Kirtland AFB Title V Source Emissions

Source Category	Permit Limits (tons/year)							Notes
	CO	NOx	PM	$PM_{10}/PM_{2.5}$	SOx	VOC	HAP	
Aircraft Engine Testing - Unit ID #s 20002, 20004								
(58 SOW Test Cells - Permit # 484-M3)	0.84	0.68	0.09	0.09	0.07	0.51	0.03	All
Internal Combustion –Unit ID # 19135	4.57	5.28	0.012	0.012	0.068			19135
(SOR TAC Lab – Permit # 1759-M2)	0.42	0.68	0.02	0.02	0.047	0.727		19155
(Unit ID #s 19135, 19155, 19156, 19157, 19158)	0.42	0.68	0.02	0.02	0.047	0.727		19156
	0.42	0.68	0.02	0.02	0.047	0.727		19157
	0.42	0.68	0.02	0.02	0.047	0.727		19158
Surface Coating - Unit ID # 21015								
(58th SOW Corrosion Control Facility - Permit # 1770-RV3)			0.14	0.14		0.95	0.12	21015
Internal Combustion – Unit ID #s 19170, 19171, 19172, 19173	0.43	0.80	0.02	0.02	0.001	0.14		19170 Combined NMHC + NOX of 0.80 tpy
(Building 402 – Permit # 1777-RV2)	0.43	0.80	0.02	0.02	0.001	0.14		19171 Combined NMHC + NOX of 0.80 tpy
	0.43	0.80	0.02	0.02	0.001	0.14		19172 Combined NMHC + NOX of 0.80 tpy
	0.43	0.80	0.02	0.02	0.001	0.14		19173 Combined NMHC + NOX of 0.80 tpy
Internal Combustion – Unit ID #s 19147, 19148, 19153, 19153,	0.49	1.86	0.06	0.06	0.1	0.05		19147
19089, 19133, 19131, 19132, 19134, 19174, 19178, 19181, 19182	0.39	1.82	0.13	0.13	0.12	0.14		19148
(Water Plant – Permit # 1786-M5)	0.43	0.79	0.03	0.03	0.0009	0.79		19153 Combined NMHC + NOX of 0.79 tpy
	0.26	1.21	0.09	0.09	0.08	0.1		19089
	0.42	1.81	0.05	0.05	0.1	0.05		19133
	0.11	0.53	0.04	0.04	0.04	0.04		19131
	0.19	0.86	0.06	0.06	0.06	0.07		19132
	0.29	1.35	0.1	0.1	0.09	0.11		19134
	0.7	1.33	0.04	0.04	0.03	1.300		19174 Combined NMHC + NOX of 1.33 tpy
	0.7	1.33	0.04	0.04	0.03	1.300		19178 Combined NMHC + NOX of 1.16 tpy
	0.1	0.093	0.06	0.06	0.04	0.002		19181 Combined NMHC + NOX of 0.93 tpy
	0.1	0.092	0.06	0.06	0.04	0.002		19182 Combined NMHC + NOX of 0.92 tpy
Internal Combustion - Unit ID # 19151								
(Building 1037 - Permit # 1945)	0.16	0.35	0.05	0.05	0.05	0.06		19151
Internal Combustion - Unit ID # 19160								
(AFRL Building 416 - Permit # 2085)	0.1	0.1	0.005	0.005	0.02	0.1		19160 Combined NMHC + NOX of 0.1 tpy
Internal Combustion - Unit ID # 19161								
(AFRL Building 570 - Permit # 2100)	0.2	0.229	0.011	0.011	0.071	0.229		19161 Combined NMHC + NOX of 0.1 tpy
Internal Combustion - Unit ID # 19159								
(AFRL Building 277 - Permit # 2105-M1)	0.43	0.7	0.01	0.01	0.002	0.05		19159
Internal Combustion - Unit ID # 19163								
(AFSPC Radome - Permit # 2147)	0.23	0.26	0.01	0.01	0.08	0.26		19163 Combined NMHC + NOX of 0.26 tpy
Internal Combustion - Unit ID # 19164								
(AFRL/RV ISOON Telescope - Permit # 3013-RV1)	0.14	0.17	0.0083	0.0083	0.051	0.17		19164 Combined NMHC + NOX of 0.17 tpy
Internal Combustion - Unit ID #s 19091, 19093, 19102	0.413	1.8	0.053	0.053	0.00091	0.053		19091
(US Customs and Border Patrol Bldg 291/320 - Permit # 3016-RV2)	0.363	1.584	0.124	0.124	0.0008	0.047		19093
	0.363	1.584	0.124	0.124	0.0008	0.047		19102
Internal Combustion	0.068	0.316	0.022	0.022	0.021	0.025		19015
(Fire Department - Permit # 3031-M1)	0.034	0.158	0.011	0.011	0.011	0.013		19016
	0.068	0.316	0.022	0.022	0.021	0.025		19019
	0.227	1.054	0.075	0.075	0.07	0.084		19069
	0.227	1.054	0.075	0.075	0.07	0.084		19070
	0.227	1.054	0.075	0.075	0.07	0.084		19071
	0.227	1.054	0.075	0.075	0.07	0.084		19072
	0.227	1.054	0.075	0.075	0.07	0.084		19073
	0.227	1.054	0.075	0.075	0.07	0.084		19074
	0.227	1.054	0.075	0.075	0.07	0.084		19075
	0.227	1.054	0.075	0.075	0.07	0.084		19076
	0.138	0.642	0.046	0.046	0.042	0.051		19129
	2.223	2.846	0.104	0.104	0.001	0.262		19130
Internal Combustion	0.09	0.419	0.03	0.03	0.028	0.033		19003
(Power Production - Permit # 3032-M1-2AR)	0.068	0.316	0.022	0.022	0.021	0.025		19006
	0.311	1.442	0.102	0.102	0.095	0.115		19032
	0.413	1.761	0.125	0.125	0.198	0.14		19096
	0.12	0.515	0.037	0.037	0.034	0.041		19106
	0.068	0.316	0.022	0.022	0.021	0.025		19142
	0.033	0.155	0.011	0.011	0.01	0.012		19143
	0.044	0.203	0.014	0.014	0.013	0.016		19154
	0.017	0.078	0.006	0.006	0.005	0.006		19168
	0.43	0.72	0.025	0.025	0.001	0.010		19176 Combined NMHC + NOX of 0.72 tpy
	0.43	0.72	0.025	0.025	0.001	0.010		19177 Combined NMHC + NOX of 0.72 tpy
External Combustion - Unit ID #s 14166 and 14167	0.36	0.21	0.033	0.033	0.0026	0.024	0.048	14166
(West Side Steam Boiler - Source Registration # 3047)	0.36	0.21	0.033	0.033	0.0026	0.024	0.048	14167
Landfill Mulcher - Unit ID #s 18001 and 18002	0.71	3.29	0.23	0.23	0.22	0.26		18001
(C&D Debris Landfill Mulcher - Permit # 3048-2TR)			0.3	0.3				18002
Miscellaneous Chemicals - Unit ID # 31999								
(Basewide Misc Chem - Permit # 3070-M1-1TR)			1.03	1.03		78.03	2.93	31999 Exempt from PSD
Fuel Dispensing - Unit ID #s 15001, 15004, and 15011						4.04		15001
(Government Fuels Distribution - Permit # 3090-RV1)						0.82		15004
						2.98		15011
Fuel Loading - Unit ID # 16001								
(Government Fuels Distribution - Permit # 3090-RV1)						0.26		16001

Kirtland AFB Title V Source Emissions

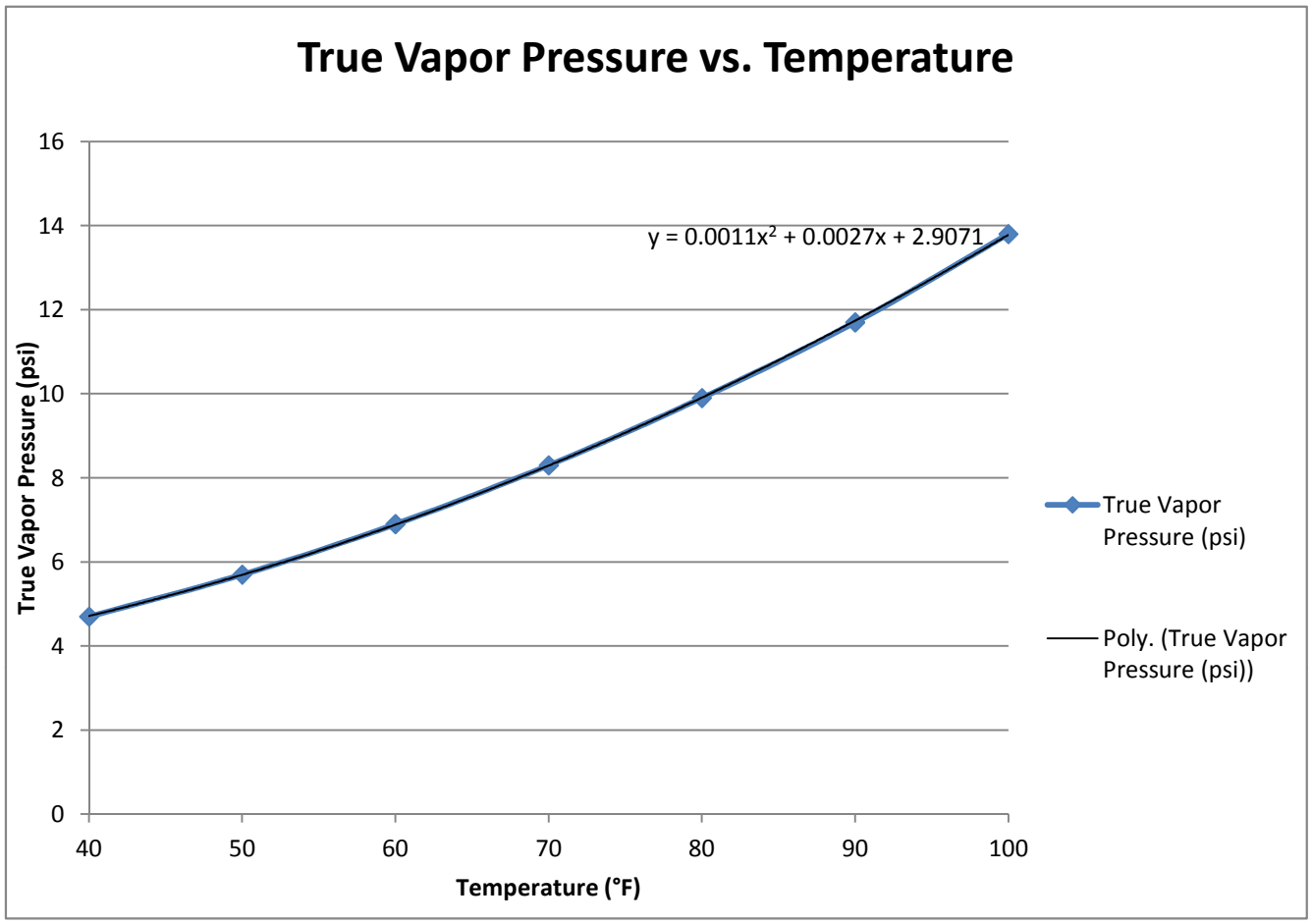
Source Category	Permit Limits (tons/year)							Notes
	CO	NOx	PM	$PM_{10}/PM_{2.5}$	SOx	VOC	HAP	
Storage Tanks - Unit ID #s 22003, 22004, 22005, 22015, and 25012						3.78		22003
(Government Fuels Distribution - Permit # 3090-RV1)						2.9		22004
						2.31		22005
						5.7		22015
						0.58		25012
Fuel Dispensing - Unit ID # 15008								
(898 MUNS - Permit # 3101-RV1)						0.117		15008
Storage Tanks - Unit ID # 25017								
(898 MUNS - Permit # 3101-RV1)						0.083		25017
External Combustion - Unit ID # 14014								
(898 MUNS - Permit # 3101-RV1)	2.25	2.68	0.2	0.2	0.02	0.68		14014
Internal Combustion - Unit ID # 19140								
(Airfield Operations - Source Registration # 3102)	0.068	0.31	0.022	0.022	0.021	0.025		19140
External Combustion - Unit ID #s 14168 and 14169	1.26	1.5	0.11	0.11	0.009	0.082	0.028	14168
(Airfield Operations - Permit # 3102)	1.26	1.5	0.11	0.11	0.009	0.082	0.028	14169
Internal Combustion - Unit ID # 19169								
(Sustainment Facility Emergency Generator - Permit # 3141-RV1)	0.85	1.58	0.05	0.05	0.04	1.58		19169 Combined NMHC + NOX of 1.58 tpy
Surface Coating - Unit Id # 21004								
(58th SOW Bldg. 482 Paint Booth - Permit # 3128)			0.032	0.032		0.67	0.144	21004
Internal Combustion - Unit Id # 19031								
(58th SOW Generator at Bldg. 1017 - Permit # 3129)	0.3	1.26	0.078	0.078	0.073	0.088		19031
Remediation - Unit ID # 12009								
(SVE System ST-070E - Registration Certificate # 3329)						0.15	0.004	12009
Internal Combustion - Unit ID # 19179								
(KAFB DISA Antenna Tower - Permit # 3308)	0.06	0.06	0.0004	0.0004	0.02	0.06		19179
Internal Combustion - Unit ID #19186								
(898th Munitions - Permit # 3470)	0.43	0.76	0.02	0.02	0.61	0.04		19186
Internal Combustion - Unit ID #19188								
(Fire Station No. 3 - Permit # 3492)	0.46	0.51	0.027	0.027	0.17	0.027		19188
Internal Combustion - Unit ID #19190								
(Base Defense Operations Center - Permit # 3501)	0.066	0.059	0.005	0.005	0.00005	0.003		19190
Total	**30.2**	**65.0**	**5.1**	**5.1**	**3.6**	**116.8**	**3.4**	

Summary of VOC Emissions
for Kirtland AFB Government Fuels Distribution

Process Equipment Unit No.	Emission Source	VOC Emissions (ton/yr)		
		Hourly Emissions (lbs/hr)	Annual Emissions (ton/yr)	Potential Emissions (ton/yr)
1	Gasoline Storage, Bulk Fuels Facility, Bldg 1041, Unit ID 22005	30.70	2.31	134.47
	Gasoline Loading, Bulk Fuels Facility, Bldg 1041, Unit ID 16001	105.55	0.26	462.29
	Total	**136.25**	**2.57**	**596.76**
2	Gasoline Storage, Govt East Service Station, Bldg 20359, Unit ID 22003	2.76	3.78	12.09
	Gasoline Storage, Govt East Service Station, Bldg 20359, Unit ID 22004	2.76	2.90	12.09
	Gasoline Dispensing, Govt East Service Station, Bldg 20359, Unit ID 15001	28.08	3.92	122.99
	Total	**33.60**	**10.60**	**147.18**
3	E85 Storage , Govt East Service Station, Building 20359, Unit ID 22015	3.75	5.70	16.41
	E85 Dispensing , Govt East Service Station, Building 20359, Unit ID 15011	14.04	2.98	61.50
	Total	**17.79**	**8.69**	**77.91**
4	Fuel Storage, Govt West Service Station, Bldg 471, Unit ID 25012	9.96	0.58	43.62
	Fuel Dispensing, Govt West Service Station, Bldg 471, Unit ID 15004	14.04	0.82	61.50
	Total	**24.00**	**1.40**	**105.12**
Grand Total		**211.63**	**23.26**	**926.97**

AP-42 Section 7.1: Organic Liquid Storage Tanks, Table 7.1-2 (November 2006)
Gasoline RVP 13,True Vapor Pressure Extrapolation
Gasoline Loading at Building 1041 (Unit ID 16001)
Process Equipment Unit No. 1

								Bulk Temperature of Liquid Loaded (°F)	True Vapor Pressure (psi)
Temperature (°F)	40	50	60	70	80	90	100		
True Vapor Pressure (psi)	4.7	5.7	6.9	8.3	9.9	11.7	13.8	56.174167	6.529860993



AP-42 Emission Methodology
VOC Emission Estimation Spreadsheet
Gasoline Loading at Building 1041 (Unit ID 16001)
Bulk Fuels Facility
Process Equipment Unit No. 1

VOC Emissions from Gasoline Loading

300	**Loading Rate (gal/min)**
62	**Vapor Molecular Weight of Gasoline RVP 13[1] (lb/lb-mole)**
516.17	**Bulk Liquid Temperature[2] (°R)**
6.53	**True Vapor Pressure[3] (psia)**
0.6	**Saturation Factor[4]**
0	**Capture Efficiency[5] (%)**
0	**Control Efficiency[5] (%)**
90,000	**Annual Throughput[6] (gal/yr)**

Loading Loss[7] (lb/1000-gal)	Hourly Emissions[8] (lb/hr)	Annual Emissions[9] (ton/yr)	Potential to Emit[10] (ton/yr)
5.9	105.55	0.26	462.29

[1] Vapor molecular weight from AP-42 Section 7.1: Organic Liquid Storage Tanks, Table 7.1-2 (November 2006).

[2] Temperature in °F was obtained based on atmospheric calculations in EPA Tanks, version 4.09d (see Attachment G1).
The following equation, from AP-42 Section 5.2: Transportation and Marketing of Petroleum Liquids (June 2008), was used to calculate bulk liquid temperature:
T(°R) = °F + 460

[3] True Vapor Pressure was obtained based on extrapolation of data in AP-42 AP-42 Section 7.1: Organic Liquid Storage Tanks, Table 7.1-2 (November 2006).
See Gasoline RVP 13, True Vapor Pressure Extrapolation Sheet

[4] Saturation Factor (S Factor) from AP-42 Section 5.2: Transportation and Marketing of Petroleum Liquids, Table 5.2-1 (June 2008).

[5] No vapor recovery control system is used during loading.

[6] Annual requested throughput

[7] Loading loss calculation methodology from AP-42 Section 5.2: Transportation and Marketing of Petroleum Liquids (June 2008).
The following equation was used to calculate loading losses:
Loading Loss (lbs/1000-gal) = 12.46 * [(SPM) / T] * [1 - (Cap_{eff}/100 * Con_{eff}/100)]
where: S = a saturation factor obtained from Table 5.2-1
P = true vapor pressure of liquid loaded (psia)
M = vapor molecular weight (lb/lb-mole)
T = Bulk Liquid Temperature (°R)
Cap_{eff} = Capture Efficiency (%)
Con_{eff} = Control Efficiency (%)

[8] The following equation was used to calculate hourly emissions:
Hourly Emissions (lb/hr) = Loading Loss (lb/1000-gal) * Loading Rate (gal/min) * 60 (min/hr) / 1000

[9] The following equation was used to calculate annual emissions:
Annual emissions (ton/yr) = Annual Throughput (1000-gal/yr) * Loading Loss (lb/1000-gal) / 2000 (lb/ton)

[10] Potential to emit (PTE) was calculated based on the number of hours in a year (8760 hours per year)
The following equation was used to calculate PTE:
PTE (ton/yr) = Hourly emissions (lb/hr) * 8760 (hr/yr) / 2000 (lb/ton)

TANKS 4.09d Emission Methodology
VOC Emission Estimation Spreadsheet
Gasoline Storage at Building 1041 (Unit ID 22005)
Bulk Fuels Facility
Process Equipment Unit No. 1

VOC Emissions from Gasoline Storage

300 **Unloading Rate (gal/min)**

157,680,000 **Potential Annual Throughput[1] (gal/yr)**

90,000 **Annual Throughput[2] (gal/yr)**

Emission Type[3]	Annual Emissions[4] (ton/yr)	Potential to Emit[5] (ton/yr)	Hourly Emissions[6] (lbs/hr)
Working Losses	0.45	132.61	30.28
Breathing Losses	1.86	1.86	0.42
Total Losses	**2.31**	**134.47**	**30.70**

[1] Potential annual throughput was calculated based on the number of hours in a year (8760 hours per year)
The following equation was used to calculate potential annual throughput:
Potential Annual Throughput (gal/yr) = Unloading Rate (gal/min) * 60 (min/hr) * 8760 (hrs/yr)

[2] Annual requested throughput

[3] Working Losses, Breathing Losses, and Total Losses were calculated using EPA Tanks, version 4.09d (see Attachments G1 and G2).

[4] Calculated in TANKS 4.09d using the annual throughput.

[5] Calculated in TANKS 4.09d using the potential annual throughput.

[6] Hourly emissions are back-calculated from PTE using the following equation:
Hourly Emissions (lbs/hr) = PTE (ton/yr) * 2000 (lb/ton) / 8760 (hrs/yr)

AP-42 Emission Methodology
VOC Emission Estimation Spreadsheet
Gasoline Dispensing at Building 20359 (Unit ID 15001)
Government East Service Station
Process Equipment Unit No. 2

VOC Emissions from Gasoline Dispensing

40 Nozzle Dispensing Rate[1] (gal/min)

670,000 Annual Throughput[2] (gal/yr)

Loss Category	VOC Emission Factor[3] (lb/1000-gal)	Hourly Emissions[4] (lb/hr)	Annual Emissions[5] (ton/yr)	Potential to Emit VOC[6] (ton/yr)
Displacement Losses from Vehicle Fueling[7]	11	26.40	3.69	115.63
Spillage during Vehicle Fueling	0.7	1.68	0.23	7.36
Total Loss from Vehicle Fueling	**11.70**	**28.08**	**3.92**	**122.99**

[1] Nozzle dispensing rate based on four standard gas station pump nozzles, two nozzles per AST, that can all be operated simultaneously at a rate of 10 gal/min.

[2] Annual requested throughput

[3] Emission factors (EF) are from AP-42 Section 5.2: Transportation and Marketing of Petroleum Liquids, Table 5.2-7 (June 2008).

[4] The following equation was used to calculate hourly emissions:
Hourly Emissions (lb/hr) = VOC Emission Factor (lb/1000-gal) * Nozzle Dispensing Rate (gal/min) * 60 (min/hr) / 1000

[5] The following equation was used to calculate annual emissions:
Annual emissions (ton/yr) = Annual Throughput (1000-gal/yr) * VOC Emission Factor (lb/1000-gal) / 2000 (lb/ton)

[6] Potential to emit (PTE) was calculated based on the number of hours in a year (8760 hours per year)
The following equation was used to calculate PTE:
PTE (ton/yr) = Hourly emissions (lb/hr) * 8760 (hr/yr) / 2000 (lb/ton)

[7] EF for Displacement Losses is for uncontrolled losses.

TANKS 4.09d Emission Methodology
VOC Emission Estimation Spreadsheet
Gasoline Storage at Building 20359 (Unit IDs 22003 and 22004)
Government East Service Station
Process Equipment Unit No. 2

VOC Emissions from Gasoline Storage

20 Unloading Rate (gal/min)
10,512,000 Potential Annual Throughput[1] (gal/yr)
510,000 Annual Throughput of Unit ID 22003[2] (gal/yr)
210,000 Annual Throughput of Unit ID 22004[2] (gal/yr)

Emission Type[3]	Annual Emissions[4] (ton/yr)	Potential to Emit VOC[5] (ton/yr)	Hourly Emissions[6] (lbs/hr)
Working Losses 22003	1.92	10.24	2.34
Working Losses 22004	1.05	10.24	2.34
Breathing Losses 22003	1.86	1.86	0.42
Breathing Losses 22004	1.86	1.86	0.42
Total Losses	**6.68**	**24.19**	**5.52**

[1] Potential annual throughput was calculated based on the number of hours in a year (8760 hours per year)
The following equation was used to calculate potential annual throughput:
Potential Annual Throughput (gal/yr) = Unloading Rate (gal/min) * 60 (min/hr) * 8760 (hrs/yr)

[2] Annual requested throughput

[3] Working Losses, Breathing Losses, and Total Losses were calculated using EPA Tanks, version 4.09d (see Attachments G3 - G6).

[4] Calculated in TANKS 4.09d using the annual throughput.

[5] Calculated in TANKS 4.09d using the potential annual throughput.

[6] Hourly emissions are back-calculated from PTE using the following equation:
Hourly Emissions (lbs/hr) = PTE (ton/yr) * 2000 (lb/ton) / 8760 (hrs/yr)

AP-42 Emission Methodology
VOC Emission Estimation Spreadsheet
E85 Dispensing at Building 20359 (Unit ID 15011)
Government East Service Station
Process Equipment Unit No. 3

VOC Emissions from E85 Dispensing

20 **Nozzle Dispensing Rate[1] (gal/min)**

510,000 **Annual Throughput[2] (gal/yr)**

VOC Emission Factors[3]		Hourly Emissions[5] (lb/hr)	Annual Emissions[6] (ton/yr)	Potential to Emit[7] (ton/yr)
Displacement Losses from Vehicle Fueling[4] (lb/1000-gal)	Spillage during Vehicle Fueling (lb/1000-gal)			
11.0	0.7	14.04	2.98	61.50

[1] Nozzle dispensing rate based on two standard service station pump nozzles that can be operated simultaneously at a rate of 10 gal/min.

[2] Annual requested throughput

[3] Emission factors (EF) are from AP-42 Section 5.2: Transportation and Marketing of Petroleum Liquids, Table 5.2-7 (June 2008).

[4] EF for Displacement Losses is for uncontrolled losses.

[5] The following equation was used to calculate hourly emissions:
Hourly Emissions (lb/hr) = Total Loss (lb/1000-gal) * [Nozzle Dispensing Rate (gal/min) * 60 (min/hr) / 1000]
where Total Loss (lb/1000-gal) = Displacement Loss (lbs/1000-gal) + Spillage Loss (lb/1000-gal)

[6] The following equation was used to calculate annual emissions:
Annual emissions (ton/yr) = Annual Throughput (1000-gal/yr) * Total Loss (lb/1000-gal) / 2000 (lbs/ton)
where Total Loss (lb/1000-gal) = Displacement Loss (lbs/1000-gal) + Spillage Loss (lb/1000-gal)

[7] Potential to emit (PTE) was calculated based on the number of hours in a year (8760 hours per year)
The following equation was used to calculate PTE:
PTE (ton/yr) = Hourly emissions (lb/hr) * 8760 (hrs/yr) / 2000 (lb/ton)

TANKS 4.09d Emission Methodology
VOC Emission Estimation Spreadsheet
E85 Storage at Building 20359 (Unit ID 22015)
Government East Service Station
Process Equipment Unit No. 3

VOC Emissions from E85 Storage

20 **Unloading Rate (gal/min)**

10,512,000 **Potential Annual Throughput[1] (gal/yr)**

510,000 **Annual Throughput[2] (gal/yr)**

Emission Type[3]	Annual Emissions[4] (ton/yr)	Potential to Emit[5] (ton/yr)	Hourly Emissions[6] (lbs/hr)
Working Losses	2.47	13.18	3.01
Breathing Losses	3.23	3.23	0.74
Total Losses	**5.70**	**16.41**	**3.75**

[1] Potential annual throughput was calculated based on the number of hours in a year (8760 hours per year)
The following equation was used to calculate potential annual throughput:
Potential Annual Throughput (gal/yr) = Unloading Rate (gal/min) * 60 (min/hr) * 8760 (hrs/yr)

[2] Annual requested throughput

[3] Working Losses, Breathing Losses, and Total Losses were calculated using EPA Tanks, version 4.09d (see Attachments G7 and G8).

[4] Calculated in TANKS 4.09d using the annual throughput.

[5] Calculated in TANKS 4.09d using the potential annual throughput.

[6] Hourly emissions are back-calculated from PTE using the following equation:
Hourly Emissions (lbs/hr) = PTE (ton/yr) * 2000 (lb/ton) / 8760 (hrs/yr)

AP-42 Emission Methodology
VOC Emission Estimation Spreadsheet
Gasoline Service Station at Building 471 (Unit IDs 15004 and 25012)
Government West Service Station
Process Equipment Unit No. 4

VOC Emissions from Gasoline Storage and Dispensing

20 **Nozzle Dispensing Rate[1] (gal/min)**

140,000 **Annual Throughput[2] (gal/yr)**

Loss Category	VOC Emission Factor[3] (lb/1000-gal)	Hourly Emissions[4] (lb/hr)	Annual Emissions[5] (ton/yr)	Potential to Emit[6] (ton/yr)
UST Filling[7]	7.30	8.76	0.51	38.37
UST Breathing & Emptying	1.00	1.20	0.070	5.26
Displacement Losses from Vehicle Fueling[8]	11.00	13.20	0.77	57.82
Spillage during Vehicle Fueling	0.70	0.84	0.049	3.68
Total Loss from Vehicle Fueling	**20.00**	**24.00**	**1.40**	**105.12**

[1] Nozzle dispensing rate based on two standard gas station pump nozzles that can be operated simultaneously at a rate of 10 gal/min.

[2] Annual requested throughput

[3] Emission factors (EF) are from AP-42 Section 5.2: Transportation and Marketing of Petroleum Liquids, Table 5.2-7 (June 2008).

[4] The following equation was used to calculate hourly emissions:
Hourly Emissions (lb/hr) = VOC Emission Factor (lbs/1000-gal) * Nozzle Dispensing Rate (gal/min) * 60 (min/hr) / 1000

[5] The following equation was used to calculate annual emissions:
Annual emissions (ton/yr) = Annual Throughput (1000-gal/yr) * VOC Emission Factor (lb/1000-gal) / 2000 (lbs/ton)

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

[7] EF for UST Filling is for unbalanced, submerged filling, although vapor balance is employed during filling.

[8] EF for Displacement Losses is for uncontrolled losses.

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LF-08 Applicability

LF-08 stopped receiving waste in 1989. RCRA final cover was installed in 1992. LF-08 holds approximatey 2.346 million cubic yards of waste (~1.8 million cubic meters).

40 CFR 60, Subpart Cc
§60.32c(a): LF-08 is a designated facility as it was constructed before 30 MAY 1991.
§60.32c(c): LF-08 landfill is closed and it holds 2.346 million cubic yards of refuse, which is the equivalent to approximately 1.8 million cubic meters. Although LF-08 did not have a design capacity, the waste volume is less than the threshold of 2.5 million megagrams or 2.5 million cubic meters. Therefore, LF-08 is not subject to 40 CFR Subpart Cc.

40 CFR 60, Subpart Cf
§60.31f(a): LF-08 is a designated facility because it was constructed prior to 17 JUL 2014.
§60.31f(c): LF-08 does not required an TV Permit because the amount of waste is less than the design capacity of 2.5 million megagrams or 2.5 million cubic meters. Therefore, LF-08 is not subject to 40 CFR Subpart Cf.

40 CFR 60, Subpart WWW
§60.750(a): LF-08 was constructed before 30 MAY 1991; therefore, this subpart does not apply.

40 CFR 60, Subpart XXX
§60.760(a): This subpart does not apply to LF-08 because it was not constructed after 17 JUL 2014.

40 CFR 63, Subpart AAAA
§63.1935(a): LF-08 accepted waste after 1987. However, KAFB is not a major source of HAPS pursuant to §63.1935(a)(1) and (2) and the definition of §63.2, and it does not have a design capacity greater than of 2.5 million megagrams or 2.5 million cubic meters. Therefore, LF-08 is not subject to this subpart.

20.11.71.7 NMAC
LF-08 was constructed before 17 JUL 2014 and has accepted waste after 8 NOV 1987; therefore, it meets the definition of "existing MSW landfill" pursuant to 20.11.71.7(C), and it is subject to 20.11.71.2(A).

In accordance with 20.11.71.14(A), LF-08 must comply with all requirements of 40 CFR 60 Subpart Cc. The design capacity of LF-08 is less than the federal thresholds, therefore it is not subject to 40 CFR 60 Subparts Cc, Cf, WWW and 40 CFR 63 Subpart AAAA. However, based on the amount of waste, and the year LF-08 was constructed, it is not subject to 40 CFR 60 Subparts Cc, Cf, WWW, and XXX, and 40 CFR 63 Subpart AAAA.

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LF-268 Applicability

LF-268 is still open and it was constructed before 1992. The landfill design capacity is 1.93 million cubic yards (~1.48 million cubic meters). MSW was placed on the northern side of LF-268, next to what used to be LF-08. LF-268 has been a C&D landfill since then.

§60.32c(a): LF-268 is a designated facility as it was constructed before 30 MAY 1991.
§60.32c(c): LF-268 is a C&D landfill. Records indicate that LF-268 cannot hold more than 1.4 million cubic meters of waste. Although LF-268 did not have a design capacity, the volume capacity is less than the threshold of 2.5 million megagrams or 2.5 million cubic meters. Therefore, LF-268 is not subject to 40 CFR 60 Subpart Cc.

40 CFR 60, Subpart Cf
§60.31f(a): LF-268 is a designated facility because it was constructed prior to 17 JUL 2014.
§60.31f(c): LF-268 does not required an TV Permit because the volume capacity is less than the design capacity of 2.5 million megagrams or 2.5 million cubic meters. Therefore, LF-268 is not subject to 40 CFR 60 Subpart Cf.

40 CFR 60, Subpart WWW
§60.750(a): LF-268 was constructed before 30 MAY 1991; therefore, this subpart does not apply.

40 CFR 60, Subpart XXX
§60.760(a): This subpart does not apply to LF-268 because it was not constructed after 17 JUL 2014.

40 CFR 63, Subpart AAAA
§63.1935(a): LF-268 has accepted waste after 1987. However, KAFB is not a major source of HAPS pursuant to §63.1935(a)(1) and (2) and the definition of §63.2, and LF-268 volume capacity is below than 2.5 million megagrams or 2.5 million cubic meters. Therefore, LF-268 is not subject to this subpart.

20.11.71.7 NMAC
LF-08 was constructed before 17 JUL 2014 and has accepted waste after 8 NOV 1987; therefore it meets the definition of "existing MSW landfill" pursuant to 20.11.71.7(C). Therefore, it is subject to 20.11.71.2(A).

In accordance with 20.11.71.14(A), LF-268 must comply with all requirement of 40 CFR 60 Subpart Cc. The design capacity of LF-08 is less than federal thresholds, therefore it is not subject to 40 CFR 60 Subparts Cc, Cf, WWW and 40 CFR 63 Subpart AAAA. However, based on the amount of waste, and the year LF-268 was constructed, LF-268 is not subject to 40 CFR 60 Subparts Cc, Cf, WWW, and XXX, and 40 CFR 63 Subpart AAAA.

Attachment D

Table D-3: Applicable Requirements and Compliance Status

Revised 8 April 2024

Table D-3. Summary of Applicable Requirements by Source Category

Table D-3. Summary of Applicable Requirements by Source Category

Source Category	Applicable Requirements	Compliance Status
External Combustion	20.11.67 NMAC, Equipment, Emissions, Limitations	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
Fuel Dispensing	40 CFR Part 80 Subparts B and C	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	40 CFR Part 63 Subpart CCCCCC, Gasoline Dispensing Facilities	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
Fuel Loading	40 CFR Part 63 Subpart BBBBBB, Gasoline Distribution Bulk Terminals	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
Internal Combustion	20.11.63 NMAC, New Source Performance Standards for Stationary Sources	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.64 NMAC, Emission Standards for Hazardous Air Pollutants for Stationary Sources	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
Landfills	20.11.71 NMAC, Municipal Solid Waste Landfills	LF-08 and LF-268 were constructed before 17 July 2014 and have accepted waste after 8 November 1987; therefore, they meet the definition of an "existing MSW landfill" pursuant to 20.11.71.7(C) and are subject to 20.11.71.12(A). In accordance with 20.11.71.14(A), LF-08 and LF-268 must comply with all requirements of 40 CFR 60 Subpart Cc. The design capacity of LF-08 and LF-268 are less than the federal thresholds, therefore they are not subject to 40 CFR 60 Subparts Cc, Cf, WWW and 40 CFR 63 Subpart AAAA. However, based on the amount of waste or waste capacity, and the year LF-08 and LF-268 were constructed, they are not subject to 40 CFR 60 Subparts Cc, Cf, WWW, and XXX, and 40 CFR 63 Subpart AAAA.
	40 CFR Part 60 Subpart Cc	LF-08 is closed and holds approximately 1.8 million cubic meters of municipal waste. Although it did not

Table D-3. Summary of Applicable Requirements by Source Category

Source Category	Applicable Requirements	Compliance Status
	40 CFR Part 60 Subpart Cc (continued)	have a design capacity, the waste volume is less than the threshold of 2.5 million megagrams or 2.5 million cubic meters. Therefore, it is not subject to 40 CFR 60 Subpart Cc. LF-268 is a C&D landfill. Records indicate that LF-268 cannot hold more than 1.4 million cubic meters of waste. Although LF-268 did not have a design capacity, the volume capacity is less than the threshold of 2.5 million megagrams or 2.5 million cubic meters. Therefore, LF-268 is not subject to 40 CFR 60 Subpart Cc.
	40 CFR Part 60 Subpart Cf	LF-08 does not require a Title V Permit because the amount of waste is less than the design capacity of 2.5 million megagrams or 2.5 million cubic meters. Therefore, LF-08 is not subject to 40 CFR 60 Subpart Cf. LF-268 does not require a Title V Permit because the volume capacity is less than the design capacity of 2.5 million megagrams or 2.5 million cubic meters. Therefore, LF-268 is not subject to 40 CFR 60 Subpart Cf.
	40 CFR Part 60 Subpart WWW	LF-08 and LF-268 were both constructed before 30 May 1991; therefore, this subpart does not apply.
	40 CFR Part 60 Subpart XXX	This subpart does not apply to LF-08 and LF-268 because they were not constructed after 17 July 2014.
	40 CFR Part 63 Subpart AAAA	LF-08 and LF-268 accepted waste after 1987. However, Kirtland AFB is not a major source of HAPS pursuant to §63.1935(a)(1) and (2) and the definition of §63.2, and both LF-08 and LF-268 do not have a design capacity greater than 2.5 million megagrams or 2.5 million cubic meters. Therefore, LF-08 and LF-268 are not subject to this subpart.

Table D-3. Summary of Applicable Requirements by Source Category

Source Category	Applicable Requirements	Compliance Status
Miscellaneous Chemical and Paint Usage	None	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
Remediation	20.11.63 NMAC, New Source Performance Standards for Stationary Sources	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.64 NMAC, Emission Standards for Hazardous Air Pollutants for Stationary Sources	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.65 NMAC, Volatile Organic Compounds	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
Storage Tanks	40 CFR Part 60 Subpart Kb	N/A – Kirtland AFB has no affected facilities. The standard was modified on 15 October 2003 and there are no applicable requirements for storage vessels handling liquid with a vapor pressure <0.51 psia (3.5 kPa) (40 CFR 60.110b(b)).
	20.11.65 NMAC, Volatile Organic Compounds	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
Surface Coating - Paint Booths	None	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
Basewide	20.11.2 NMAC, Fees	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.5 NMAC, Visible Air Contaminants	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.8 NMAC, Ambient Air Quality Standards	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.20 NMAC, Fugitive Dust Control	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.21 NMAC, Open Burning	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application

Table D-3. Summary of Applicable Requirements by Source Category

Source Category	Applicable Requirements	Compliance Status
Basewide (continued)	20.11.22 NMAC, Woodburning	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.23 NMAC, Stratospheric Ozone Protection	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.40 NMAC, Source Registration	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.41 NMAC, Construction Permit	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.42 NMAC, Operating Permits	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.43 NMAC, Stack Height Requirements	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.47 NMAC, Emissions Inventory Requirements	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.49 NMAC, Excess Emissions	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.63 NMAC, New Source Performance Standards for Stationary Sources	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.64 NMAC, Emission Standards for Hazardous Air Pollutants for Stationary Sources	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	40 CFR Part 60 Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	40 CFR Part 60 Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	40 CFR Part 63 Subpart ZZZZ, Stationary Reciprocating Internal Combustion Engines at Area Sources NESHAP	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	40 CFR Part 61 Subpart M, Asbestos NESHAP	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application

Table D-3. Summary of Applicable Requirements by Source Category

Source Category	Applicable Requirements	Compliance Status
Basewide (continued)	20.11.90 NMAC, Administration, Enforcement, Inspection	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.100 NMAC, Motor Vehicle Inspection – Decentralized	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	20.11.101 NMAC, Motor Vehicle Inspection – Centralized	N/A. This regulation is not effective until the EPA issues a notice requiring that inspections become centralized.
	20.11.102 NMAC, Oxygenated Fuels	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	40 CFR Part 82 Subpart B, Stratospheric Ozone Protection Program, Servicing of Motor Vehicle Air Conditioners	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	40 CFR Part 82 Subpart D, Stratospheric Ozone Protection Program, Federal Agencies	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	40 CFR Part 82 Subpart F, Stratospheric Ozone Protection Program, Recycling/Recovery	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application
	40 CFR Parts 89 and 90, Non-Road Engine	Kirtland AFB is in compliance with all applicable requirements at the time of this permit application