DEPARTMENT OF THE AIR FORCE
PACIFIC AIR FORCES

AUG 3 1 2020

MEMORANDUM FOR AK DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Attn: Brittany Crutchfield/Air Permit Intake Technician
555 Cordova Street
Anchorage, AK 99501

FROM: 354 FW/CC
354 Broadway Street Unit 19A
Eielson AFB AK 99702

SUBJECT: Addendum to Title V Renewal Application for Permit #AQ0264TVP02, Revision 5 (AQ0264TVP03A) for United States Air Force, Eielson Air Force Base (EAFB)

1. The United States Air Force (USAF) is submitting an addendum to the application for renewal of its Title V operating permit for EAFB. The original permit application was submitted in October 2017. Specifications and estimated emissions for replaced, removed, and new emission units have been documented with the required forms and are provided as an attachment to this letter.

2. Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete. If you have any questions regarding the information being submitted, please contact Heidi Young, Air Program Manager, at (907) 377-1815 or heidi.young.6@us.af.mil.

BERKLAND.DAVID.J.1146964946 Digitally signed by BERKLAND.DAVID.J.1146964946 Date: 2020.08.27 17:46:17 -08'00'
DAVID J. BERKLAND, Colonel, USAF
Commander

Attachment:
ADEC Forms A1-R, B, B2, and B1

cc:
USEPA Region 10, Air Compliance, 1200 Sixth Avenue, Suite 155, 20-C04, Seattle WA 98101

FORM A1-R

Stationary Source Supplemental Information or Application Revision

Permit Number: AQ0264TVP02, Rev 5

Permit Contact:	Name	David J. Berkland
	Title	Commander
	Mailing Address Line 1	354 FW/CC
	Mailing Address Line 2	354 Broadway St. Unit 19A
	Phone Number	907-377-6101
	Email	david.berkland@us.af.mil

Brief Description of Supplemental Information or Application Revision:

Emission unit detail forms for new and replacement internal combustion equipment (Form B2) and external combustion equipment (Form B1) are provided to be added to permit renewal application information. Supporting emission calculations are included after each respective form. Additionally, potential emission calculations are included for new sources that meet the emission limits for insignificant sources and are not subject to federal regulations or standards that require inclusion in the permit.

Statement of Certification:

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.

DAVID J. BERKLAND

Name of Responsible Official

Commander

Title

DJB

Signature (blue ink)

27 Aug 20

Date

FORM B
Emission Unit Listing For This Application

Permit Number: AQ0264TVP02, Rev 5

EMISSION UNIT LISTING: New, Modified, Previously Unpermitted, Replaced, Deleted					
Emission Unit ID Number	Emission Unit Name	Brief Emission Unit Description	Rating/Size	Construction Date	Notes
Emission Units To Be ADDED By This Application (New, Previously Unpermitted, or Replacement)					
55A		Cummins C40 D6, 4BT3.3-G5 engine	69 hp, 40 kW	Sep 20 (est)	replacement (EUID55)
		Cummins C125D6C, QSB5-G6 engine	208 hp, 125 kW	18 Jun 19	new (EIE 385)
		Cummins C60 D6C, QSB5-G13 engine	173 hp, 60 kW	17 Jun 20	new (EIE 386)
		Burnam C-20 boiler (glycol/water)	0.784 MMBtu/hr	TBD	insignificant
		Burnam C-20 boiler (glycol/water)	0.784 MMBtu/hr	TBD	insignificant
		Burnham Model 4F-50, 240A	1.9 MMBtu/hr	2021	new - sig
		Burnham Model 4F-50, 92A	0.742 MMBtu/hr	2021	insignificant
		Two Kubota Engines, V3300-BG-ET01	48 hp, 36.5 kW	Sep 20	replacing portable
		Three hot water boilers for EIE431	0.5 MMBtu/hr (each)	TBD	insignificant
Emission Units To Be MODIFIED By This Application					
Emission Units To Be DELETED By This Application					
55	North ILS Generator	Onan Diesel Generator	60 kW	1993	being replaced
57 & 58	Conventional Munitions Fire Pumps #1 and #2	Fire Pumps EIE 431	120 hp (each)	1999	removed

FORM B2

Emission Unit Detail Form - Internal Combustion Equipment (Engines and Turbines)

Permit Number: AQ0264TVP02, Rev 5

1.	Emission Unit ID Number // Operating Scenario	55A, Emergency Generator
2.	Date installation/construction commenced[1]	26 Jul 20 (requested)
3.	Date installed	September 2020 (estimated)
4.	Emission Unit serial number	TBD
5.	Special control requirements? [if yes, describe]	None
6.	Manufacturer and model number	Cummins C40 D6, 4BT3.3-G5 engine
7.	Type of combustion device	CI RICE
8.	Rated design capacity (horsepower rating for engines)	69 hp
9.	Rated design capacity (heat input, MMBtu/hr rating for turbines)	
10.	If used for power generation, electrical output (kW)	40 kW

1. See page 2 of the Form B instructions regarding installation/construction date and consult regulations under 40 C.F.R. 60 (NSPS) and 40 C.F.R. 63 (NESHAP) for applicability dates, e.g.,
- NSPS Subparts IIII and JJJJ, and NESHAP Subpart ZZZZ for engines, and
- NSPS Subparts GG and KKKK, and NESHAP Subpart YYYY for turbines.
Note that other regulations may apply in addition to the regulations cited.

11. Fuel usage: [for EACH fuel, enter]:

Fuel	Maximum hourly firing rate (specify units)
Non-Road ULSD	4 gal/hr

12.	Describe any specific modifications to the emission unit that must be addressed in the permit: No modifications will be made to the emission unit. The generator will be installed, operated, and maintained in accordance with manufacturer requirements.

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
Condition 138	18 AAC 50.346 (b)(4)	NOx, CO, PM, SO2, and VOCs	insignificant emission source	NA	Track emergency and non-emergency hours and certify status of insignificance with the annual compliance certification.
Condition 68	40 CFR 60.4200(a), 60.4206, and 60.4211(a)	operations	NA	NA	Operate and maintain in accordance with manufacturer's written instructions for the life of the unit.
Condition 70.2	40 CFR 60.4205(b), 40 CFR 60.4202(a)(2)	NA	emission standards	NA	Maintain manufacturer's certificate of conformity to demonstrate that the emission standards are met for the year the CI ICE was manufactured.
Condition 71	40 CFR 60.4209(a), 60.4214(b), 60.4211(b)	NA	limited non-emergency hours	NA	Install a non-resettable hours meter and track emergency (unlimited) and non-emergency (100 hours). Ensure the engine is labeled as an emergency engine.
NA	40 CFR 60.14, 60.17, and 60.19	NA	NA	NA	General provisions under 40 CFR 60.

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
NA	40 CFR 63.6590(c)(1)	HAPs	NA	NA	A new stationary RICE located at an area source meets the requirements of NESHAP Subpart ZZZZ by complying with the requirements of NSPS Subpart IIII.
NA	40 CFR 60.4204(b), 60.4201	PM, NOx, CO	by purchasing an engine with the appropriate tier for the manufacturer year and installing it in accordance with the manufacturer's instructions	NA	Owners must confirm that the engine is certified for its manufacturer year (2020 EPA Tier 3) and must keep a copy of the certificate of conformity and maintenance records for the engine.
NA	40 CFR 60.12, 60.14, 60.17, 60.19	NA	NA	NA	General provisions under 40 CFR 60.
Condition 38.3	40 CFR 60.4207(b) and 40 CFR 80.510 (b)	SO2	Purchase ULSD (NR) that meets the 15 ppm maximum sulfur content and have a cetane index of 40 or a maximum aromatic content of 35 volume percent	NA	Owners must keep fuel delivery and analysis records and analyze fuel if not provided by the supplier
Condition 51-53	18 AAC 50.326(d)(1), 18 AAC 50.040 (a)(1),40 CFR 60.11 (d) and (g) Subpart A, 40 CFR 60.12	NA	NA	NA	General provisions of 40 CFR 60, Subpart A

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Non-applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Permit Shield Request*):

Non-Applicable Requirements[1]	Reason for non-applicability and citation/basis
Remove EUID 55 references from Permit Conditions 1.4, 10.4, 18, 24, 38, 118, 86, 96, 96.2, 97	EUID 55 is being replaced with an emergency generator that is insignificant based on PTE but subject to 40 CFR 60 Subpart IIII and 40 CFR 63 Subpart ZZZZ. Complies with requirements for new CI RICE, not existing.

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Engine<600hp Emission Calculations

ENGINE SPECIFICATIONS

Source Identification	Rated Capacity Hp	Fuel Type	Rated Capacity MMBtu/yr	Operating Hours (hrs)
EUID 55A	67	ULSD	235	500

using full standby emissions data for criteria pollutants when available

CALCULATIONS

Pollutants	Emission Facotrs[3, 4, 6]		GWP[6]	Estimated Emissions		
		Unit		AP-42 or MB (SO2)	emissions data*	Unit
Criteria						
NO_x	3.10E-02	lb/hp-hr	N/A	0.52	0.11	tpy
CO	6.68E-03	lb/hp-hr	N/A	0.11	0.07	tpy
PM_{10}	2.20E-03	lb/hp-hr	N/A	0.04	6.28E-03	tpy
SO_2	1.11E-05	lb/hp-hr	N/A	3.71E-04	7.38E-03	tpy
VOC	0.00056	lb/hp-hr	N/A	0.01	NA	tpy
GHGs						
CO_2	73.96	kg/MMBtu	1	17.34	NA	metric ton CO_{2e}/yr
CH_4	0.003	kg/MMBtu	21	0.01	NA	metric ton CO_{2e}/yr
N_2O	0.0006	kg/MMBtu	310	0.04	NA	metric ton CO_{2e}/yr
Total GHGs				17		metric ton CO_{2e}/yr
HAPs						
Acetaldehyde	5.369E-06	lb/hp-hr	N/A	8.99E-05	NA	tpy
Acrolein	6.475E-07	lb/hp-hr	N/A	1.08E-05	NA	tpy
Benzene	6.531E-06	lb/hp-hr	N/A	1.09E-04	NA	tpy
1,3-Butadiene	2.737E-07	lb/hp-hr	N/A	4.58E-06	NA	tpy
Formaldehyde	0.00000826	lb/hp-hr	N/A	1.38E-04	NA	tpy
Naphthalene	5.936E-07	lb/hp-hr	N/A	9.94E-06	NA	tpy
Propylene oxide	0.00001806	lb/hp-hr	N/A	3.03E-04	NA	tpy
Toluene	2.863E-06	lb/hp-hr	N/A	4.80E-05	NA	tpy
Xylene (mixed isomers)	1.995E-06	lb/hp-hr	N/A	3.34E-05	NA	tpy
total HAPs				7.47E-04		tpy

**Used the highest emissions of all standby operations tested*

Notes:

1. Based on 18 AAC 50.326(e)
2. Based on 18 AAC 50.502 C(3)
3. All Criteria Emission Factors from AP-42 - Distillate Oil - Engines < 600 hp
4. density of diesel fuel (876 kg/m3)*0.000015 (15 ppm SO2) = EF of 0.0001095 lb/gallon, 0.0001095lb/gal*4 gal/hr*500hr/yr/2000lb/ton*64/32 = tpy
4. Based on an average brake-specific fuel consumption (BSFC) 7,000 Btu/hp-hr (USEPA AP-42 Table 3.3-1)
5. GHGs Emission factors are from Tables C-1 and C-2 of 40 CFR 98 Subpart C.
6. GWP = Global warming potential. Values from 40 CFR 98 Table A-1.

density of ULSD = 7.05 lb/gal

Boiler Emission Calculations - Change in PTE for Generator Replacement (EUID 55)

Source Identification	Rated Capacity Hp	Fuel Type	Rated Capacity MMBtu/yr	Operating Hours (hrs)
EUID55	102	DFA	143	200
EUID55A (replacement)	67	ULSD	235	500

Emission Comparisons

Pollutants	Unit Comparisons		Increase in emissions*	Units
	EUID 55	EUID 55A		
Criteria Pollutants				
NO_x	0.3162	0.1096435	-0.2066	tpy
CO	0.068136	0.0188277	-0.0493	tpy
PM_{10}	0.02244	0.0036917	-0.0187	tpy
SO_2 [4]	0.011305	0.0005907	-0.0107	tpy
VOC	0.02514715	0.00938	-0.0158	tpy
GHGs				
CO_2	11.6418519	17.34362	5.7018	metric ton CO_{2e}/yr
CH_4	0	0.0147735	0.0148	metric ton CO_{2e}/yr
N_2O	0	0.043617	0.0436	metric ton CO_{2e}/yr
Total GHGs	11.6	17.402011	5.7602	metric ton CO_{2e}/yr
HAPs				
Acetaldehyde	5.48E-05	8.993E-05	3.52E-05	tpy
Acrolein	6.60E-06	1.085E-05	4.24E-06	tpy
Benzene	6.66E-05	0.0001094	4.28E-05	tpy
1,3-Butadiene	2.79E-06	4.584E-06	1.79E-06	tpy
Formaldehyde	8.43E-05	0.0001384	5.41E-05	tpy
Naphthalene	6.05E-06	9.943E-06	3.89E-06	tpy
Propylene oxide	0.00018421	0.0003025	1.18E-04	tpy
Toluene	2.9203E-05	4.796E-05	1.88E-05	tpy
Xylene (mixed isome	2.0349E-05	3.342E-05	1.31E-05	tpy
total HAPs	0.00045485	0.0007469	2.92E-04	tpy

*A negative increase is a decrease in emissions.

Notes:

1. Based on 18 AAC 50.326(e)
2. Based on 18 AAC 50.502 C(3)
3. Emission Factors from AP-42 - Distillate Oil - Engines < 600 hp
3. All Criteria Emission Factors from AP-42 - Distillate Oil - Boilers less than 100MMBtu/hr
4. Weight percent sulfur in FS-1 diesel 0.15 wt% S (Title V AQ0264TVP0
5. Fuel Consumption based on Steam Generating Unit
   Heating Value of diesel/JP-8: 137,000 Btu/gal
   Density of JP-8/diesel: 7.05 lb/gal (AP-42, Appendix A)
6. GHGs Emission factors are from Tables C-1 and C-2 of 40 CFR 98 Subpart C.
7. GWP = Global warming potential. Values from 40 CFR 98 Table A-1.

FORM B2

Emission Unit Detail Form - Internal Combustion Equipment (Engines and Turbines)

Permit Number: AQ0264TVP02, Rev 5

1.	Emission Unit ID Number // Operating Scenario	TBD - emergency generator
2.	Date installation/construction commenced[1]	unknown
3.	Date installed	18 Jun 19
4.	Emission Unit serial number	B190503805
5.	Special control requirements? [if yes, describe]	None
6.	Manufacturer and model number	Cummins C125D6C, QSB5-G6 engine
7.	Type of combustion device	CI RICE
8.	Rated design capacity (horsepower rating for engines)	208 hp
9.	Rated design capacity (heat input, MMBtu/hr rating for turbines)	
10.	If used for power generation, electrical output (kW)	125 kW

1. See page 2 of the Form B instructions regarding installation/construction date and consult regulations under 40 C.F.R. 60 (NSPS) and 40 C.F.R. 63 (NESHAP) for applicability dates, e.g.,
- NSPS Subparts IIII and JJJJ, and NESHAP Subpart ZZZZ for engines, and
- NSPS Subparts GG and KKKK, and NESHAP Subpart YYYY for turbines.
Note that other regulations may apply in addition to the regulations cited.

11. Fuel usage: [for EACH fuel, enter]:

Fuel	Maximum hourly firing rate (specify units)
Non-Road ULSD	10.3 gal/hr

12.	Describe any specific modifications to the emission unit that must be addressed in the permit: No modifications will be made to the emission unit. The generator will be installed, operated, and maintained in accordance with manufacturer's written instructions.

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
Condition 138	18 AAC 50.346 (b)(4)	NOx, CO, PM, SO2, and VOCs	insignificant emission source	NA	Track emergency and non-emergency hours and certify status of insignificance with the annual compliance certification.
Condition 68	40 CFR 60.4200(a), 60.4206, and 60.4211(a)	operations	NA	NA	Operate and maintain in accordance with manufacturer's written instructions for the life of the unit.
Condition 70.2	40 CFR 60.4205(b), 40 CFR 60.4202(a)(2)	NA	emission standards	NA	Maintain manufacturer's certificate of conformity to demonstrate that the emission standards are met for the year the CI ICE was manufactured.
Condition 71	40 CFR 60.4209(a), 60.4214(b), 60.4211(b)	NA	limited non-emergency hours	NA	Install a non-resettable hours meter and track emergency (unlimited) and non-emergency (100 hours). Ensure the engine is labeled as an emergency engine.
NA	40 CFR 60.14, 60.17, and 60.19	NA	NA	NA	General provisions under 40 CFR 60.

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
NA	40 CFR 63.6590(c)(1)	HAPs	NA	NA	A new stationary RICE located at an area source meets the requirements of NESHAP Subpart ZZZZ by complying with the requirements of NSPS Subpart IIII.
NA	40 CFR 60.4204(b), 60.4201	PM, NOx, CO	by purchasing an engine with the appropriate tier for the manufacturer year and installing it in accordance with the manufacturer's instructions	NA	Owners must confirm that the engine is certified for its manufacturer year (2020 EPA Tier 3) and must keep a copy of the certificate of conformity and maintenance records for the engine.
NA	40 CFR 60.12, 60.14, 60.17, 60.19	NA	NA	NA	General provisions under 40 CFR 60.
Condition 38.3	40 CFR 60.4207(b) and 40 CFR 80.510 (b)	SO2	Purchase ULSD (NR) that meets the 15 ppm maximum sulfur content and have a cetane index of 40 or a maximum aromatic content of 35 volume percent	NA	Owners must keep fuel delivery and analysis records and analyze fuel if not provided by the supplier
Condition 51-53	18 AAC 50.326(d)(1), 18 AAC 50.040 (a)(1),40 CFR 60.11 (d) and (g) Subpart A, 40 CFR 60.12	NA	NA	NA	General provisions of 40 CFR 60, Subpart A

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Engine<600hp Emission Calculations

Cummins Model QSB5-G6 engine for Generator Set 2017 EPA Tier 3 Emergency Generator using diesel with 0.03-0.05% sulfur content (by weight), and 40-48 cetane number.

Insignificant emissions but subject to 40 CFR 60 Subpart IIII and 40 CFR 63 Subpart ZZZZ

ENGINE SPECIFICATIONS

Source Identification	Rated Capacity BHp	Fuel Type	Fuel Consumption[4] MMBtu/yr	Operating Hours (hrs)
OSS/Weapons/Intel Facility Emergency Generator	208	ULSD	728	500

CALCULATIONS

Pollutants	Emission Facotrs[3, 5]		GWP[6]	Estimated Emissions	
		Unit			Unit
Criteria					
NO_x	5.01	g/Bhp-hr	N/A	0.57	tpy
CO	1.03	g/Bhp-hr	N/A	0.12	tpy
PM_{10}	0.17	g/Bhp-hr	N/A	1.95E-02	tpy
SO_2	mass bal.	NA	N/A	5.45E-04	tpy
VOC	5.60E-04	lb/hp-hr	N/A	0.03	tpy
GHGs					
CO_2	73.25	kg/MMBtu	1	53.33	metric ton CO_{2e}/yr
CH_4	0.003	kg/MMBtu	21	0.05	metric ton CO_{2e}/yr
N_2O	0.0006	kg/MMBtu	310	0.14	metric ton CO_{2e}/yr
Total GHGs				54	metric ton CO_{2e}/yr
HAPs					
Acetaldehyde	5.369E-06	lb/hp-hr	N/A	2.79E-04	tpy
Acrolein	6.475E-07	lb/hp-hr	N/A	3.37E-05	tpy
Benzene	6.531E-06	lb/hp-hr	N/A	3.40E-04	tpy
1,3-Butadiene	2.737E-07	lb/hp-hr	N/A	1.42E-05	tpy
Formaldehyde	0.00000826	lb/hp-hr	N/A	4.30E-04	tpy
Naphthalene	5.936E-07	lb/hp-hr	N/A	3.09E-05	tpy
Propylene oxide	0.00001806	lb/hp-hr	N/A	9.39E-04	tpy
Toluene	2.863E-06	lb/hp-hr	N/A	1.49E-04	tpy
Xylene (mixed isomers)	1.995E-06	lb/hp-hr	N/A	1.04E-04	tpy
total HAPs				2.32E-03	tpy

Notes:
1. Based on 18 AAC 50.326(e)
2. Based on 18 AAC 50.502 C(3)
3. All Criteria Emission Factors except SO2 are from AP-42 - Distillate Oil - Engines < 600 hp
4. Fuel Consumption based on the followings:
   An average brake-specific fuel consumption (BSFC) 7,000 Btu/hp-hr
5. GHGs Emission factors are from Tables C-1 and C-2 of 40 CFR 98 Subpart C.
6. GWP = Global warming potential. Values from 40 CFR 98 Table A-1.

10.3 gal/hr fuel at full standby capacity
453.6 g/lb

FORM B2

Emission Unit Detail Form - Internal Combustion Equipment (Engines and Turbines)

Permit Number: AQ0264TVP02, Rev 5

1.	Emission Unit ID Number // Operating Scenario	TBD - emergency generator
2.	Date installation/construction commenced[1]	unknown
3.	Date installed	17 JUn 20
4.	Emission Unit serial number	I190642518
5.	Special control requirements? [if yes, describe]	None
6.	Manufacturer and model number	Cummins C60D6C, QSB5-G13 engine
7.	Type of combustion device	CI RICE
8.	Rated design capacity (horsepower rating for engines)	173 hp (nameplate)
9.	Rated design capacity (heat input, MMBtu/hr rating for turbines)	
10.	If used for power generation, electrical output (kW)	60kW

1. See page 2 of the Form B instructions regarding installation/construction date and consult regulations under 40 C.F.R. 60 (NSPS) and 40 C.F.R. 63 (NESHAP) for applicability dates, e.g.,
- NSPS Subparts IIII and JJJJ, and NESHAP Subpart ZZZZ for engines, and
- NSPS Subparts GG and KKKK, and NESHAP Subpart YYYY for turbines.
Note that other regulations may apply in addition to the regulations cited.

11. Fuel usage: [for EACH fuel, enter]:

Fuel	Maximum hourly firing rate (specify units)
Non-Road ULSD	6.1 gal/hr

12.	Describe any specific modifications to the emission unit that must be addressed in the permit: No modifications will be made to the emission unit. The generator will be installed, operated, and maintained in accordance with manufacturer's written instructions.

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
Condition 138	18 AAC 50.346 (b)(4)	NOx, CO, PM, SO2, and VOCs	insignificant emission source	NA	Track emergency and non-emergency hours and certify status of insignificance with the annual compliance certification.
Condition 68	40 CFR 60.4200(a), 60.4206, and 60.4211(a)	operations	NA	NA	Operate and maintain in accordance with manufacturer's written instructions for the life of the unit.
Condition 70.2	40 CFR 60.4205(b), 40 CFR 60.4202(a)(2)	NA	emission standards	NA	Maintain manufacturer's certificate of conformity to demonstrate that the emission standards are met for the year the CI ICE was manufactured.
Condition 71	40 CFR 60.4209(a), 60.4214(b), 60.4211(b)	NA	limited non-emergency hours	NA	Install a non-resettable hours meter and track emergency (unlimited) and non-emergency (100 hours). Ensure the engine is labeled as an emergency engine.
NA	40 CFR 60.14, 60.17, and 60.19	NA	NA	NA	General provisions under 40 CFR 60.

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
NA	40 CFR 63.6590(c)(1)	HAPs	NA	NA	A new stationary RICE located at an area source meets the requirements of NESHAP Subpart ZZZZ by complying with the requirements of NSPS Subpart IIII.
NA	40 CFR 60.4204(b), 60.4201	PM, NOx, CO	by purchasing an engine with the appropriate tier for the manufacturer year and installing it in accordance with the manufacturer's instructions	NA	Owners must confirm that the engine is certified for its manufacturer year (2020 EPA Tier 3) and must keep a copy of the certificate of conformity and maintenance records for the engine.
NA	40 CFR 60.12, 60.14, 60.17, 60.19	NA	NA	NA	General provisions under 40 CFR 60.
Condition 38.3	40 CFR 60.4207(b) and 40 CFR 80.510 (b)	SO2	Purchase ULSD (NR) that meets the 15 ppm maximum sulfur content and have a cetane index of 40 or a maximum aromatic content of 35 volume percent	NA	Owners must keep fuel delivery and analysis records and analyze fuel if not provided by the supplier
Condition 51-53	18 AAC 50.326(d)(1), 18 AAC 50.040 (a)(1),40 CFR 60.11 (d) and (g) Subpart A, 40 CFR 60.12	NA	NA	NA	General provisions of 40 CFR 60, Subpart A

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Engine<600hp Emission Calculations

C60D6C Generator Set 2018 EPA Tier 3 Emergency Generator using diesel with 0.03-0.05% sulfur content (by weight), and 40-48 cetane number.

Insignificant emissions but subject to 40 CFR 60 Subpart IIII and 40 CFR 63 Subpart ZZZZ

ENGINE SPECIFICATIONS

Source Identification	Rated Capacity BHp	Fuel Type	Fuel Consumption[4] MMBtu/yr	Operating Hours (hrs)
Consolidated Munitions Facility Emergency Generator	109	ULSD	382	500

(nameplate 173 hp)

CALCULATIONS

Pollutants	Emission Facotrs[3, 5]		GWP[6]	Estimated Emissions	
		Unit			Unit
Criteria					
NO_x	3.00	g/Bhp-hr	N/A	0.18	tpy
CO	1.33	g/Bhp-hr	N/A	0.08	tpy
PM_{10}	0.24	g/Bhp-hr	N/A	0.01	tpy
SO_2	mass bal.	NA	N/A	3.23E-04	tpy
VOC	5.60E-04	lb/hp-hr	N/A	0.02	tpy
GHGs					
CO_2	73.25	kg/MMBtu	1	27.94	metric ton CO_{2e}/yr
CH_4	0.003	kg/MMBtu	21	0.02	metric ton CO_{2e}/yr
N_2O	0.0006	kg/MMBtu	310	0.07	metric ton CO_{2e}/yr
Total GHGs				28	metric ton CO_{2e}/yr
HAPs					
Acetaldehyde	5.369E-06	lb/hp-hr	N/A	1.46E-04	tpy
Acrolein	6.475E-07	lb/hp-hr	N/A	1.76E-05	tpy
Benzene	6.531E-06	lb/hp-hr	N/A	1.78E-04	tpy
1,3-Butadiene	2.737E-07	lb/hp-hr	N/A	7.46E-06	tpy
Formaldehyde	0.00000826	lb/hp-hr	N/A	2.25E-04	tpy
Naphthalene	5.936E-07	lb/hp-hr	N/A	1.62E-05	tpy
Propylene oxide	0.00001806	lb/hp-hr	N/A	4.92E-04	tpy
Toluene	2.863E-06	lb/hp-hr	N/A	7.80E-05	tpy
Xylene (mixed isomers)	1.995E-06	lb/hp-hr	N/A	5.44E-05	tpy
total HAPs				1.22E-03	tpy

Notes:

1. Based on 18 AAC 50.326(e)
2. Based on 18 AAC 50.502 C(3)
3. All Criteria Emission Factors from AP-42 - Distillate Oil - Engines < 600 hp
4. Based on an average brake-specific fuel consumption (BSFC) 7,000 Btu/hp-hr
5. GHGs Emission factors are from Tables C-1 and C-2 of 40 CFR 98 Subpart C.
6. GWP = Global warming potential. Values from 40 CFR 98 Table A-1.

6.1	gal/hr fuel at full standby capacity
453.6	g/lb

FORM B2

Emission Unit Detail Form - Internal Combustion Equipment (Engines and Turbines)

Permit Number: AQ0264TVP02, Rev 5

1.	Emission Unit ID Number // Operating Scenario	TBD - emergency generator
2.	Date installation/construction commenced[1]	unknown - stored in warehouse since 2012
3.	Date installed	TBD
4.	Emission Unit serial number	CA0014
5.	Special control requirements? [if yes, describe]	None
6.	Manufacturer and model number	Kubota V3V3300-BG-ET011 engine (1 of 2)
7.	Type of combustion device	CI RICE
8.	Rated design capacity (horsepower rating for engines)	48.9 hp @1800 RPM
9.	Rated design capacity (heat input, MMBtu/hr rating for turbines)	
10.	If used for power generation, electrical output (kW)	36.5 kW

1. See page 2 of the Form B instructions regarding installation/construction date and consult regulations under 40 C.F.R. 60 (NSPS) and 40 C.F.R. 63 (NESHAP) for applicability dates, e.g.,
- NSPS Subparts IIII and JJJJ, and NESHAP Subpart ZZZZ for engines, and
- NSPS Subparts GG and KKKK, and NESHAP Subpart YYYY for turbines.
Note that other regulations may apply in addition to the regulations cited.

11. Fuel usage: [for EACH fuel, enter]:

Fuel	Maximum hourly firing rate (specify units)
Non-Road ULSD	2.5 gal/hr

12.	Describe any specific modifications to the emission unit that must be addressed in the permit: No modifications will be made to the emission unit. The generator will be installed, operated, and maintained in accordance with manufacturer's written instructions.

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
Condition 138	18 AAC 50.346 (b)(4)	NOx, CO, PM, SO2, and VOCs	insignificant emission source	NA	Track emergency and non-emergency hours and certify status of insignificance with the annual compliance certification.
Condition 68	40 CFR 60.4200(a), 60.4206, and 60.4211(a)	operations	NA	NA	Operate and maintain in accordance with manufacturer's written instructions for the life of the unit.
Condition 70.2	40 CFR 60.4205(b), 40 CFR 60.4202(a)(2)	NA	emission standards	NA	Maintain manufacturer's certificate of conformity to demonstrate that the emission standards are met for the year the CI ICE was manufactured.
Condition 71	40 CFR 60.4209(a), 60.4214(b), 60.4211(b)	NA	limited non-emergency hours	NA	Install a non-resettable hours meter and track emergency (unlimited) and non-emergency (100 hours). Ensure the engine is labeled as an emergency engine.
NA	40 CFR 60.14, 60.17, and 60.19	NA	NA	NA	General provisions under 40 CFR 60.

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
NA	40 CFR 63.6590(c)(1)	HAPs	NA	NA	A new stationary RICE located at an area source meets the requirements of NESHAP Subpart ZZZZ by complying with the requirements of NSPS Subpart IIII.
NA	40 CFR 60.4204(b), 60.4201	PM, NOx, CO	by purchasing an engine with the appropriate tier for the manufacturer year and installing it in accordance with the manufacturer's instructions	NA	Owners must confirm that the engine is certified for its manufacturer year (2020 EPA Tier 3) and must keep a copy of the certificate of conformity and maintenance records for the engine.
NA	40 CFR 60.12, 60.14, 60.17, 60.19	NA	NA	NA	General provisions under 40 CFR 60.
Condition 38.3	40 CFR 60.4207(b) and 40 CFR 80.510 (b)	SO2	Purchase ULSD (NR) that meets the 15 ppm maximum sulfur content and have a cetane index of 40 or a maximum aromatic content of 35 volume percent	NA	Owners must keep fuel delivery and analysis records and analyze fuel if not provided by the supplier
Condition 51-53	18 AAC 50.326(d)(1), 18 AAC 50.040 (a)(1),40 CFR 60.11 (d) and (g) Subpart A, 40 CFR 60.12	NA	NA	NA	General provisions of 40 CFR 60, Subpart A

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

New lift station generators - 2012 Tier 4 engines

Engine<600hp Emission Calculations

Source Identification	Rated Capacity Hp	Fuel Type	Fuel Consumption[4] MMBtu/yr	Operating Hours (hrs)
Lift Station Generator 1 of 2	49	ULSD	171	500

for PTE

@1800RPM

SN: CA0014 Model: V3300-BG-ET01 Family: CKBXL03.3 BCC

Pollutants	Emission Facotrs[3, 5]		GWP[6]	Estimated Emissions	
		Unit			Unit
Criteria					
NO_x *	3.10E-02	lb/hp-hr	N/A	0.13	tpy
CO *	6.68E-03	lb/hp-hr	N/A	0.02	tpy
PM_{10} *	3.30E-03	lb/hp-hr	N/A	3.02E-03	tpy
SO_2	1.11E-05	lb/hp-hr	N/A	2.71E-04	tpy
VOC	0.00056	lb/hp-hr	N/A	0.01	tpy
GHGs					
CO_2	73.25	kg/MMBtu	1	12.54	metric ton CO_{2e}/yr
CH_4	0.003	kg/MMBtu	21	0.01	metric ton CO_{2e}/yr
N_2O	0.0006	kg/MMBtu	310	0.03	metric ton CO_{2e}/yr
Total GHGs				13	metric ton CO_{2e}/yr
HAPs					
Acetaldehyde	5.369E-06	lb/hp-hr	N/A	6.56E-05	tpy
Acrolein	6.475E-07	lb/hp-hr	N/A	7.92E-06	tpy
Benzene	6.531E-06	lb/hp-hr	N/A	7.98E-05	tpy
1,3-Butadiene	2.737E-07	lb/hp-hr	N/A	3.35E-06	tpy
Formaldehyde	0.00000826	lb/hp-hr	N/A	1.01E-04	tpy
Naphthalene	5.936E-07	lb/hp-hr	N/A	7.26E-06	tpy
Propylene oxide	0.00001806	lb/hp-hr	N/A	2.21E-04	tpy
Toluene	2.863E-06	lb/hp-hr	N/A	3.50E-05	tpy
Xylene (mixed isomers	1.995E-06	lb/hp-hr	N/A	2.44E-05	tpy
total HAPs				5.45E-04	tpy

**Calcuations based on emissions data for engine.*

Notes:

1. Based on 18 AAC 50.326(e)
2. Based on 18 AAC 50.502 C(3)
3. Emission Factors from AP-42 - Distillate Oil - Engines < 600 hp used for VOC, mass balance for ULSD used for SO2, manufacturer emission data used for NOx, CO, and PM (assuming all PM is PM10)
4. Fuel Consumption based on the followings:
   An average brake-specific fuel consumption (BSFC) 7,000 Btu/hp-hr
5. GHGs Emission factors are from Tables C-1 and C-2 of 40 CFR 98 Subpart C.
6. GWP = Global warming potential. Values from 40 CFR 98 Table A-1.

FORM B2

Emission Unit Detail Form - Internal Combustion Equipment (Engines and Turbines)

Permit Number: AQ0264TVP02, Rev 5

1.	Emission Unit ID Number // Operating Scenario	TBD - emergency generator
2.	Date installation/construction commenced[1]	unknown - stored in warehouse since 2012
3.	Date installed	TBD
4.	Emission Unit serial number	CA0592
5.	Special control requirements? [if yes, describe]	None
6.	Manufacturer and model number	Kubota V3V3300-BG-ET011 engine (2 of 2)
7.	Type of combustion device	CI RICE
8.	Rated design capacity (horsepower rating for engines)	48.9 hp @1800 RPM
9.	Rated design capacity (heat input, MMBtu/hr rating for turbines)	
10.	If used for power generation, electrical output (kW)	36.5 kW

1. See page 2 of the Form B instructions regarding installation/construction date and consult regulations under 40 C.F.R. 60 (NSPS) and 40 C.F.R. 63 (NESHAP) for applicability dates, e.g.,
- NSPS Subparts IIII and JJJJ, and NESHAP Subpart ZZZZ for engines, and
- NSPS Subparts GG and KKKK, and NESHAP Subpart YYYY for turbines.
Note that other regulations may apply in addition to the regulations cited.

11. Fuel usage: [for EACH fuel, enter]:

Fuel	Maximum hourly firing rate (specify units)
Non-Road ULSD	2.5 gal/hr

12.	Describe any specific modifications to the emission unit that must be addressed in the permit: No modifications will be made to the emission unit. The generator will be installed, operated, and maintained in accordance with manufacturer's written instructions.

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
Condition 138	18 AAC 50.346 (b)(4)	NOx, CO, PM, SO2, and VOCs	insignificant emission source	NA	Track emergency and non-emergency hours and certify status of insignificance with the annual compliance certification.
Condition 68	40 CFR 60.4200(a), 60.4206, and 60.4211(a)	operations	NA	NA	Operate and maintain in accordance with manufacturer's written instructions for the life of the unit.
Condition 70.2	40 CFR 60.4205(b), 40 CFR 60.4202(a)(2)	NA	emission standards	NA	Maintain manufacturer's certificate of conformity to demonstrate that the emission standards are met for the year the CI ICE was manufactured.
Condition 71	40 CFR 60.4209(a), 60.4214(b), 60.4211(b)	NA	limited non-emergency hours	NA	Install a non-resettable hours meter and track emergency (unlimited) and non-emergency (100 hours). Ensure the engine is labeled as an emergency engine.
NA	40 CFR 60.14, 60.17, and 60.19	NA	NA	NA	General provisions under 40 CFR 60.

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
NA	40 CFR 63.6590(c)(1)	HAPs	NA	NA	A new stationary RICE located at an area source meets the requirements of NESHAP Subpart ZZZZ by complying with the requirements of NSPS Subpart IIII.
NA	40 CFR 60.4204(b), 60.4201	PM, NOx, CO	by purchasing an engine with the appropriate tier for the manufacturer year and installing it in accordance with the manufacturer's instructions	NA	Owners must confirm that the engine is certified for its manufacturer year (2020 EPA Tier 3) and must keep a copy of the certificate of conformity and maintenance records for the engine.
NA	40 CFR 60.12, 60.14, 60.17, 60.19	NA	NA	NA	General provisions under 40 CFR 60.
Condition 38.3	40 CFR 60.4207(b) and 40 CFR 80.510 (b)	SO2	Purchase ULSD (NR) that meets the 15 ppm maximum sulfur content and have a cetane index of 40 or a maximum aromatic content of 35 volume percent	NA	Owners must keep fuel delivery and analysis records and analyze fuel if not provided by the supplier
Condition 51-53	18 AAC 50.326(d)(1), 18 AAC 50.040 (a)(1),40 CFR 60.11 (d) and (g) Subpart A, 40 CFR 60.12	NA	NA	NA	General provisions of 40 CFR 60, Subpart A

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

New lift station generators - 2012 Tier 4 engines

Engine<600hp Emission Calculations

Source Identification	Rated Capacity Hp	Fuel Type	Fuel Consumption[4] MMBtu/yr	Operating Hours (hrs)
Lift Station Generator 2 of 2	49	ULSD	171	500

for PTE

@1800RPM

SN: CA0592 Model: V3300-BG-ET01 Family: CKBXL03.3 BCC

Pollutants	Emission Facotrs[3, 5]		GWP[6]	Estimated Emissions	
		Unit			Unit
Criteria					
NO_x *	3.10E-02	lb/hp-hr	N/A	0.13	tpy
CO *	6.68E-03	lb/hp-hr	N/A	0.02	tpy
PM_{10} *	3.30E-03	lb/hp-hr	N/A	3.02E-03	tpy
SO_2	1.11E-05	lb/hp-hr	N/A	2.71E-04	tpy
VOC	0.00056	lb/hp-hr	N/A	0.01	tpy
GHGs					
CO_2	73.25	kg/MMBtu	1	12.54	metric ton CO_{2e}/yr
CH_4	0.003	kg/MMBtu	21	0.01	metric ton CO_{2e}/yr
N_2O	0.0006	kg/MMBtu	310	0.03	metric ton CO_{2e}/yr
Total GHGs				13	metric ton CO_{2e}/yr
HAPs					
Acetaldehyde	5.369E-06	lb/hp-hr	N/A	6.56E-05	tpy
Acrolein	6.475E-07	lb/hp-hr	N/A	7.92E-06	tpy
Benzene	6.531E-06	lb/hp-hr	N/A	7.98E-05	tpy
1,3-Butadiene	2.737E-07	lb/hp-hr	N/A	3.35E-06	tpy
Formaldehyde	0.00000826	lb/hp-hr	N/A	1.01E-04	tpy
Naphthalene	5.936E-07	lb/hp-hr	N/A	7.26E-06	tpy
Propylene oxide	0.00001806	lb/hp-hr	N/A	2.21E-04	tpy
Toluene	2.863E-06	lb/hp-hr	N/A	3.50E-05	tpy
Xylene (mixed isomers	1.995E-06	lb/hp-hr	N/A	2.44E-05	tpy
total HAPs				5.45E-04	tpy

**Calcuations based on emissions data for engine.*

Notes:

1. Based on 18 AAC 50.326(e)
2. Based on 18 AAC 50.502 C(3)
3. Emission Factors from AP-42 - Distillate Oil - Engines < 600 hp used for VOC, mass balance for ULSD used for SO2, manufacturer emission data used for NOx, CO, and PM (assuming all PM is PM10)
4. Fuel Consumption based on the followings:
   An average brake-specific fuel consumption (BSFC) 7,000 Btu/hp-hr
5. GHGs Emission factors are from Tables C-1 and C-2 of 40 CFR 98 Subpart C.
6. GWP = Global warming potential. Values from 40 CFR 98 Table A-1.

FORM B1

Emission Unit Detail Form – External Combustion Equipment (Boilers and Heaters)

Permit Number: AQ0264TVP02, Rev 5

1.	Emission Unit ID Number // Operating Scenario	Process Heater for comfort heat
2.	Date installation/construction commenced	2021 (estimated) TBD
3.	Date installed	2021 (estimated) TBD
4.	Emission Unit serial number	unknown
5.	Special control requirements? [if yes, describe]	none
6.	Manufacturer	Burnam
7.	Description of emission unit, including type of boiler/heater and firing method: This is the larger of two process heaters that will be installed at a firing range under Project #EIE 391. Each vessel will be filled with a glycol/water mixture, which meets the definition of a process heater under 40 CFR 63, and is indirect fired (the stack only includes exhaust from the combustion of the diesel). The heat from diesel combustion is transfered to the glycol/water mixture in the vessel. The glycol/water mixture from the smaller unit heats a slab for sustained building heat. The larger unit transfers the heat from the glycol/water mixture to an air curtain to maintain building heat during range operations.	
8.	Rated design capacity (heat input, MMBtu/hr)	1.9 MMBtu/hr
9.	Maximum steam production rate (lbs/hr)	NA - using glycol and water mixture
10.	Maximum steam pressure (psi)	NA - using glycol and water mixture
11.	Maximum steam temperature (°F)	NA - using glycol and water mixture

12. Fuel usage: [for EACH fuel, enter]:

Fuel	Maximum hourly firing rate (specify units)
diesel (FS-1)	13.8 gal/hr

13.	Is waste heat utilized for any purpose? If yes, describe: No

Applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Applicable Requirements*):

Permit and Condition Number	Applicable Requirement Citation[1]	Parameter/ Pollutant	Limit/Standard/ Requirement	Currently in Compliance?	Monitoring, Recordkeeping and Reporting Methods Used to Demonstrate Compliance
1.2	18 AAC 50.326 (e)	PM	<0.75 tpy to be considered an insignificant source	NA	Operational hours will be tracked to ensure the unit remains insignificant by operating less than 4400 hours per year.
3, 4, 5	18 AAC 50.040(j), 18 AAC 50.326(j), 40 CFR. 71.6(a)(3)(i)	Opacity, permit content and recordkeeping requirements	Observe for 18 minutes within 30 days of triggering a change in status.	NA	Observe exhaust using Method 9 plan or smoke/no smoke plan if unit becomes significant based on operating hours, record observations, and report under Condition 137.
10.2, 12-17	18 AAC 50.040(j), 18 AAC 50.326(j) & (e), 18 AAC 50.346 (c), 40 C.F.R. 71.6(a)(3)	PM	<0.75 tpy to be considered an insignificant source	NA	if actual emissions are considered insignificant by operating no more than 4400 hours per 12-month rolling period, monitoring shall consist of an annual compliance certification in Conditions 38 and 138 with the particulate matter standard. Otherwise, monitor, record and report in accordance with Conditions 12 through 17.
18, 22, 23	18 AAC 50.035 (b)-(c) and 40 CFR 60.17	SO2	fuel sulfur content limit of 0.15 percent sulfur by weight	NA	For each shipment of fuel, keep receipts that specify fuel grade and amount received. Report under Condition 137.

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Non-applicable Requirements Specific to Emission Unit (*attach additional sheets as needed. Form B Supplement - Emission Unit-Specific Permit Shield Request*):

Non-Applicable Requirements[1]	Reason for non-applicability and citation/basis
40 CFR 63 Subpart JJJJJJ applies to boilers. 40 CFR 63.11237 defines boilers and process heaters.	Waste heat boilers, process heaters, and autoclaves are excluded from the definition of Boiler. A process heater is an enclosed device using controlled flame, and the unit's primary purposed is to transfer heat indirectly to a process material (liquid, gas, or solid) or to a heat transfer material (glycol or a mixture of glycol and water) for use in a process unit instead of generating steam or hot water.

[1] Citations must be specific. Include sub-paragraph level detail [e.g. 18 AAC 50.055(a)(1), or 40 C.F.R. 60.332(a)(2).]

Process Heater Emission Calculations based on PTE

Significant based on capacity (>1.7mmBtu/hr, 18 AAC 50.326(g)(7)) or potential emissions, not subject to 40 CFR 63 Subpart JJJJJJ (process heater, not a boiler by definition, glycol and water mixture is heated in vessel)

BOILER SPECIFICATIONS - one of two boilers to be installed at firing range, second boiler at range is insignificant by capacity and therefore, not included in total emissions

Source Identification	Rated Capacity (MMBtu/hr)*	Fuel Type	Fuel Consumption[5] (gallons)	Operating Hours (hrs)*
CATM Range Process Heater 1 of 2	2.2	DFA	139,021	8760

PTE - continuous operations

**Increased rated capacity from manufacturer by15% for calculations, because the combustion of diesel will be heating glycol/water mixture instead of water.*

CALCULATIONS

Pollutants	Emission Factors[3, 6]		GWP[7]	Estimated Emissions	
		Unit			Unit
Criteria					
NO_x	0.0200	lb/gal	N/A	1.39	tpy
CO	0.005	lb/gal	N/A	0.35	tpy
PM_{10}	0.0033	lb/gal	N/A	1.48	tpy
SO_2 [4]	0.0213	lb/gal	N/A	0.23	tpy
VOC	0.00056	lb/gal	N/A	0.04	tpy
GHGs					
CO_2	73.25	kg/MMBtu	1	1,425.66	metric ton CO_{2e}/yr
CH_4	0.003	kg/MMBtu	21	1.23	metric ton CO_{2e}/yr
N_2O	0.0006	kg/MMBtu	310	3.62	metric ton CO_{2e}/yr
Total GHGs				1,431	metric ton CO_{2e}/yr

Notes:

1. Based on 18 AAC 50.326(e)
2. Based on 18 AAC 50.502 C(3)
3. All Criteria Emission Factors from AP-42 - Distillate Oil - Boilers less than 100MMBtu/hr except for SO2
4. Mass balance with weight percent sulfur in diesel (F 0.15 wt% S (Title V #AQ0264TVP02 limit)
5. Fuel Consumption based on Steam Generating Unit
   Heating Value of diesel: 140,000 Btu/gal
   This number was calculated from specifications for the Burnham Series 4FH-50 240A boiler
   Density of diesel: 7.05 lb/gal (AP-42, Appendix A) using diesel as a fuel
6. GHGs Emission factors are from Tables C-1 and C-2 of 40 CFR 98 Subpart C.
7. GWP = Global warming potential. Values from 40 CFR 98 Table A-1.

Boiler Emission Calculations - Insignificant Emission Unit

Based on calculations and operations, the boiler is insignificant under 18 AAC 50 and not subject to 40 CFR 63 Subpart JJJJJJ. Each is a hot water boiler with a capacity of less than 120 gallons (49 gallons). These boilers are not subject to 18 AAC 50.326(g)(7), since the rated capacity of each is less than 1.7 MMBtu/hr and the boilers will use #2 fuel oil.

Source Identification	Rated Capacity (MMBtu/hr)	Fuel Type	Fuel Consumption[5] (gallons)	Operating Hours (hrs)
EIE 431 - Conventional Munitions Maintenance Facility (1 of 3)	0.5	#2 fuel oil	29,784	8760

Emission Calculations for Each Boiler

Pollutants	Emission Factors[3, 6]		GWP[7]	Estimated Emissions	
		Unit			Unit
Criteria					
NO_x	0.0200	lb/gal	N/A	0.30	tpy
CO	0.005	lb/gal	N/A	0.07	tpy
PM_{10}	0.0033	lb/gal	N/A	0.32	tpy
SO_2 [4]	0.0213	lb/gal	N/A	0.05	tpy
VOC	0.00056	lb/gal	N/A	0.01	tpy
GHGs					
CO_2	73.25	kg/MMBtu	1	315.06	metric ton CO_{2e}/yr
CH_4	0.003	kg/MMBtu	21	0.27	metric ton CO_{2e}/yr
N_2O	0.0006	kg/MMBtu	310	0.80	metric ton CO_{2e}/yr
Total GHGs				316	metric ton CO_{2e}/yr

Notes:
1. Based on 18 AAC 50.326(e)
2. Based on 18 AAC 50.502 C(3)
3. All Criteria Emission Factors from AP-42 - Distillate Oil - Boilers less than 100MMBtu/hr
4. Weight percent sulfur in JP-8/diesel 0.15 wt% S (Title V (264TVP02) limit)
5. Fuel Consumption based on Steam Generating Unit
   Heating Value of #2 fuel oil: 140,000 Btu/gal
   Density of JP-8/diesel: 7.05 lb/gal (AP-42, Appendix A)
6. GHGs Emission factors are from Tables C-1 and C-2 of 40 CFR 98 Subpart C.
7. GWP = Global warming potential. Values from 40 CFR 98 Table A-1.
   Based on submittal: 3.4 gal/hr of #2 diesel

Boiler Emission Calculations - Insignificant Emission Unit /

Based on calculations and operations, the boiler is insignificant under 18 AAC 50 and not subject to 40 CFR 63 Subpart JJJJJJ. Each is a hot water boiler with a capacity of less than 120 gallons (49 gallons). These boilers are not subject to 18 AAC 50.326(g)(7), since the rated capacity of each is less than 1.7 MMBtu/hr and the boilers will use #2 fuel oil.

Source Identification	Rated Capacity (MMBtu/hr)	Fuel Type	Fuel Consumption[5] (gallons)	Operating Hours (hrs)
EIE 431 - Conventional Munitions Maintenance Facility (2 of 3)	0.5	#2 fuel oil	29,784	8760

Emission Calculations for Each Boiler

Pollutants	Emission Factors[3, 6]		GWP[7]	Estimated Emissions	
		Unit			Unit
Criteria					
NO_x	0.0200	lb/gal	N/A	0.30	tpy
CO	0.005	lb/gal	N/A	0.07	tpy
PM_{10}	0.0033	lb/gal	N/A	0.32	tpy
SO_2 [4]	0.0213	lb/gal	N/A	0.05	tpy
VOC	0.00056	lb/gal	N/A	0.01	tpy
GHGs					
CO_2	73.25	kg/MMBtu	1	315.06	metric ton CO_{2e}/yr
CH_4	0.003	kg/MMBtu	21	0.27	metric ton CO_{2e}/yr
N_2O	0.0006	kg/MMBtu	310	0.80	metric ton CO_{2e}/yr
Total GHGs				316	metric ton CO_{2e}/yr

Notes:
1. Based on 18 AAC 50.326(e)
2. Based on 18 AAC 50.502 C(3)
3. All Criteria Emission Factors from AP-42 - Distillate Oil - Boilers less than 100MMBtu/hr
4. Weight percent sulfur in JP-8/diesel 0.15 wt% S (Title V (264TVP02) limit)
5. Fuel Consumption based on Steam Generating Unit
   Heating Value of #2 fuel oil: 140,000 Btu/gal
   Density of JP-8/diesel: 7.05 lb/gal (AP-42, Appendix A)
6. GHGs Emission factors are from Tables C-1 and C-2 of 40 CFR 98 Subpart C.
7. GWP = Global warming potential. Values from 40 CFR 98 Table A-1.
   Based on submittal: 3.4 gal/hr of #2 diesel

Boiler Emission Calculations - Insignificant Emission Unit

Based on calculations and operations, the boiler is insignificant under 18 AAC 50 and not subject to 40 CFR 63 Subpart JJJJJJ. Each is a hot water boiler with a capacity of less than 120 gallons (49 gallons). These boilers are not subject to 18 AAC 50.326(g)(7), since the rated capacity of each is less than 1.7 MMBtu/hr and the boilers will use #2 fuel oil.

Source Identification	Rated Capacity (MMBtu/hr)	Fuel Type	Fuel Consumption[5] (gallons)	Operating Hours (hrs)
EIE 431 - Conventional Munitions Maintenance Facility (3 of 3)	0.5	#2 fuel oil	29,784	8760

Emission Calculations for Each Boiler

Pollutants	Emission Factors[3, 6]		GWP[7]	Estimated Emissions	
		Unit			Unit
Criteria					
NO_x	0.0200	lb/gal	N/A	0.30	tpy
CO	0.005	lb/gal	N/A	0.07	tpy
PM_{10}	0.0033	lb/gal	N/A	0.32	tpy
SO_2 [4]	0.0213	lb/gal	N/A	0.05	tpy
VOC	0.00056	lb/gal	N/A	0.01	tpy
GHGs					
CO_2	73.25	kg/MMBtu	1	315.06	metric ton CO_{2e}/yr
CH_4	0.003	kg/MMBtu	21	0.27	metric ton CO_{2e}/yr
N_2O	0.0006	kg/MMBtu	310	0.80	metric ton CO_{2e}/yr
Total GHGs				316	metric ton CO_{2e}/yr

Notes:
1. Based on 18 AAC 50.326(e)
2. Based on 18 AAC 50.502 C(3)
3. All Criteria Emission Factors from AP-42 - Distillate Oil - Boilers less than 100MMBtu/hr
4. Weight percent sulfur in JP-8/diesel 0.15 wt% S (Title V (264TVP02) limit)
5. Fuel Consumption based on Steam Generating Unit
   Heating Value of #2 fuel oil: 140,000 Btu/gal
   Density of JP-8/diesel: 7.05 lb/gal (AP-42, Appendix A)
6. GHGs Emission factors are from Tables C-1 and C-2 of 40 CFR 98 Subpart C.
7. GWP = Global warming potential. Values from 40 CFR 98 Table A-1.
   Based on submittal: 3.4 gal/hr of #2 diesel

Process Heater Emission Calculations based on PTE

Boiler is Insignificant based on PTE and rated capacity (<1.7mmBtu/hr, 18 AAC 50.326(g)(7)) and not subject to 40 CFR 63 Subpart JJJJJJ (process heater not a boiler, heated glycol and water mixture in vessel).

BOILER SPECIFICATIONS - second of two boilers to be installed at range - first is significant based on capacity

Source Identification	Rated Capacity (MMBtu/hr)*	Fuel Type	Fuel Consumption[5] (gallons)	Operating Hours (hrs)
CATM Range Process Heater 2 of 2	0.9	DFA	53,392	8760

**Increased rated capacity by15% because will be heating glycol/water mixture instead of water.*

CALCULATIONS

Pollutants	Emission Factors[3, 6]		GWP[7]	Estimated Emissions	
		Unit			Unit
Criteria					
NO_x	0.0200	lb/gal	N/A	0.53	tpy
CO	0.005	lb/gal	N/A	0.13	tpy
PM_{10}	0.0033	lb/gal	N/A	0.57	tpy
SO_2 [4]	0.0213	lb/gal	N/A	0.09	tpy
VOC	0.00056	lb/gal	N/A	0.01	tpy
GHGs					
CO_2	73.25	kg/MMBtu	1	547.54	metric ton CO_{2e}/yr
CH_4	0.003	kg/MMBtu	21	0.47	metric ton CO_{2e}/yr
N_2O	0.0006	kg/MMBtu	310	1.39	metric ton CO_{2e}/yr
Total GHGs				549	metric ton CO_{2e}/yr

Notes:
1. Based on 18 AAC 50.326(e)
2. Based on 18 AAC 50.502 C(3)
3. All Criteria Emission Factors from AP-42 - Distillate Oil - Boilers less than 100MMBtu/hr
4. Weight percent sulfur in diesel 0.15 wt% S (Title V #AQ0264TVP02 limit)
5. Fuel Consumption based on Steam Generating Unit
   Heating Value of diesel/JP-8: 140,000 Btu/gal
This number was calculated from specifications for the Burnham Series 4FH-50 92A boiler
   Density of JP-8/diesel: 7.05 lb/gal (AP-42, Appendix A) - using diesel as fuel
6. GHGs Emission factors are from Tables C-1 and C-2 of 40 CFR 98 Subpart C.
7. GWP = Global warming potential. Values from 40 CFR 98 Table A-1.

Process Heater Emission Calculations based on PTE

Each of the two boilers are Insignificant based on calculated PTE and rated capacity (<1.7mmBtu/hr, 18 AAC 50.326(g)(7)) and not subject to 40 CFR 63 Subpart JJJJJJ (process heater not a boiler, heated glycol and water mixture).

Boiler Specifications - One of two boilers installed as primary and backup

Source Identification	Rated Capacity (MMBtu/hr)*	Fuel Type	Fuel Consumption[5] (gallons)	Operating Hours (hrs)
Missile Maintenance Facility Process Heater (1 of 2)	0.8	DFA	49,056	8760

**Increased rated capacity by15% because will be heating glycol/water mixture instead of water.*

CALCULATIONS

Pollutants	Emission Factors[3, 6]		GWP[7]	Estimated Emissions	
		Unit			Unit
Criteria					
NO_x	0.0200	lb/gal	N/A	0.49	tpy
CO	0.005	lb/gal	N/A	0.12	tpy
PM_{10}	0.0033	lb/gal	N/A	0.52	tpy
SO_2 [4]	0.0213	lb/gal	N/A	0.08	tpy
VOC	0.00056	lb/gal	N/A	0.01	tpy
GHGs					
CO_2	73.25	kg/MMBtu	1	503.07	metric ton CO_{2e}/yr
CH_4	0.003	kg/MMBtu	21	0.43	metric ton CO_{2e}/yr
N_2O	0.0006	kg/MMBtu	310	1.28	metric ton CO_{2e}/yr
Total GHGs				505	metric ton CO_{2e}/yr

Notes:
1. Based on 18 AAC 50.326(e)
2. Based on 18 AAC 50.502 C(3)
3. All Criteria Emission Factors from AP-42 - Distillate Oil - Boilers less than 100MMBtu/hr
4. Weight percent sulfur in diesel (FS-1) 0.15 wt% S (Title V #AQ0264TVP02 limit)
5. Fuel Consumption based on Steam Generating Unit
   Heating Value of diesel: 140,000 Btu/gal
This number was calculated from specifications for the Burnham C-20 boiler
   Density of diesel: 7.05 lb/gal (AP-42, Appendix A) - using diesel (FS1) as fuel
6. GHGs Emission factors are from Tables C-1 and C-2 of 40 CFR 98 Subpart C.
7. GWP = Global warming potential. Values from 40 CFR 98 Table A-1.

Process Heater Emission Calculations based on PTE

Each of the two boilers are Insignificant based on calculated PTE and rated capacity (<1.7mmBtu/hr, 18 AAC 50.326(g)(7)) and not subject to 40 CFR 63 Subpart JJJJJJ (process heater not a boiler, heated glycol and water mixture).

Boiler Specifications - One of two boilers installed as primary and backup

Source Identification	Rated Capacity (MMBtu/hr)*	Fuel Type	Fuel Consumption[5] (gallons)	Operating Hours (hrs)
Missile Maintenance Facility Process Heater (2 of 2)	0.8	DFA	49,056	8760

**Increased rated capacity by15% because will be heating glycol/water mixture instead of water.*

CALCULATIONS

Pollutants	Emission Factors[3, 6]		GWP[7]	Estimated Emissions	
		Unit			Unit
Criteria					
NO_x	0.0200	lb/gal	N/A	0.49	tpy
CO	0.005	lb/gal	N/A	0.12	tpy
PM_{10}	0.0033	lb/gal	N/A	0.52	tpy
SO_2 [4]	0.0213	lb/gal	N/A	0.08	tpy
VOC	0.00056	lb/gal	N/A	0.01	tpy
GHGs					
CO_2	73.25	kg/MMBtu	1	503.07	metric ton CO_{2e}/yr
CH_4	0.003	kg/MMBtu	21	0.43	metric ton CO_{2e}/yr
N_2O	0.0006	kg/MMBtu	310	1.28	metric ton CO_{2e}/yr
Total GHGs				505	metric ton CO_{2e}/yr

Notes:
1. Based on 18 AAC 50.326(e)
2. Based on 18 AAC 50.502 C(3)
3. All Criteria Emission Factors from AP-42 - Distillate Oil - Boilers less than 100MMBtu/hr
4. Weight percent sulfur in diesel (FS-1) 0.15 wt% S (Title V #AQ0264TVP02 limit)
5. Fuel Consumption based on Steam Generating Unit
   Heating Value of diesel: 140,000 Btu/gal
This number was calculated from specifications for the Burnham C-20 boiler
   Density of diesel: 7.05 lb/gal (AP-42, Appendix A) - using diesel (FS1) as fuel
6. GHGs Emission factors are from Tables C-1 and C-2 of 40 CFR 98 Subpart C.
7. GWP = Global warming potential. Values from 40 CFR 98 Table A-1.