 80 \times 10^{-5} \times 50$ pounds per hour = 0.04 pounds per hour
  - $E = 80 \times 10^{-5} \times 10{,}400$ pounds per year = 8.32 pounds per year
  - 8.32 pounds per year x 1 ton per 2,000 pounds = < 0.01 tons per year

E. Compliance Demonstration

- This facility shall report any upset/breakdown or malfunction which causes emissions of regulated air pollutants in excess of any limits set by the AQR or by the Part 70 permit.
- The following records must be kept on-site and made available to DAQEM to demonstrate compliance with AQR Section 30:
  - A written log shall be maintained recording the date, hours of operation, temperature readings, and the total weight of the combustible materials charged, per day, in the incinerator.
  - A written log shall be maintained recording the amount of natural gas consumed on an annual basis.

PROPOSED

- A written log shall be maintained recording the date, time, and results of Method 9 opacity tests, Method 5 tests, and when annual maintenance is performed.

F. Performance Testing

This facility is subject to the particulate matter emission requirements of AQR SIP-approved Section 30 (April 23, 1987) and local-only Section 30 (July 1, 2004). NAFB was required to demonstrate initial compliance with the particulate emission limits for the incinerator using Method 5. This facility is subject to the opacity standards in AQR Section 26. Pursuant to AQR Section 30, NAFB must demonstrate initial compliance with the opacity standards with a Method 9 test. NAFB has conducted the initial performance test. The incinerator shall be performance tested for opacity annually thereafter to demonstrate compliance.

XV. WOOD WORKING

A. Description of Action

Nellis Air Force Base (NAFB) owns and operates four woodworking shops at its facility. Various activities conducted in the woodworking shops include sanding, cutting and other woodworking operations. These activities result in emissions of particulate matter less than ten microns in diameter (PM_{10}).

Each of the woodworking shops was previously permitted by DAQEM with a "yellow ticket." The woodworking shop in Building 807 (EU: E001) was permitted by operating permit number A11402 issued on July 5, 1994. The woodworking shop in Building 811 (EU: E002) was permitted by operating permit number A11403 issued on July 5, 1994. The woodworking shop in Building 10118 (EU: E003) was permitted by operating permit number A11405 issued on July 5, 1994. The woodworking shop in Building 610 (EU: E004) was permitted by operating permit number A11404 issued on July 5, 1994.

Modification 31, Amendment 2, issued on August 24, 2006, was for a change in the requirement to fix repairs associated with these operations. DAQEM issued Amendment 1 that required all repairs to particulate control devices to be repaired within five (5) days. Nellis said that this would not be doable in certain circumstances, but they could submit work orders for all repairs within 72 hours of the event. It is understood that this change in language does not protect Nellis Air Force Base (NAFB) from enforcement action if equipment is operating with excess emissions or opacity, unless covered as an emergency, upset or breakdown as defined in AQR Section 25.

Amendment 2 consolidated four woodworking facilities at NAFB. All of these emission units had been previously permitted. NAFB designated the woodworking shop located in Building 807 (EU: E001) as a new activity in its submitted application for an ATC/OP. DAQEM treated this activity as a new emission unit in that permitting action.

B. Calculation of Potential to Emit (PTE)

The PM_{10} PTE for the woodworking shops is calculated by multiplying the emission factor by the number of pieces of equipment (sanders and other equipment as defined in AP-42, 4th Edition, Chapter 10.4 "Woodworking Waste Collect Operations") and the efficiency of the control equipment. The emission factors used for the Part 70 permit are five pounds per hour for the sanders and two pounds per hour for other pieces of equipment (Table XV-B-1). All wood working emission units (EUs: E001 through E004, inclusive) have collection efficiencies of 99 percent. The calculations also account for a 51 percent fraction of PM_{10} in PM. A sample calculation for emission unit E001 is shown below:

- PM PTE (lbs/hr) = (5 lbs/hour/sander * 1 sander) + (2 lbs/hour/piece of equipment * 10 pieces of equipment) * (1-99 percent control efficiency) * (51 percent fraction of PM_{10} in PM) = 0.13 lbs/hr

PROPOSED

- PM PTE (tons/yr) = (5 lbs/hour/sander * 1 sander) + (2 lbs/hour/piece of equipment * 10 pieces of equipment) * 8,760 hr/yr / 2000 lbs/ton * (1-99 percent control efficiency) * (51 percent fraction of PM_{10} in PM) = 0.56 tons/yr

Table XV-B-1: PM_{10} Potential To Emit: Woodworking Shops

EU#	Emission Factor per Sander	Emission Factor per Other Equipment	Number of Sanders	Number of Other Equipment	Annual Hours of Operation	PM_{10} Emissions (lbs/hr)	PM_{10} Emissions (tons/yr)
E001	5 lbs/hour	2 lbs/hour	1	10	8,760	0.13	0.56
E002	5 lbs/hour	2 lbs/hour	0	5	8,760	0.05	0.22
E003	5 lbs/hour	2 lbs/hour	2	5	8,760	0.10	0.45
E004	5 lbs/hour	2 lbs/hour	6	16	2,080	0.32	0.33
Totals						**0.60**	**1.56**

C. Production Limitations and Control Technology Summary

- The woodworking shops in Buildings 807, 811 and 10118 (EUs: E001 through E003) shall be allowed to operate for 24 hours per day, seven (7) days per week, and 52 weeks per year, which is equivalent to 8,760 hours per year. The woodworking shop in Building 610 (EU: E004) shall be allowed to operate 2,080 hours per year.
- E002 and E004 were permitted with a cyclone/fabric filter device that is capable of 99 percent PM_{10} capture efficiency, which met BACT. NAFB proposed a cyclone/fabric control device capable of a minimum of 99 percent capture efficiency for EU: E001. This met BACT for this emission unit. Additionally, NAFB shall have a particulate control device capable of achieving 99 percent capture of PM_{10} emissions for EU: E003.

D. Other Applicable Regulations

The woodworking operations at NAFB are subject to AQR Sections 12, 26, 40, and 43.

E. Compliance Demonstration

- A standard operating procedure (SOP) manual for each baghouse type is required. The procedures specified in the SOP shall, at minimum, include an inspection and preventative maintenance schedule that is consistent with the control device manufacturer's instructions, if available, for routine and long-term maintenance. All baghouses shall be operated and maintained in accordance with the SOP and good air pollution control practices.
- At least once every two weeks, the source shall conduct visual inspections of emissions and the exterior of each operating baghouse to ensure that it does not exhibit fugitive emissions in excess of 20 percent. Should the inspection show that the control device is malfunctioning, work orders for repairs shall be submitted within 72 hours of discovery of the malfunction, and all repairs shall be made in a timely manner. Should the malfunction cause the control device to release visible emissions over the opacity limit for the emission unit it controls, the source shall make repairs as soon as practicable and shall comply with applicable requirements of AQR Section 25 and all applicable federal regulations. The source shall not continue operation in violation of any standard.
- The source shall conduct a monthly inspection of the following for each control device that operated during the prior month: (a) verification of the pulse timing sequence; (b) inspection of the baghouse seals, cleaning system, and fan; and (c) external inspection of the hopper, ducting, and shell.

PROPOSED

F. Performance Testing

Performance testing may be requested by the Control Officer to demonstrate the control efficiencies and/or emissions outlined in the Part 70 permit.

XVI. DEGREASERS

A. Description of Action

The majority of NAFB's degreasers are used to remove lubricants, greases and other unwanted materials from metal parts before servicing, installation into equipment or before surface coating. Degreasing activities emit VOCs.

Another type of degreaser located at NAFB is a paint gun cleaner. The majority of the paint gun cleaners are located inside of the paint booths and their emissions have been included with the paint booth emissions. The paint gun cleaner located at Building 474 is not associated with a paint booth so the emissions had been included in this section.

Degreasers located at NAFB are cold cleaner units that consist of an area to spray, brush, flush or immerse the part to be cleaned with the solvent. The emissions from a degreaser are from the evaporation of the solvent during the cleaning phase or while the lid of the unit is open. The primary solvent used at NSFB is PD-680 Type II. Other solvents used in the degreasers include Voltz II, Dyna 143 and paint thinner (used in the paint gun cleaners.)

The first consolidated permit for degreasing activities was ATC/OP Modification 44 issued on October 4, 2006.

Table XVI-A-1: Emission Units

EU	Building	Type of Cleaner	SCC	Make/Model	Capacity (gallons)	Billing Code[1]
M001	B-234 Tire Shop	Parts (solvent)	40400151	Clarus/PCS-25	27.5	DM
M002	B-264 Armament	Parts (solvent)	40400151	Clarus/PCS-25	27.5	DM
M003	B-270 Pneudraulic	Parts (solvent)	40400151	Clarus/PCS-25	27.5	DM
M004	B-415	Parts (solvent)	40400151	Clarus/PCS-25	25	DM
M005	B-415	Parts (solvent)	40400151	Clarus/PCS-25	25	DM
M006	B-474 (Pet Zoo)	Paint Gun	40400151	Paint-Safe	N/A	DM
M007	B-802 Liquid Fuels	Parts (solvent)	40400151	Graymills/PL32-A	15	DM
M008	B-808	Parts (solvent)	40400151	Clarus/PCS-25	27.5	DM
M009	831	Parts (solvent)	40400151	Clarus/PCS-25	27.5	DM
M010	858	Parts (solvent)	40400151	Clarus/PCS-25	17, 27.5	DM
M011	858	Parts (solvent)	40400151	Clarus/PCS-15	17, 27.5	DM
M012	858	Parts (solvent)	40400151	Aladdin	27.5	DM
M013	858	Parts (solvent)	40400151	--	7	DM
M014	858	Parts (solvent)	40400151	--	7	DM

PROPOSED

EU	Building	Type of Cleaner	SCC	Make/Model	Capacity (gallons)	Billing Code[1]
M015	1033	Parts (solvent)	40400151	Powers System	25	DM
M016	1590	Parts (solvent)	40400151	Zep/906201	20	DM
M017	10108	Parts (solvent)	40400151	Clarus/PCS-25	27.5	DM
M018	10108	Parts (solvent)	40400151	Clarus/PCS-25	27.5	DM
M019	10240	Parts (solvent)	40400151	Safety Kleen/17	27.5	DM
M020	61664	Parts (solvent)	40400151	Clarus/PCS-25	27.5	DM
M021	B-10116 Red Horse	Parts (solvent)	40400151	Clarus/PCS-25	27.5	DM
M022	B-10143 Red Horse	Parts (solvent)	40400151	Clarus/PCS-25	27.5	DM
M023	B-10143 Red Horse	Parts (solvent)	40400151	Clarus/PCS-25	27.5	DM

[1] Billing Codes: DM = De minimis unit (source has negligible emissions or is not subject to an annual fee).

B. Calculation of Potential to Emit (PTE)

Table XVI-B-1: Emissions

EU	Hours/ Year	Area (ft^2)	Emission Factor (lb/hour/ft^2)	VOC (lb/hour)	HAP (lb/hour)	VOC (ton/year)	HAP (ton/year)
M001	208	8.1	0.08	0.65	0.00	0.067	0.00
M002	208	8.1	0.08	0.65	0.00	0.067	0.00
M003	208	8.1	0.08	0.65	0.00	0.067	0.00
M004	208	8.1	0.08	0.65	0.00	0.067	0.00
M005	208	8.1	0.08	0.65	0.00	0.067	0.00
M006[1]	n/a	n/a	0.08	7.49	5.24	0.075	0.052
M008	208	1.4	0.08	0.11	0.00	0.012	0.00
M009	208	8.1	0.08	0.65	0.00	0.067	0.00
M010	208	8.1	0.08	0.65	0.00	0.067	0.00
M011	208	8.1	0.08	0.65	0.00	0.067	0.00
M012	208	6.9	0.08	0.55	0.00	0.057	0.00
M013	208	8.1	0.08	0.55	0.00	0.057	0.00
M014	208	1.7	0.08	0.14	0.00	0.015	0.00
M015	208	1.7	0.08	0.14	0.00	0.015	0.00
M016	208	8.1	0.08	0.65	0.00	0.067	0.00
M017	208	8.1	0.08	0.65	0.00	0.067	0.00
M018	208	8.1	0.08	0.65	0.00	0.067	0.00
M019	208	8.1	0.08	0.65	0.00	0.067	0.00
M020	208	8.1	0.08	0.65	0.00	0.067	0.00
M021	208	8.1	0.08	0.65	0.00	0.067	0.00
M022	416	8.1	0.08	0.65	0.00	0.13	0.00
M023	416	8.1	0.08	0.65	0.00	0.13	0.00
M024	416	8.1	0.08	0.65	0.00	0.13	0.00
Totals				**20.03**	**5.24**	**1.56**	**0.05**

[1] Limited to 20 gallons per year.

PROPOSED

C. Production Limitations and Control Technology Summary

- Hours are limited as outlined in Table XVI-B-1.
- NAFB shall implement good operating practices to reduce VOC emissions by limiting the hours of operation of each degreasing unit and by ensuring that degreaser lids are closed when not in use.

D. Other Applicable Regulations

Degreasing operations at NAFB are subject to AQR Sections 12, 55, 26, 40 and 43.

E. Compliance Demonstration

Record keeping and reporting of the number of hours of operation of each parts cleaner and the number of gallons of solvent used in the paint gun cleaner shall be used to demonstrate compliance with the emission limitations outlined in the Part 70 permit.

F. Performance Testing

Performance testing may be requested by the Control Officer to demonstrate control efficiencies and/or emissions outlined in the Part 70 permit.

XVII. FUEL CELL MAINTENANCE

A. Description of Action

The 57 Component Repair Squadron (57 CRS) at Building 199 is responsible for performing maintenance, repairs and inspection on aircraft fuel cells at NAFB. Planes at this facility include A-10, F-15, F-16 and F-22. Before shop personnel repair and inspect aircraft fuel cells (i.e., tanks), jet fuel vapors are vented from the tanks.

Fuel cells to be repaired are first defueled and then "low-point drained." The cells are then vented until the exiting vapors are less than ten (10) percent of the lower explosive limit (LEL). Once safe, the cell is opened and serviced. Foam blocks (if any) are removed and sealed in anti-static bags and placed on a static-free, impermeable surface protected from sunlight. Free liquid fuel remaining in the fuel cell (typically ranging from two (2) gallons in small fuel cells to six (6) gallons in larger fuel cells) is then removed with sponges and placed into fuel bowsers (tanks used for transport). The primary mechanisms for fuel loss are assumed to be the purging process, which removes suspended fuel vapors from the fuel cell and dries exposed surfaces of cell wall and foam.

Fuel cell maintenance activities emit VOC and HAPs. The first consolidated permit for fuel cell maintenance activities is ATC/OP Modification 40 issued on July 6, 2006.

Table XVII-A-1: Emission Units

EU#	Description	SCC	Type[1]
L001	Building 199, Fuel Cell Maintenance	40400151	DM

[1] Billing Codes: DM = De minimis unit (source has negligible emissions or is not subject to an annual fee).

B. Calculation of Potential to Emit (PTE) and Net Emissions Increase (NEI)

Fuel cell operations were calculated using the Air Force Standard Algorithms in the IERA manual dated May 1999 (revised 2003). The saturation vapor density is converted to pounds per gallon and multiplied by the total gallons of the fuel cell, which is then multiplied by the number of purges for each aircraft. The F-22 fuel cell, which has a capacity of 738 gallons, was used for the capacity for all of the fuel cell purges so that the largest fuel capacity would be used for the emission calculations. It is also assumed that four (4) purges per fuel cell are performed during each maintenance operation.

PROPOSED

Table XVII-B-1: Fuel Cell Maintenance Algorithm

Parameter	Description	Called from APIMS Table
0.0023	Saturation vapor density of JP-8 at 70 degrees F (lb/cubic feet)	--
Volume	Volume of the fuel cell (gal)	UNIQUE_PROCESS_PARAMETER
0.134	Conversion factor from gallon to cubic feet	--
Number of Purges	Number of purges for each aircraft	UNIQUE_PROCESS_PARAMETER
Quantity	Number of aircraft serviced	CONSUMPTION

The following emission equation is derived using the parameters outlined in Table XVII-B-1:

- 0.0023 * Volume * 0.134 * Number of Purges * Number of Aircraft
- 0.0023 * 738 gal * 0.134 * 4 Purges * 800 aircraft/2,000 lbs/ton
- = 0.36 tons/year.

Based on the constituents of the fuel, the following equation can be used to estimate HAP emissions from this activity:

- Lbs. VOC * 0.043055 = Lbs. HAPs
- 0.036 tons VOC/year = 1.55E-02 tons HAPs per year.

Table XVII-B-2: Potential to Emit: Fuel Cell Maintenance

EU#	Tank Volume (gal)	Maximum VOC Emissions (lbs/hr)	Maximum HAP Emissions (lbs/hr)	Maximum VOC Emissions (tons/yr)	Maximum HAP Emissions (tons/yr)
L001	738	0.91	3.86E-02	0.36	1.55E-02

C. Production Limitations and Control Technology Summary

- The tank size for the four (4) planes that 57 CRS currently maintains ranges from 459 gallons for the F-16 to 738 gallons for the F-22. The amount of maintenance performed for each plane type varies each year. It typically takes four (4) purges per fuel cell to prepare the cell for maintenance. 57 CRS shall be limited to 800 fuel cells purged at four (4) times per year, which equates to 3,200 fuel cell purges per year.
- NAFB shall implement good operating practices to reduce VOC emissions by proper clean up of fuel spills and proper clean up of rags and sponges. NAFB shall have a standard operating procedures (SOP) manual for fuel cell maintenance activities. The procedures specified in the manual shall outline good operating practice with regard to the reduction of VOC emissions from this operation.

D. Other Applicable Regulations

Fuel cell maintenance activities at NAFB are subject to AQR Sections 12, 55, 26, 40 and 43.

E. Compliance Demonstration

Record keeping and reporting of the number of purges shall be used to demonstrate compliance with the emission limitations outlined in the Part 70 permit.

F. Performance Testing

Performance testing may be requested by the Control Officer to demonstrate control efficiencies and/or emissions outlined in the Part 70 permit.

PROPOSED

XVIII. MISCELLANEOUS CHEMICALS

A. Description of Action

All miscellaneous chemical usage, inclusive of cleaners and detergents, is captured under one process identified as base-wide use. The material used by this process is collected from shop logs and the Environmental Management Information System (EMIS). The EMIS database is the system used by the Hazardous Material Pharmacy to track materials issued to shops.

The Source Classification Code (SCC) for miscellaneous chemical usage presented in this section is as follows: 2460000000, Solvent Utilization, Miscellaneous Non-industrial: Consumer and Commercial, All Processes. Miscellaneous chemical usage emits VOC and HAPs.

The first consolidated permit for miscellaneous chemical usage was ATC/OP Modification 41 issued on January 19, 2007.

Table XVIII-A-1: Miscellaneous Chemical Usage

EU	Description	SCC Code	Type[1]
O01	Facility-wide Miscellaneous Chemical Usage	2460000000	P1

[1] Type refers to billing code: P1 = Process.

B. Calculation of Potential to Emit (PTE)

The source stated that the potential usage of cleaners and detergents can vary a great deal from year to year, and the types used can also vary. It was assumed that 2005 was a typical usage year for amounts and average VOCs of products. The usage for 2005 was multiplied by 1.2 to account for fluctuations from year to year.

The emissions for miscellaneous chemical usage were calculated using Air Force Standard Algorithms found in the IERA manual. This calculation utilizes the density and VOC content of the material used. The methodology is outlined as follows:

Table XVIII-B-1: Calculation Used in Emission Inventory

Consumption * Density * VOC Content / 100		
Variable	**Description**	**Called from APIMS Table**
Consumption	Amount of material used	CONSUMPTION
Density	Density of the material used	MATERIAL_PRODUCT
VOC Content / 100	VOC content of the material used conversion factor	MATERIAL_CONTENT

Table XVIII-B-2: Emissions from Miscellaneous Chemical Usage

EU	VOC		HAP	
	Pounds per Calendar Quarter	Ton per Year	Pounds per Calendar Quarter	Ton per Year
O01	14,360	9.57	2,120	1.41

C. Production Limitations and Control Technology Summary

- Production, based on usage, is limited as outlined in Tables XVIII-B-1 and XVIII-B-2.
- Miscellaneous chemical usage is a source of fugitive emissions. Emissions from miscellaneous chemical usage occur through evaporation of waste chemicals, carryout, spraying and wiping. The amount of fugitive emissions released to the ambient atmosphere is directly tied to the amount of chemical usage exposed to the atmosphere.

PROPOSED

- Good operating practices can reduce emissions by minimizing chemical usage, using low vapor pressure cleaners, and using low VOC alternatives, where possible. A clear effective reduction rate has not been demonstrated using good operating practices described above because of the variability on how well the practices are implemented.
- Nellis AFB shall utilize good operating practices. Nellis AFB personnel shall follow the guidelines outlined above to reduce VOC emissions from miscellaneous chemical usage.

D. Other Applicable Regulations

Miscellaneous chemical usage at NAFB is subject to AQR Sections 12, 40, 43 and 55.

E. Compliance Demonstration

- Record keeping and reporting of miscellaneous chemical usage and good operating practices shall be used to demonstrate compliance with the emission limitations outlined in the Part 70 permit.
- DAQEM determined that a reasonable short-term limit for this emission activity is quarterly. Rather than daily or monthly, a quarterly limit would more accurately reflect the use of a product from when it is submitted to Hazmat in that three (3) months is a reasonable time period to use a bottle of cleaner or other miscellaneous chemical.

F. Performance Testing

Performance testing for miscellaneous chemical usage may be required by the Control Officer.

XIX. REGULATORY REVIEW

A. Local Regulatory Requirements

DAQEM has determined that the following public law, statutes and associated regulations are applicable:

- Clean Air Act, as amended (CAAA), Authority: 42 U.S.C. § 7401, et seq.;
- Title 40 of the Code of Federal Regulations (CFR);
- Nevada Revised Statutes (NRS), Chapter 445B;
- Portions of the AQR that are included in the State Implementation Plan (SIP) for Clark County, Nevada. SIP requirements are federally enforceable. All requirements from Authority to Construct permits and Section 16 Operating Permits issued by DAQEM are federally enforceable because these permits were issued pursuant to SIP-included sections of the AQR; and
- Portions of the AQR that are <u>not</u> included in the SIP. These locally applicable requirements are locally enforceable only.

The Nevada Revised Statutes (NRS) and the Clean Air Act Amendments (CAAA) are public laws that establish the general authority for the Regulations mentioned.

The DAQEM Part 70 (Title V) Program received Final Approval on November 30, 2001 with publication of that approval appearing in the Federal Register December 5, 2001 Vol. 66, No. 234. AQR Section 19 - Part 70 Operating Permits [Amended 07/01/04] details the Clark County Part 70 Operating Permit Program. These regulations may be accessed on the Internet at: http://www.co.clark.nv. us/air_quality/Regs.htm

Local regulations contain sections that are federally enforceable and sections that are locally enforceable only. Locally enforceable only rules have not been approved by EPA for inclusion into the State Implementation Plan (SIP). Requirements and conditions that appear in the Part 70 OP which are related only to non-SIP rules are notated as locally enforceable only.

PROPOSED

Table XIX-A-1: Clark County Department of Air Quality and Environmental Management – Air Quality and State Implementation Plan with Facility Compliance or Requirement.

Applicable Section – Title	Applicable Subsection - Title	SIP	Affected Emission Unit
0. Definitions	applicable definitions	yes	entire facility
1. Definitions	applicable definitions– "Affected Facility", "Air Contaminant", "Air Pollution Control Committee", "Area Source", "Atmosphere", "Board", "Commercial Off-Road Vehicle Racing", "Dust", "Existing Facility", "Existing Gasoline Station", "Fixed Capital Cost", "Fumes", "Health District", "Hearing Board", "Integrated Sampling", "Minor Source", "Mist", "New Gasoline Station", "New Source", "NIC", "Point Source", "Shutdown", "Significant", "Single Source", "Smoke", "Source of Air Contaminant", "Special Mobile Equipment", "Standard Commercial Equipment", "Standard Conditions", "Start Up", "Stop Order", "Uncombined Water", and "Vapor Disposal System"	yes	entire facility
4. Control Officer	all subsections	yes	entire facility
5. Interference with Control Officer	all subsections	yes	entire facility
8. Persons Liable for Penalties - Punishment: Defense	all subsections	yes	entire facility
9. Civil Penalties	all subsections	yes	entire facility
10. Compliance Schedule	when applicable; applicable subsections	yes	entire facility
11. Ambient Air Quality Standards	applicable subsections	yes	entire facility
12. Preconstruction Review for New or Modified Stationary Sources	All subsections <u>except</u> the following: § 12.2.18 HAP Sources in Clark County. § 12.2.20 Additional Requirements for STATIONARY SOURCES with Beryllium, Mercury, Vinyl Chloride, or Asbestos EMISSIONS in Clark County	yes	entire facility

PROPOSED

Applicable Section – Title	Applicable Subsection - Title	SIP	Affected Emission Unit
14. New Source Performance Standards	§ 14.1.94 Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants § 14.1.21 Subpart I - Standards of Performance for Hot Mix Asphalt Facilities	no	Applicable – Specific Mineral Processing Emission Units. See Table XIX-B-1 for detailed outline.
16. Operating Permits	all subsections	yes	entire facility
18. Permit and Technical Service Fees	§ 18.1 Operating Permit Fees § 18.2 Annual Emission Unit Fees § 18.4 New Source Review Application Review Fee § 18.5 Part 70 Application Review Fee § 18.6 Annual Part 70 Emission Fee § 18.14 Billing Procedures	yes	entire facility
19. Part 70 Operating Permit Federal Approval (11/25/01)	§ 19.2 Applicability § 19.3 Part 70 Permit Applications § 19.4 Part 70 Permit Content § 19.5 Permit Issuance, Renewal, Re-openings, and Revisions § 19.6 Permit Renewal by the EPA and Affected States § 19.7 Fee Determination and Certification	N/A	entire facility
24. Sampling and Testing - Records and Reports	§ 24.1 Requirements for installation and maintenance of sampling and testing facilities § 24.2 Requirements for emissions record keeping § 24.3 Requirements for the record format § 24.4 Requirements for the retention of records by the emission sources	yes	entire facility
25.1 Upset/Breakdown, Malfunctions	§ 25.1 Requirements for the excess emissions caused by upset/breakdown and malfunctions	no	entire facility
25.2 Upset/Breakdown, Malfunctions	§ 25.2 Reporting and Consultation	yes	entire facility
26. Emission of Visible Air Contaminants	§ 26.1 Limit on opacity (≤ 20 percent for 3 minutes in a 60-minute period)	yes	entire facility
28. Fuel Burning Equipment	Emission Limitations for PM	yes	entire facility

PROPOSED

Applicable Section – Title	Applicable Subsection - Title	SIP	Affected Emission Unit
29. Sulfur Contents of Fuel Oil	Sulfur content shall be equal to or less than 0.05 percent sulfur by weight	no	Fire Pump
40. Prohibitions of Nuisance Conditions	§ 40.1 Prohibitions	no	entire facility
41. Fugitive Dust	§ 41.1 Prohibitions	yes	entire facility
42. Open Burning	§ 42.2	no	entire facility
43. Odors In the Ambient Air	§ 43.1 Prohibitions coded as Section 29	no	entire facility
49. Emission Standards for Boilers and Steam Generators Burning Fossil Fuels	Local enforcement only all subsections	no	entire facility
55. Preconstruction Review for New or Modified Stationary Sources in the 8-hour Ozone Nonattainment Area	all subsections	no	entire facility
60. Evaporation and Leakage	all subsections	yes	entire facility
70. Emergency Procedures	all subsections	yes	entire facility
80. Circumvention	all subsections	yes	entire facility

B. Federally Applicable Regulations

40 CFR PART 60-STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES: SUBPART A - GENERAL PROVISIONS

40 CFR § 60.7-Notification and record keeping

Discussion: This regulation requires notification to DAQEM of modifications, opacity testing, records of malfunctions of process equipment and performance test data. The Part 70 permit reflects these requirements. Note that DAQEM requires records to be maintained for five (5) years, a more stringent requirement than the two (2) years required by § 60.7.

40 CFR § 60.8-Performance tests

Discussion: Notice of intent to test, the applicable test methods, and acceptable test method operating conditions are outlined in this regulation. DAQEM requirements for initial performance testing are identical to § 60.8. DAQEM also requires periodic performance testing on emission units based upon throughput or usage. DAQEM also reserves the right to require more frequent testing.

40 CFR § 60.11-Compliance with standards and maintenance requirements.

Discussion: Nellis is subject to two NSPS standards: Subpart I Standards of Performance for Hot Mix Asphalt Facilities and Subpart OOO Standards of Performance for Nonmetallic Mineral Processing Plants. Initial performance tests for units subject to these standards (see Table XIX-B-1) have been successfully conducted. With regard to particulate emissions from the asphalt dryer, the emissions standard is 0.04 gr/dscf (90 mg/dscm.) The following is a comparison of the hourly limit, the NSPS standard, and performance testing results:

- Permitted Limit: 2.88 lbs/hr
- Exhaust Flow Rate: 15,100 dscfm (from performance testing report "Particulate Matter Testing Red horse Civil Engineering Asphalt Batch Plant Located at Nellis Air Force Base" submitted on November 22, 2000.)

PROPOSED

- gr/dscf = (Permitted Limit (lbs/hr) / (Exhaust Flow Rate (dscfm) * 60 minutes)) * 7,000 grains/lb;
- Allowable Grain Loading: 0.0223 gr/dscf
- Performance Tested Grain Loading: 0.003 gr/dscf

Compliance with the permitted limit shall be deemed to demonstrate compliance with the NSPS standard for the asphalt dryer.

With regard to opacity, Section 26 of the AQR is more stringent than the federal opacity standards, setting a maximum of 20 percent obscurity except for three (3) minutes in any 60-minute period. NAFB shall operate in a manner consistent with this section of the regulation.

40 CFR § 60.12- Circumvention

Discussion: This prohibition is Condition II-A-27 in the Part 70 OP. This is also local rule § 80.1.

PROPOSED

Table XIX-B-1: New Source Performance Standards (NSPS) Requirements

Emission Unit	Process	Equipment Type	Manufacturer	Model No.	Serial No.	Design Capacity (ton/hr)	Control Measure	NSPS Regulation	Requirement
A002	Asphalt Plant	Weigh Hopper Loading	n/a	n/a	n/a	200	Pre-wetted	OOO	Fugitive emissions shall not exceed 10% opacity
A003	Asphalt Plant	Conveyor Transfer Point	n/a	n/a	n/a	200	Pre-wetted	OOO	Fugitive emissions shall not exceed 10% opacity
A005	Asphalt	Dryer	Astec	PDM-636-C	n/a	125	Baghouse	I	Emission of particulate matter shallnot be in excess of 90 mg/dscm and shallnot exhibit opacity greater than 20%
A015	Concrete Plant	Hopper Transfer to Conveyor	n/a	n/a	n/a	200	Pre-wetted	OOO	Fugitive emissions shall not exceed 10% opacity
A019	Rock Crushing	Tertiary Crusher	Eagle	33D5510	11375	200	Pre-wetted	OOO	Fugitive emissions shall not exceed 15% opacity
A020	Rock Crushing	Screening	JCI	JCI516326	00H03L26	200	Pre-wetted	OOO	Fugitive emissions shall not exceed 10% opacity

PROPOSED

Emission Unit	Process	Equipment Type	Manufacturer	Model No.	Serial No.	Design Capacity (ton/hr)	Control Measure	NSPS Regulation	Requirement
A021	Rock Crushing	Conveyor Transfer Point	Cedar Rapids	Unknown	38670	200	Pre-wetted	OOO	Fugitive emissions shall not exceed 10% opacity
A022	Rock Crushing	Conveyor Transfer Point	Cedar Rapids	Unknown	38671	200	Pre-wetted	OOO	Fugitive emissions shall not exceed 10% opacity
A023	Rock Crushing	Conveyor Transfer Point	Cedar Rapids	Unknown	38672	200	Pre-wetted	OOO	Fugitive emissions shall not exceed 10% opacity
A024	Rock Crushing	Conveyor Transfer Point	Eagle	PRSC	2701	200	Pre-wetted	OOO	Fugitive emissions shall not exceed 10% opacity
A025	Rock Crushing	Conveyor Transfer Point	Eagle	PRSC	2702	200	Pre-wetted	OOO	Fugitive emissions shall not exceed 10% opacity
A026	Rock Crushing	Conveyor Transfer Point	Eagle	PRSC	2694	200	Pre-wetted	OOO	Fugitive emissions shall not exceed 10% opacity

PROPOSED

40 CFR PART 64-COMPLIANCE ASSURANCE MONITORING

40 CFR § 64.2 – Applicability

Discussion: The CAM Rule is not applicable to NAFB at this time. This is an initial Title V Operating Permit, and the source submitted its initial application on June 14, 1996, which is prior to the April 20, 1998 cut-off period.

XX. COMPLIANCE

A. Compliance Certification

19.3.3.9 Requirements for compliance certification:

(a) Regardless of the date of issuance of this Part 70 OP, the schedule for the submittal of reports to the DAQEM Compliance Reporting Supervisor shall be as follows:

Quarter	Applicable Period	Due Date	Required Contents
1	January, February, March	April 30 each year	Quarterly Report for 1st Calendar Quarter
2	April, May, June	July 30 each year	Quarterly Report for 2nd Calendar Quarter
3	July, August, September	October 30 each year	Quarterly Report for 3rd Calendar Quarter
4	October, November, December	January 30 each year	Quarterly Report for 4th Calendar Quarter, any additional annual records required, and Annual Certification of Compliance

(b) A statement of methods used for determining compliance, including a description of monitoring, recordkeeping, and reporting requirements and test methods.

(c) A schedule for submission of compliance certifications during the Part 70 permit term.

(d) A statement indicating the source's compliance status with any applicable enhanced monitoring and compliance certification requirements of the Act.

B. Compliance Summary

Citation	Title	Applicability	Applicable Test Method	Compliance Status
CCAQR Section 0 [amended 10/7/04]	Definitions	Applicable – NAFB will comply with all applicable definitions as they apply.	NAFB will meet all applicable test methods should new definitions apply.	NAFB complies with applicable requirements.
CCAQR Section 4 [amended 7/1/04]	Control Officer	Applicable – The Control Officer or his representative may enter into NAFB property, with or without prior notice, at any reasonable time for purpose of establishing compliance.	NAFB will allow Control Officer to enter NAFB property as required.	NAFB complies with applicable requirements.
CCAQR Section 11 [amended 7/1/04]	Ambient Air Quality Standards	Applicable – NAFB is a source of air pollutants.	EPA-approved dispersion modeling.	NAFB complies with applicable requirements
CCAQR Section 12.1 [amended 10/7/04]	General application requirements for construction of new and modified sources of air pollution	Applicable – NAFB is required to apply for ATC certificates before commencing operation of applicable emission units.	NAFB has received all required ATC permits to construct.	NAFB currently complies with applicable requirements.

PROPOSED

Citation	Title	Applicability	Applicable Test Method	Compliance Status
CCAQR Section 12.2.1 [amended 10/7/04]	Requirements for specific air pollutants: Nonmajor PM_{10} emission source located in the Serious Non-attainment area.	Applicable – NAFB is a Nonmajor PM_{10} source with PM_{10} emission units located in Hydrographic Basin 212, which is Serious Non-attainment for PM_{10}.	The NAFB PM_{10} controls meet BACT as applicable for Hydrographic Basin 212. The Part 70 permit has relevant compliance, record keeping and reporting requirements.	NAFB complies with applicable control technology requirements for PM_{10}.
CCAQR Section 12.2.5 [amended 10/7/04]	Requirements for specific air pollutants: Nonmajor PM_{10} emission source located in a PSD area	Applicable – NAFB has PM_{10} emission units located in Hydrographic Basin 215, which is PSD for PM_{10}.	The NAFB PM_{10} controls meet BACT as applicable for Hydrographic Basin 215. The Part 70 permit has relevant compliance, record keeping and reporting requirements.	NAFB complies with applicable control technology requirements and PSD increment standards for PM_{10}.
CCAQR Section 12.2.6 [amended 10/7/04]	Requirements for specific air pollutants: Nonmajor CO emission source located in the Serious Non-attainment area.	Applicable – NAFB is a Nonmajor CO source with CO emission units located in Hydrographic Basin 212, which is Serious Non-attainment for CO.	The NAFB CO controls meet BACT as applicable for Hydrographic Basin 212. The Part 70 permit has relevant compliance, record keeping and reporting requirements.	NAFB complies with applicable control technology requirements for CO.
CCAQR Section 12.2.10 [amended 10/7/04]	Requirements for specific air pollutants: Nonmajor CO emission source located in a PSD area.	Applicable – NAFB has CO emission units located in Hydrographic Basin 215, which is PSD for CO.	The NAFB CO controls meet BACT as applicable for Hydrographic Basin 215. The Part 70 permit has relevant compliance, record keeping and reporting requirements.	NAFB complies with applicable control technology for CO.
CCAQR Section 55.5 [amended 12/21/04]	Requirements for specific air pollutants: Nonmajor VOC emission source located in the 8-hour Non-attainment ozone area.	Applicable – NAFB is a Nonmajor VOC source with VOC emission units located in Hydrographic Basin 212, which is an 8-hour Non-attainment area for ozone.	The NAFB VOC controls meet BACT as applicable for Hydrographic Basin 212. The Part 70 permit has relevant compliance, record keeping and reporting requirements.	NAFB complies with applicable control technology requirements for VOC.
CCAQR Section 12.2.13 [amended 10/7/04]	Requirements for specific air pollutants: Nonmajor VOC emission source located in an ozone attainment area.	Applicable – NAFB has VOC emission units located in Hydrographic Basin 215, which is an ozone attainment area.	The NAFB VOC controls meet BACT as applicable for Hydrographic Basin 215. The Part 70 permit has relevant compliance, record keeping and reporting requirements.	NAFB complies with applicable control technology requirements for VOC.
CCAQR Section 55.4 [amended 12/21/04]	Requirements for specific air pollutants: Major NO_X emission source located in the 8-hour Non-attainment ozone area.	Applicable – NAFB is a Major NO_X source with NO_X emission units located in Hydrographic Basin 212, which is an 8-hour Non-attainment area for ozone.	The NAFB NO_X controls meet BACT as applicable for Hydrographic Basin 212. The Part 70 permit has relevant compliance, record keeping and reporting requirements.	NAFB complies with applicable control technology requirements for NO_X.

PROPOSED

Citation	Title	Applicability	Applicable Test Method	Compliance Status
CCAQR Section 12.2.15 [amended 10/7/04]	Requirements for specific air pollutants: NO_X sources located in the PSD area.	Applicable – NAFB has NO_X emission units located in Hydrographic Basin 215, which is an ozone attainment area.	The NAFB NO_X controls meet BACT as applicable for Hydrographic Basin 215. The Part 70 permit has relevant compliance, record keeping and reporting requirements.	NAFB complies with applicable control technology requirements and PSD increment standards for NO_2.
CCAQR Section 12.2.16 [amended 10/7/04]	Requirements for specific air pollutants: SO_2 sources located in the PSD area	Applicable – NAFB has SO_2 emission units located in Hydrographic Basins 212 and 215, which are PSD for SO_2.	The NAFB SO_2 controls meet BACT as applicable for Hydrographic Basins 212 and 215. The Part 70 permit has relevant compliance, record keeping and reporting requirements.	NAFB complies with applicable control technology requirements and PSD increment standards for SO_2.
CCAQR Section 12.2.18 [amended 10/7/04]	Requirements for major HAP sources.	Not Applicable.	Not Applicable.	NAFB complies with applicable requirements.
CCAQR Section 14.1.1 Subpart A [amended 7/1/04]	New Source Performance Standards (NSPS) General Provisions	Applicable – NAFB is an affected facility (for NSPS Subpart I and OOO) under the regulations. Section 14 is locally enforceable; however, the NSPS standards referenced are federally enforceable.	Applicable testing, monitoring, recordkeeping and reporting requirements.	NAFB complies with applicable requirements.
CCAQR Section 16 [amended 7/1/04]	DAQEM Operating Permits	Applicable – NAFB must apply for and obtain a DAQEM operating permit prior to operation.	NAFB currently has all required Section 16 Operating Permits.	NAFB complies with applicable requirements.
CCAQR Section 17 [amended 7/1/04]	Dust Control Permit for Construction Activities Including Surface Grading and Trenching	Applicable – NAFB will need to apply for dust control permit in event construction activity greater than ¼ acre (aggregate) or trench at least 100 ft in length (and aggregate acreage greater than ¼ acre).	NAFB has applied for permits as needed and conformed to required best management practices in dust control permit. NAFB will continue to do so in future as needed.	NAFB complies with applicable requirements.
CCAQR Section 18 [amended 1/20/05]	Permit and Technical Service Fees	Applicable – NAFB will be required to pay all required/applicable permit and technical service fees.	NAFB is required to pay all required/applicable permit and technical service fees.	NAFB complies with applicable requirements.
CCAQR Section 19 [amended 7/1/04]	40 CFR Part 70 Operating Permits	Applicable – NAFB is a major stationary source and under Part 70 the initial Title V permit application was received by DAQEM on June 14, 1996. Section 19 is both federally and locally enforceable	NAFB has submitted the Part 70 permit within the appropriate timeframe.	NAFB complies with applicable requirements.

PROPOSED

Citation	Title	Applicability	Applicable Test Method	Compliance Status
CCAQR Section 25 [amended 7/1/04]	Upset/Breakdown, Malfunctions	Applicable – Any upset, breakdown, emergency condition, or malfunction which causes emissions of regulated air pollutants in excess of any permit limits shall be reported to Control Officer. Section 25.1 is locally and federally enforceable.	Any upset, breakdown, emergency condition, or malfunction in which emissions exceed any permit limit shall be reported to the Control Officer within one (1) hour of onset of such event.	NAFB currently complies with applicable requirements.
CCAQR Section 26 [amended 7/1/04]	Emissions of Visible Air Contaminants	Applicable – Opacity for any emission unit may not exceed 20 percent for more than three (3) minutes in any 60-minute period.	Compliance determined by EPA Method 9.	NAFB complies with applicable requirements.
CCAQR Section 27 [amended 7/1/04]	Particulate Matter from Process Weight Rate	Applicable – NAFB emission units are required to meet the maximum weight based on maximum design rate of equipment.	Compliance determined by meeting maximum particulate matter discharge rate based on process rate from AQR Table 27-1.	NAFB complies with applicable requirements.
CCAQR Section 28 [amended 7/1/04]	Fuel Burning Equipment	Applicable – The PM emission rate for the combustion turbines and duct burners are well below those established based on Section 28 requirements.	Maximum allowable PM emission rate determined from equation in Section 28.	NAFB complies with applicable requirements.
CCAQR Section 29 [amended 7/1/04]	Sulfur Content of Fuel Oil	Applicable – The diesel fuel that is used at NAFB must be low sulfur fuel with sulfur content less than 0.05 percent by weight. Section 29 is locally enforceable only.	Fuel sulfur content verification obtained from fuel oil supplier.	NAFB complies with applicable requirements.
CCAQR Section 40 [amended 7/1/04]	Prohibition of Nuisance Conditions	Applicable – No person shall cause, suffer or allow the discharge from any source whatsoever such quantities of air contaminants or other material which cause a nuisance. Section 40 is locally enforceable only.	NAFB air contaminant emissions controlled by pollution control devices or good combustion in order not to cause a nuisance.	NAFB complies with applicable requirements.
CCAQR Section 41 [amended 7/1/04]	Fugitive Dust	Applicable – NAFB shall take necessary actions to abate fugitive dust from becoming airborne.	NAFB utilizes appropriate best practices to not allow airborne fugitive dust.	NAFB complies with applicable requirements.
CCAQR Section 42 [amended 7/1/04]	Open Burning	Applicable – In event NAFB burns combustible material in any open areas, such burning activity will have been approved by Control Officer in advance. Section 42 is a locally enforceable rule only.	NAFB will contact the DAQEM and obtain approval in advance for applicable burning activities as identified in the rule.	NAFB complies with applicable requirements.

PROPOSED

Citation	Title	Applicability	Applicable Test Method	Compliance Status
CCAQR Section 43 [amended 7/1/04]	Odors in the Ambient Air	Applicable – An odor occurrence is a violation if the Control Officer is able to detect the odor twice within a period of an hour, if the odor causes a nuisance, and if the detection of odors is separated by at least fifteen minutes. Section 43 is a locally enforceable rule only.	NAFB will not operate its facility in a manner which will cause odors.	NAFB complies with applicable requirements.
CCAQR Section 49 [amended 7/1/04]	Emission Standards for Boilers and Steam Generators Burning Fossil Fuels	Not Applicable – NAFB does not currently have boilers at its facility that are subject to Section 49 requirements	NAFB shall not construct an emissions unit subject to Section 49 without first applying for and receiving an Authority to Construct Permit.	NAFB complies with applicable requirements.
CCAQR Section 55 [adopted 12/21/04]	Preconstruction review for New or Modified Stationary Sources in the 8-Hour Ozone Nonattainment Area	Applicable – NAFB is located in the Las Vegas Valley (hydrographic area 212) and will need to meet the applicable emission control requirements at times of future modifications.	In the event NAFB undertakes any modification, NAFB will have to apply proper control technologies and meet offset requirements, as applicable.	NAFB complies with applicable requirements.
40 CFR Part 51.165	Nonattainment NSR requirements.	Applicable – NAFB is a major source for a nonattainment pollutant in a nonattainment area.	In the event NAFB undertakes any modification, NAFB will have to apply proper control technologies and meet offset requirements, as applicable.	NAFB complies with applicable requirements.
40 CFR Part 52.21	Prevention of Significant Deterioration (including Preconstruction permits)	Applicable – NAFB is a major source and is listed as one of the 28 source categories.	BACT analysis, air quality analysis using ISCST3, and visibility and additional impact analysis performed for original ATC permits.	NAFB complies with applicable sections as required by PSD regulations.
40 CFR Part 52.1470	SIP Rules	Applicable – NAFB is classified as a Title V source, and SIP rules apply.	Applicable monitoring and record keeping of emissions data.	NAFB is in compliance with applicable state SIP requirements including monitoring and record keeping of emissions data.
40 CFR Part 60, Subpart A	Standards of Performance for New Stationary Sources (NSPS) – General Provisions	Applicable – NAFB is an affected facility under the regulations.	Applicable monitoring, recordkeeping and reporting requirements.	NAFB complies with applicable requirements.
40 CFR Part 60	Appendix A, Method 9 or equivalent, (Opacity)	Applicable – Emissions from stacks are subject to opacity standards.	Opacity determined by EPA Method 9.	NAFB complies with applicable requirements.

PROPOSED

Citation	Title	Applicability	Applicable Test Method	Compliance Status
40 CFR Part 64	Compliance Assurance Monitoring	Not Applicable – This is an initial Title V permit; application was submitted prior to April 20, 1998.	NAFB does not currently have CAM requirements, but does have compliance demonstration requirements for regulated pollutants.	NAFB complies with applicable requirements.

XXI. EMISSION REDUCTION CREDITS (OFFSETS)

The source is subject to offset requirements in accordance with Section 59 of the Clark County Air Quality Regulations. Offset requirements and associated mitigation are pollutant-specific.

XXII. ADMINISTRATIVE REQUIREMENTS

Section 19 requires that DAQEM identify the original authority for each term or condition in the Part 70 Operating Permit. Such reference of origin or citation is denoted in the permit.

DAQEM proposes to issue the Part 70 Operating Permit conditions on the following basis:

Legal:

On December 5, 2001 in Federal Register Volume 66, Number 234 FR30097 the EPA fully approved the Title V Operating Permit Program submitted for the purpose of complying with the Title V requirements of the 1990 Clean Air Act Amendments and implementing Part 70 of Title 40 Code of Federal Regulations.

Factual:

Nellis Air Force Base has supplied all the necessary information for DAQEM to draft Part 70 Operating Permit conditions encompassing all applicable requirements and corresponding compliance.

Conclusion:

DAQEM has determined that Nellis Air Force Base will continue to determine compliance through the use of performance testing, quarterly reporting, record keeping, coupled with annual certifications of compliance. DAQEM proceeds with the preliminary decision that a Part 70 Operating Permit should be issued as drafted to Nellis Air Force Base for a period not to exceed five (5) years.

PROPOSED