

Attachment 10.1. Permitted Equipment

A PERMITTED EQUIPMENT

1 Building 205, Seawater Filter Building, G-5

1.1 E/S Diesel Engine

<i>Device ID #</i>	114058	<i>Maximum Rated BHP</i>	299.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	5YF04089
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	
<i>Model Year</i>	2000	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	3208		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Filter Building, Building 205 ::		
<i>Note</i>			
<i>Device Description</i>	Emergency engine provides power for the Filter Building.		

2 Building 221, Student Resource Building (SRB), E-1

2.1 Boiler 1

<i>Device ID #</i>	114076	<i>Device Name</i>	Boiler 1
<i>Rated Heat Input</i>	2.070 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Raypak	<i>Serial Number</i>	0505236656
<i>Model</i>	H9-2072A	<i>Rule 361 Status</i>	Existing
<i>Location Note</i>	Added note: E-1, Student Resource, Building 221 :: building 221		
<i>Emission Control Basis</i>	Uncontrolled		
<i>Device</i>	natural draft		
<i>Description</i>	on/off mode		

2.2 Diesel Emergency Standby Generator Engine

<i>Device ID #</i>	114030	<i>Maximum Rated BHP</i>	470.00
<i>Device Name</i>	Diesel Emergency Standby Generator Engine	<i>Serial Number</i>	35121421
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	4CEXL0661AAD
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	
<i>Model Year</i>	2005	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	QSM11-G2		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location</i>	Added note: E-1, Student Resource, Building 221 ::		
<i>Note</i>			
<i>Device</i>	250 kW emergency standby generator located at the Student Resources Building.		
<i>Description</i>	Used for egress lighting. Executive Order: U-R-002-0214-2. Tier II Standards.		

3 Building 223, Theater and Dance

3.1 Benchtop Spray Booth

<i>Device ID #</i>	390201	<i>Device Name</i>	Benchtop Spray Booth
<i>Rated Heat Input</i>		<i>Physical Size</i>	0.33 Horsepower (Electric Motor)
<i>Manufacturer</i>	Paasche	<i>Operator ID</i>	
<i>Model</i>	FABSF-4-T3	<i>Serial Number</i>	
<i>Location Note</i>	Building 223 - Theater and Dance West Building		
<i>Device</i>	4' Shelf Type Spray Booth		
<i>Description</i>	Three-sided. Working Dimensions: 4'W x 3'D x 4'6"H		
	18 inch Fan with Sparkless Aluminum Blade		
	Max flow 2,420 CFM @ 1/4 SP		

4 Building 225, Engineering Science (ESB), D-5

4.1 Boiler #1

<i>Device ID #</i>	388327	<i>Device Name</i>	Boiler #1
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	62512
<i>Model</i>	G2304RL	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>			
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Natural Draft, Full Modulation, Low NOx Burner		
	Replaced device #114072		

4.2 Boiler #3

<i>Device ID #</i>	388329	<i>Device Name</i>	Boiler #3
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B3
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	62492
<i>Model</i>	G2304RL	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>			
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Natural Draft, Full Modulation, Low NOx Burner		
	Replaced Device #114074 and 114075		

4.2.1 Boiler #2

<i>Device ID #</i>	388328	<i>Device Name</i>	Boiler #2
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	62493
<i>Model</i>	G2304RL	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>			
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Natural Draft, Full Modulation, Low NOx Burner		
	Replaced Device #114073		

4.3 E/S Diesel Engine

<i>Device ID #</i>	114057	<i>Maximum Rated BHP</i>	1490.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	37205580
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	2CEXL030.ABA
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	
<i>Model Year</i>	2002	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	QST30-G5-NR1		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Added note: D-5, Engineering Science, Building 225 ::		
<i>Note</i>			
<i>Device Description</i>	Emergency engine provides power for the Engineering Science Building.		

5 Building 226: Henley Hall

5.1 E/S Diesel Engine

<i>Device ID #</i>	393553	<i>Maximum Rated BHP</i>	281.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	45502152
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	KPXL07.0PW1
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	
<i>Model Year</i>	2019	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	C7.1		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location</i>	Henley Hall		
<i>Note</i>			
<i>Device Description</i>	US EPA Tier 3 certified engine. Turbocharged and aftercooled.		

6 Building 235, Life Sciences (LSB), E-4

6.1 Hot Water Boiler

<i>Device ID #</i>	394764	<i>Device Name</i>	Hot Water Boiler
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Lochinvar	<i>Serial Number</i>	2026 118122758
<i>Model</i>	FBN2001	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 235 - Life Sciences Building		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Low-NOx burner, forced draft, full modulation. Replaces DID# 114077. Operates in a stacked configuration with DID# 393445. Equipped with a dedicated pressure and temperature corrected Roots 3M175 rotary fuel meter.		

6.2 Hot-Water Boiler #2

<i>Device ID #</i>	393445	<i>Device Name</i>	Hot-Water Boiler #2
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Parker Boilers	<i>Serial Number</i>	63999
<i>Model</i>	204L-G2304R(L)	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 235 - Life Sciences		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Forced draft hot water boiler, equipped with a Low-NOx burner. Equipped with a dedicated Dresser Roots 3M175 Rotary fuel meter. The unit operates in a stacked configuration with an existing low-use Rule 361 unit (DID# 114077).		

6.3 E/S Diesel Engine

<i>Device ID #</i>	114056	<i>Maximum Rated BHP</i>	768.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	2160050327
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	4VPXL160ACB
<i>Manufacturer</i>	Volvo	<i>Operator ID</i>	
<i>Model Year</i>	2004	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	TAD1631GE		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Added note: E-4, Life Sciences, Building 235 ::		
<i>Note</i>			
<i>Device Description</i>	Emergency engine provides power for the Life Science Building.		

7 Building 250, Mesa Parking Structure, C-3

7.1 E/S Diesel Engine

<i>Device ID #</i>	114055	<i>Maximum Rated BHP</i>	152.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	CD6059T355666
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	John Deere	<i>Operator ID</i>	
<i>Model Year</i>	1998	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	6059TF002		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Added note: C-3, Mesa Parking Building, Building 250 ::		
<i>Note</i>			
<i>Device Description</i>	Emergency engine provides power for the Mesa Parking Structure.		

8 Building 266, Cal. Nanosystems Institute (CNSI), D-6

8.1 Boiler B1

<i>Device ID #</i>	393026	<i>Device Name</i>	Boiler B1
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker Boilers	<i>Serial Number</i>	63501
<i>Model</i>	G-2304RL	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 266		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Hot Water Boiler equipped with a Low-NOx burner and a temperature and pressure corrected fuel meter		

8.2 Boiler B2

<i>Device ID #</i>	393027	<i>Device Name</i>	Boiler B2
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Parker Boilers	<i>Serial Number</i>	63500
<i>Model</i>	G-2304RL	<i>Stacked Unit?</i>	No
<i>Location Note</i>	Building 266		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Hot Water Boiler equipped with a Low-NOx burner and a temperature and pressure corrected fuel meter		

8.3 Boiler B-3

<i>Device ID #</i>	114063	<i>Device Name</i>	Boiler B-3
<i>Rated Heat Input</i>	3.250 MMBtu/Hour	<i>Operator ID</i>	B-3
<i>Manufacturer</i>	Rite Engineering	<i>Serial Number</i>	29491
<i>Model</i>	325WG	<i>Rule 361 Status</i>	Existing
<i>Location Note</i>	Added note: D-6, Elings Hall, Building 266 :: B-266 CNSI on roof		
<i>Emission Control Basis</i>	Uncontrolled		
<i>Device Description</i>	Hot water boiler. PowerFlame C3-G-20 standard 85 ppmv NOx burner. Grouped with two other similar boilers at Building 266 CNSI		

8.4 E/S Diesel Engine

<i>Device ID #</i>	114054	<i>Maximum Rated BHP</i>	2172.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	1GZ01964
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family</i>	4CPXL586ERK
		<i>Name</i>	
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	
<i>Model Year</i>	2004	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	3512		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Added note: D-6, Elings Hall, Building 266 ::		
<i>Note</i>			
<i>Device</i>	Emergency engine provides power for the CNSI Building.		
<i>Description</i>			

9 Building 276, Social Sciences and Media Studies (SSMS), D-3

9.1 Diesel Engine - ESSB

<i>Device ID #</i>	114071	<i>Maximum Rated BHP</i>	398.00
<i>Device Name</i>	Diesel Engine - ESSB	<i>Serial Number</i>	S9L01996
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family</i>	7CPXL08.8ESK
		<i>Name</i>	
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	
<i>Model Year</i>	2007	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	C9		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location</i>	Added note: D-3, Social Sciences and Media Studies, Building 276 :: UCSB -		
<i>Note</i>	Education and Social Sciences Building #276		
<i>Device</i>			
<i>Description</i>			

9.2 Heater 1

<i>Device ID #</i>	114128	<i>Device Name</i>	Heater 1
<i>Rated Heat Input</i>	2.270 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	58859
<i>Model</i>	WH2270L	<i>Rule 361 Status</i>	
<i>Location Note</i>	Added note: D-3, Social Sciences and Media Studies, Building 276 :: building 276		
<i>Emission Control Basis</i>	R361		
<i>Device</i>	natural draft		
<i>Description</i>	on/off mode PUC Natural Gas		

9.3 Heater 2

<i>Device ID #</i>	114129	<i>Device Name</i>	Heater 2
<i>Rated Heat Input</i>	2.270 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	58858
<i>Model</i>	WH2270L	<i>Rule 361 Status</i>	
<i>Location Note</i>	Added note: D-3, Social Sciences and Media Studies, Building 276 :: building 276		
<i>Emission Control Basis</i>	R361		
<i>Device</i>	natural draft		
<i>Description</i>	on/off mode PUC Natural Gas		

10 Building 503, Engineering II, D-5

10.1 Boiler B-1

<i>Device ID #</i>	388948	<i>Device Name</i>	Boiler B-1
<i>Rated Heat Input</i>	1.460 MMBtu/Hour	<i>Operator ID</i>	B-1
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	59157
<i>Model</i>	T1460LR	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 503		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Low-NOx Burner, Flue Gas Recirculation, Forced Draft, Stacked with six (6) Lochinvar boilers in Building 503		

10.2 Boiler B-2

<i>Device ID #</i>	386140	<i>Device Name</i>	Boiler B-2
<i>Rated Heat Input</i>	1.500 MMBtu/Hour	<i>Operator ID</i>	B-2
<i>Manufacturer</i>	Lochinvar	<i>Serial Number</i>	F12H00241473
<i>Model</i>	SBN1500M7	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 503 (Engineering II)		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Stacked hot water boiler. Fired on PUC Gas. Equipped with Low-NOx burner with a 10:1 turndown ratio. Certified by SCAQMD to meet 20 ppmv NOx @ 3% O2. Connected to a shared, pressure and temperature corrected gas meter.		

10.3 **Boiler B-3**

<i>Device ID #</i>	386141	<i>Device Name</i>	Boiler B-3
<i>Rated Heat Input</i>	1.500 MMBtu/Hour	<i>Operator ID</i>	B-3
<i>Manufacturer</i>	Lochinvar	<i>Serial Number</i>	F12H00241471
<i>Model</i>	SBN1500M7	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 503 (Engineering II)		
<i>Emission Control Basis</i>	R360		
<i>Device</i>	Stacked hot water boiler.		
<i>Description</i>	Fired on PUC Gas. Equipped with Low-NOx burner with a 10:1 turndown ratio. Certified by SCAQMD to meet 20 ppmv NOx @ 3% O2. Connected to a shared, pressure and temperature corrected gas meter.		

10.4 **Boiler B-4**

<i>Device ID #</i>	386142	<i>Device Name</i>	Boiler B-4
<i>Rated Heat Input</i>	1.500 MMBtu/Hour	<i>Operator ID</i>	B-4
<i>Manufacturer</i>	Lochinvar	<i>Serial Number</i>	F12h00241472
<i>Model</i>	SBN1500M7	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 503 (Engineering II)		
<i>Emission Control Basis</i>	R360		
<i>Device</i>	Stacked hot water boiler.		
<i>Description</i>	Fired on PUC Gas. Equipped with Low-NOx burner with a 10:1 turndown ratio. Certified by SCAQMD to meet 20 ppmv NOx @ 3% O2. Connected to a shared, pressure and temperature corrected gas meter.		

10.5 Boiler B-5

<i>Device ID #</i>	386143	<i>Device Name</i>	Boiler B-5
<i>Rated Heat</i>	1.500 MMBtu/Hour	<i>Operator ID</i>	B-5
<i>Input</i>		<i>Serial Number</i>	F12H00241477
<i>Manufacturer</i>	Lochinvar		
<i>Model</i>	SBN1500M7	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 503 (Engineering II)		
<i>Emission Control Basis</i>	R360		
<i>Device</i>	Stacked hot water boiler.		
<i>Description</i>	Fired on PUC Gas. Equipped with Low-NOx burner with a 10:1 turndown ratio. Certified by SCAQMD to meet 20 ppmv NOx @ 3% O2. Connected to a shared, pressure and temperature corrected gas meter.		

10.6 Boiler B-6

<i>Device ID #</i>	386144	<i>Device Name</i>	Boiler B-6
<i>Rated Heat</i>	1.500 MMBtu/Hour	<i>Operator ID</i>	B-6
<i>Input</i>		<i>Serial Number</i>	F12H00241470
<i>Manufacturer</i>	Lochinvar		
<i>Model</i>	SBN1500M7	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 503 (Engineering II)		
<i>Emission Control Basis</i>	R360		
<i>Device</i>	Stacked hot water boiler.		
<i>Description</i>	Fired on PUC Gas. Equipped with Low-NOx burner with a 10:1 turndown ratio. Certified by SCAQMD to meet 20 ppmv NOx @ 3% O2. Connected to a shared, pressure and temperature corrected gas meter.		

10.7 Boiler B-7

<i>Device ID #</i>	386145	<i>Device Name</i>	Boiler B-7
<i>Rated Heat Input</i>	1.500 MMBtu/Hour	<i>Operator ID</i>	B-7
<i>Manufacturer</i>	Lochinvar	<i>Serial Number</i>	F12H00241476
<i>Model</i>	SBN1500M7	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 503 (Engineering II)		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Stacked hot water boiler. Fired on PUC Gas. Equipped with Low-NOx burner with a 10:1 turndown ratio. Certified by SCAQMD to meet 20 ppmv NOx @ 3% O2. Connected to a shared, pressure and temperature corrected gas meter.		

10.8 Emergency Backup Generator

<i>Device ID #</i>	114134	<i>Maximum Rated BHP</i>	798.00
<i>Device Name</i>	Emergency Backup Generator	<i>Serial Number</i>	FSE03077
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	9CPXL15.2ESW
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	B-1
<i>Model Year</i>	2009	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	C15		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location Note</i>	Added note: D-5, Engineering II, Building 503 :: Building 503, Engineering II, UCSB		
<i>Device Description</i>	Tier 2, turbocharged, diesel-fired, internal combustion engine equipped with direct diesel injection, a charge air cooler and an engine control module.		

11 Building 505, Events Center, E-2

11.1 Boiler B-1

<i>Device ID #</i>	393029	<i>Device Name</i>	Boiler B-1
<i>Rated Heat Input</i>	1.450 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker Boilers	<i>Serial Number</i>	63804
<i>Model</i>	G-1536RL	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>			
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Hot Water Boiler equipped with a Low-NOx burner and a shared temperature and pressure corrected fuel meter		

11.2 Boiler B-2

<i>Device ID #</i>	393030	<i>Device Name</i>	Boiler B-2
<i>Rated Heat Input</i>	1.450 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Parker Boilers	<i>Serial Number</i>	63803
<i>Model</i>	G-1536RL	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>			
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Hot Water Boiler equipped with a Low-NOx burner and a shared temperature and pressure corrected fuel meter		

12 Building 506, New Classroom Building**12.1 E/S Engine**

<i>Device ID #</i>	395544	<i>Maximum Rated BHP</i>	161.00
<i>Device Name</i>	E/S Engine	<i>Serial Number</i>	TBD
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	MPKXL04.4NR1
<i>Manufacturer</i>	Caterpillar/Perkins	<i>Operator ID</i>	
<i>Model Year</i>	2021	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	C4.4		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	40
<i>Location</i>			
<i>Note</i>			
<i>Device Description</i>	Emergency standby engine/generator set located at Building 506 of UCSB. EPA Tier 3; turbocharged and aftercooled; Family name MPKXL04.4NR1.		

13 Building 511, Multi-Activity Center (MAC), C-3**13.1 E/S Diesel Engine**

<i>Device ID #</i>	114052	<i>Maximum Rated BHP</i>	170.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	46407855
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	4CEXL0359AAF
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	
<i>Model Year</i>	2004	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	6BTA5.9-G4		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Added note: C-3, Recreation Center, Building 511 ::		
<i>Note</i>			
<i>Device Description</i>	Emergency engine provides power for the Recreation Center Expansion.		

14 Building 512, Bioengineering**14.1 E/S Diesel Generator**

<i>Device ID #</i>	388947	<i>Maximum Rated BHP</i>	1881.00
<i>Device Name</i>	E/S Diesel Generator	<i>Serial Number</i>	17394
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	GMVXL49.0BBA
<i>Manufacturer</i>	Mitsubishi	<i>Operator ID</i>	G 512
<i>Model Year</i>	2016	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	S12R-Y2PTAW-1		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location</i>			
<i>Note</i>			
<i>Device</i>	DICE 388947		
<i>Description</i>			

14.2 Boiler #1

<i>Device ID #</i>	394908	<i>Device Name</i>	Boiler #1
<i>Rated Heat Input</i>	4.000 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Camus	<i>Serial Number</i>	061623076
<i>Model</i>	AVNH400	<i>Rule 361 Status</i>	New/Mod
<i>Location Note</i>	512 - Bioengineering		
<i>Emission Control Basis</i>	BACT		
<i>Device</i>	Replacement Low-NOx burner for a Camus Boiler. DID# 388945.		
<i>Description</i>	Forced draft, full modulation. Equipped with a dedicated pressure and temperature corrected Roots 3M175 rotary fuel meter.		

14.3 Boiler #2

<i>Device ID #</i>	394910	<i>Device Name</i>	Boiler #2
<i>Rated Heat Input</i>	4.000 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Camus	<i>Serial Number</i>	061623075
<i>Model</i>	AVNH400	<i>Rule 361 Status</i>	New/Mod
<i>Location Note</i>	512 - Bioengineering		
<i>Emission Control Basis</i>	BACT		
<i>Device</i>	Replacement Low-NOx burner for a Camus Boiler DID# 388946.		
<i>Description</i>	Forced draft, full modulation. Equipped with a dedicated pressure and temperature corrected Roots 3M175 rotary fuel meter.		

14.4 Boiler #6

<i>Device ID #</i>	388933	<i>Device Name</i>	Boiler #6
<i>Rated Heat Input</i>	0.398 MMBtu/Hour	<i>Operator ID</i>	Boiler 6
<i>Manufacturer</i>	Fulton	<i>Serial Number</i>	A77837319
<i>Model</i>	ISC-9.5	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 512		
<i>Emission Control Basis</i>	BACT		
<i>Device</i>	Low-NOx Burner, Flue Gas Recirculation. SCAQMD Certified 20		
<i>Description</i>	ppmv NOx. Stacked Unit		

14.5 Boiler #7

<i>Device ID #</i>	388935	<i>Device Name</i>	Boiler #7
<i>Rated Heat Input</i>	0.398 MMBtu/Hour	<i>Operator ID</i>	Boiler 7
<i>Manufacturer</i>	Fulton	<i>Serial Number</i>	A77837315
<i>Model</i>	ISC-9.5	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 512		
<i>Emission Control Basis</i>	BACT		
<i>Device</i>	Low-NOx Burner, Flue Gas Recirculation. SCAQMD Certified 20		
<i>Description</i>	ppmv NOx. Stacked Unit		

14.6 Boiler #8

<i>Device ID #</i>	388936	<i>Device Name</i>	Boiler #8
<i>Rated Heat Input</i>	0.398 MMBtu/Hour	<i>Operator ID</i>	Boiler 8
<i>Manufacturer</i>	Fulton	<i>Serial Number</i>	A77837311
<i>Model</i>	ISC-9.5	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 512		
<i>Emission Control Basis</i>	BACT		
<i>Device Description</i>	Low-NOx Burner, Flue Gas Recirculation. SCAQMD Certified 20 ppmv NOx. Stacked Unit		

14.7 Boiler #9

<i>Device ID #</i>	388937	<i>Device Name</i>	Boiler #9
<i>Rated Heat Input</i>	0.398 MMBtu/Hour	<i>Operator ID</i>	Boiler 9
<i>Manufacturer</i>	Fulton	<i>Serial Number</i>	A77837324
<i>Model</i>	ISC-9.5	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 512		
<i>Emission Control Basis</i>	BACT		
<i>Device Description</i>	Low-NOx Burner, Flue Gas Recirculation. SCAQMD Certified 20 ppmv NOx. Stacked Unit		

14.8 Boiler #10

<i>Device ID #</i>	388938	<i>Device Name</i>	Boiler #10
<i>Rated Heat Input</i>	0.398 MMBtu/Hour	<i>Operator ID</i>	Boiler 10
<i>Manufacturer</i>	Fulton	<i>Serial Number</i>	A77837316
<i>Model</i>	ISC-9.5	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 512		
<i>Emission Control Basis</i>	BACT		
<i>Device Description</i>	Low-NOx Burner, Flue Gas Recirculation. SCAQMD Certified 20 ppmv NOx. Stacked Unit		

14.9 Boiler #11

<i>Device ID #</i>	388939	<i>Device Name</i>	Boiler #11
<i>Rated Heat Input</i>	0.398 MMBtu/Hour	<i>Operator ID</i>	Boiler 11
<i>Manufacturer</i>	Fulton	<i>Serial Number</i>	A77837325
<i>Model</i>	ISC-9.5	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 512		
<i>Emission Control Basis</i>	BACT		
<i>Device Description</i>	Low-NOx Burner, Flue Gas Recirculation. SCAQMD Certified 20 ppmv NOx. Stacked Unit		

14.10 Boiler #12

<i>Device ID #</i>	388940	<i>Device Name</i>	Boiler #12
<i>Rated Heat Input</i>	0.398 MMBtu/Hour	<i>Operator ID</i>	Boiler 12
<i>Manufacturer</i>	Fulton	<i>Serial Number</i>	A77837308
<i>Model</i>	ISC-9.5	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 512		
<i>Emission Control Basis</i>	BACT		
<i>Device Description</i>	Low-NOx Burner, Flue Gas Recirculation. SCAQMD Certified 20 ppmv NOx. Stacked Unit		

14.11 Boiler #13

<i>Device ID #</i>	388941	<i>Device Name</i>	Boiler #13
<i>Rated Heat Input</i>	0.398 MMBtu/Hour	<i>Operator ID</i>	Boiler 13
<i>Manufacturer</i>	Fulton	<i>Serial Number</i>	A77837322
<i>Model</i>	ISC-9.5	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 512		
<i>Emission Control Basis</i>	BACT		
<i>Device Description</i>	Low-NOx Burner, Flue Gas Recirculation. SCAQMD Certified 20 ppmv NOx. Stacked Unit		

15 Building 515, Humanities & Social Sciences (HSSB), E-2

15.1 Boiler 1

<i>Device ID #</i>	114092	<i>Device Name</i>	Boiler 1
<i>Rated Heat</i>	2.500 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Input</i>		<i>Serial Number</i>	77016
<i>Manufacturer</i>	Bryan	<i>Rule 361 Status</i>	Existing
<i>Model</i>	AB250WFDGWLX		
<i>Location Note</i>	Added note: E-2, Humanities & Social Sciences, Building 515 :: building 515		
<i>Emission Control Basis</i>	Uncontrolled		
<i>Device</i>	forced draft		
<i>Description</i>	full modulation mode		

15.2 Boiler 2

<i>Device ID #</i>	114093	<i>Device Name</i>	Boiler 2
<i>Rated Heat</i>	2.500 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Input</i>		<i>Serial Number</i>	77061
<i>Manufacturer</i>	Bryan	<i>Rule 361 Status</i>	Existing
<i>Model</i>	AB250WFDGWLX		
<i>Location Note</i>	Added note: E-2, Humanities & Social Sciences, Building 515 :: building 515		
<i>Emission Control Basis</i>	Uncontrolled		
<i>Device</i>	forced draft		
<i>Description</i>	full modulation mode		

15.3 Boiler 3

<i>Device ID #</i>	114094	<i>Device Name</i>	Boiler 3
<i>Rated Heat Input</i>	2.500 MMBtu/Hour	<i>Operator ID</i>	B3
<i>Manufacturer</i>	Bryan	<i>Serial Number</i>	77053
<i>Model</i>	AB250WFDGWLX	<i>Rule 361 Status</i>	Existing
<i>Location Note</i>	Added note: E-2, Humanities & Social Sciences, Building 515 :: building 515		
<i>Emission Control Basis</i>	Uncontrolled		
<i>Device</i>	forced draft		
<i>Description</i>	full modulation mode		

15.4 E/S Diesel Engine

<i>Device ID #</i>	114051	<i>Maximum Rated BHP</i>	750.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	71237406
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Detroit Diesel	<i>Operator ID</i>	
<i>Model Year</i>	1995	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	12V71TA		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location Note</i>	Added note: E-2, Humanities & Social Sciences, Building 515 ::		
<i>Device</i>	Emergency engine provides power for the Humanities and Social Services Building.		
<i>Description</i>			

16 Building 516, Recreation Center, C-3

16.1 Boiler #1

<i>Device ID #</i>	393622	<i>Device Name</i>	Boiler #1
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B5
<i>Manufacturer</i>	Cleaver Brooks	<i>Serial Number</i>	604297800308
<i>Model</i>	CFCE700-2000-125HW	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 516		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	forced draft, fully modulated hot water boiler. low-NOx burner. Equipped with a shared temperature and pressure corrected fuel meter. Stacked with DID# 363623 and #363624		

16.2 Boiler #2

<i>Device ID #</i>	393623	<i>Device Name</i>	Boiler #2
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B6
<i>Manufacturer</i>	Cleaver Brooks	<i>Serial Number</i>	604297800307
<i>Model</i>	CFCE700-2000-125HW	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 516		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	forced draft, fully modulated hot water boiler. low-NOx burner. Equipped with a shared temperature and pressure corrected fuel meter. Stacked with DID# 363622 and #363624		

16.3 Boiler #3

<i>Device ID #</i>	393624	<i>Device Name</i>	Boiler #3
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B7
<i>Manufacturer</i>	Cleaver Brooks	<i>Serial Number</i>	604297800309
<i>Model</i>	CFCE700-2000-125HW	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 516		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	forced draft, fully modulated hot water boiler. low-NOx burner. Equipped with a shared temperature and pressure corrected fuel meter. Stacked with DID# 363622 and #363623		

16.4 E/S Diesel Engine

<i>Device ID #</i>	114050	<i>Maximum Rated BHP</i>	68.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	45027206
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	
<i>Model Year</i>	1994	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	4B3.9-G		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location Note</i>	Added note: C-3, Recreation Center, Building 516 ::		
<i>Device Description</i>	Emergency engine provides power for the Recreation Center.		

17 Building 520, Marine Science Institute (MSRB), E-5

17.1 Boiler 1

<i>Device ID #</i>	114084	<i>Device Name</i>	Boiler 1
<i>Rated Heat Input</i>	4.600 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	54936
<i>Model</i>	T4600LR	<i>Rule 361 Status</i>	Existing
<i>Location Note</i>	Added note: E-5, Marine Science Institute, Building 520 :: building 520		
<i>Emission Control Basis</i>	Uncontrolled		
<i>Device</i>	natural draft		
<i>Description</i>	full modulation mode		

17.2 E/S Diesel Engine

<i>Device ID #</i>	114049	<i>Maximum Rated BHP</i>	755.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	79011459
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	3CEXL015ABA
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	
<i>Model Year</i>	2003	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	QSX15-G9		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location Note</i>	Added note: E-5, Marine Science Institute, Building 520 ::		
<i>Device</i>	Emergency engine provides power for the Marine Science Building.		
<i>Description</i>			

18 Building 521, Bren Hall, E-5

18.1 Boiler 1

<i>Device ID #</i>	114085	<i>Device Name</i>	Boiler 1
<i>Rated Heat Input</i>	2.970 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	52867
<i>Model</i>	T2970LR	<i>Rule 361 Status</i>	Existing
<i>Location Note</i>	Added note: E-5, Bren Hall, Building 521 :: building 521		
<i>Emission Control Basis</i>	Uncontrolled		
<i>Device</i>	natural draft		
<i>Description</i>	full modulation mode		

18.2 E/S Diesel Engine

<i>Device ID #</i>	114048	<i>Maximum Rated BHP</i>	535.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	30364491
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	
<i>Model Year</i>	2003	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	NTA-855-G3		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location Note</i>	Added note: E-5, Bren Hall, Building 521 ::		
<i>Device</i>	Emergency engine provides power for the Bren School of Environmental Science and Management Building.		
<i>Description</i>			

19 Building 525, Davidson Library, E-4

19.1 Hot-Water Boiler #1

<i>Device ID #</i>	393439	<i>Device Name</i>	Hot-Water Boiler #1
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker Boilers	<i>Serial Number</i>	63993
<i>Model</i>	204L-G2304R(L)	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 525 - Davidson Library		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Forced draft hot water boiler, equipped with a Low-NOx burner. The default rating method is used for fuel usage.		

19.2 Hot-Water Boiler #2

<i>Device ID #</i>	393440	<i>Device Name</i>	Hot-Water Boiler #2
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Parker Boilers	<i>Serial Number</i>	63994
<i>Model</i>	204L-G2304R(L)	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 525 - Davidson Library		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Forced draft hot water boiler, equipped with a Low-NOx burner. The default rating method is used for fuel usage.		

19.3 E/S Diesel Generator

<i>Device ID #</i>	386852	<i>Maximum Rated BHP</i>	762.00
<i>Device Name</i>	E/S Diesel Generator	<i>Serial Number</i>	FTE01713
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	ECPXL15.2NZS
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	
<i>Model Year</i>	2014	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	C15		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location Note</i>	UCSB Davidson Library, Building 525		
<i>Device Description</i>	Tier 2, turbocharged, diesel-fired internal combustion engine with aftercooler.		

20 Building 526, Webb Hall

20.1 Boiler 1

<i>Device ID #</i>	387978	<i>Device Name</i>	Boiler 1
<i>Rated Heat Input</i>	1.410 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	53909
<i>Model</i>	WH1410		
<i>Location Note</i>	Building 526		
<i>Emission Control Basis</i>	NA		
<i>Device Description</i>	uncontrolled existing unit, Natural Draft, stacked with device 387979		

20.2 Boiler 2

<i>Device ID #</i>	387979	<i>Device Name</i>	Boiler 2
<i>Rated Heat Input</i>	1.410 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	53910
<i>Model</i>	WH1410		
<i>Location Note</i>	Building 526		
<i>Emission Control Basis</i>	NA		
<i>Device Description</i>	uncontrolled existing unit, Natural Draft, stacked with device 387978		

20.3 E/S Engine

<i>Device ID #</i>	393041	<i>Maximum Rated BHP</i>	96.00
<i>Device Name</i>	E/S Engine	<i>Serial Number</i>	E5G04793
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	JPKXL04.4NP1
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	G 526
<i>Model Year</i>	2018	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	1104D-E44T (C4.4)		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location</i>			
<i>Note</i>			
<i>Device</i>	EPA Certified Tier 3 Engine		
<i>Description</i>	Turbocharged		

21 Building 528, South Hall, E-3**21.1 Boiler 1**

<i>Device ID #</i>	393266	<i>Device Name</i>	Boiler 1
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	63767
<i>Model</i>	G2304RL	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 528		
<i>Emission Control Basis</i>	R360		
<i>Device</i>	Hot water boiler, equipped with a Low-NOx burner. Replaces		
<i>Description</i>	existing Rule 361 unit at building 528. Unit installed in 2018, subject to Rule 360 Table 1 emission limits.		

21.2 **Boiler 2**

<i>Device ID #</i>	387629	<i>Device Name</i>	Boiler 2
<i>Rated Heat Input</i>	1.500 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Bryan Boiler	<i>Serial Number</i>	83759
<i>Model</i>	AB150-W-FDG-LX	<i>Stacked Unit?</i>	No
<i>Location Note</i>	E-3, South Hall, Building 528 :: building 528		
<i>Emission Control Basis</i>	NA		
<i>Device</i>	Forced Draft		
<i>Description</i>	Full Modulation Flue Gas Recirculation Unit Manufactured in 1999		

22 **Building 529, Main Sewage Pump, D-6**

22.1 **E/S Diesel Engine**

<i>Device ID #</i>	393551	<i>Maximum Rated BHP</i>	324.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	74508659
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	KCEXL0409AAD
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	G 529-01
<i>Model Year</i>	2019	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	QSB7		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location</i>	Sewage Lift Station – Bldg. 529		
<i>Note</i>			
<i>Device</i>	US EPA certified Tier 3 diesel generator. No after-treatment controls installed.		
<i>Description</i>	Turbocharged and aftercooled. Emergency engine provides power for the main sewage pump at the East Gate. Replaced DID# 114031.		

22.2 E/S Diesel Engine

<i>Device ID #</i>	393552	<i>Maximum Rated BHP</i>	324.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	74508336
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	KCEXL0409AAD
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	G 529-02
<i>Model Year</i>	2019	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	QSB7		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location</i>	Sewage Lift Station – Bldg. 529		
<i>Note</i>			
<i>Device Description</i>	US EPA certified Tier 3 diesel generator. No after-treatment controls installed. Turbocharged and aftercooled. Emergency engine provides power for the main sewage pump at the East Gate. Replaced DID# 114032.		

23 Building 531, Lotte Lehmann Concert Hall, E-3**23.1 E/S Diesel Engine**

<i>Device ID #</i>	394710	<i>Maximum Rated BHP</i>	69.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	72046732
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	KCEXL03.3BAA
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	G 531
<i>Model Year</i>	2019	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	4BT3.3-G5		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location</i>	Building 531 - Music and Lotte Lehmann Concert Hall		
<i>Note</i>			
<i>Device Description</i>	Tier 3 E/S DICE. Turbocharged/aftercooled		

24 Building 533, Rob Gym

24.1 Boiler 4

<i>Device ID #</i>	387982	<i>Device Name</i>	Boiler 4
<i>Rated Heat Input</i>	1.900 MMBtu/Hour	<i>Operator ID</i>	B4
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	53109
<i>Model</i>	WH1900		
<i>Location Note</i>	Building 533		
<i>Emission Control Basis</i>	NA		
<i>Device Description</i>	uncontrolled existing unit, Natural Draft, On/Off Mode, stacked with device 387983		

24.2 Boiler 3

<i>Device ID #</i>	387983	<i>Device Name</i>	Boiler 3
<i>Rated Heat Input</i>	1.900 MMBtu/Hour	<i>Operator ID</i>	B3
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	53108
<i>Model</i>	WH1900		
<i>Location Note</i>	Building 533		
<i>Emission Control Basis</i>	NA		
<i>Device Description</i>	uncontrolled existing unit, Natural Draft, On/Off Mode, stacked with device 387982		

24.3 Boiler 2

<i>Device ID #</i>	387981	<i>Device Name</i>	Boiler 2
<i>Rated Heat Input</i>	1.900 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	53111
<i>Model</i>	WH1900		
<i>Location Note</i>	Building 533		
<i>Emission Control Basis</i>	NA		
<i>Device Description</i>	uncontrolled existing unit, Natural Draft, On/Off Mode, stacked with device 387980		

24.4 Boiler 1

<i>Device ID #</i>	387980	<i>Device Name</i>	Boiler 1
<i>Rated Heat Input</i>	1.900 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	53110
<i>Model</i>	WH1900		
<i>Location Note</i>	Building 533		
<i>Emission Control Basis</i>	NA		
<i>Device Description</i>	uncontrolled existing unit, Natural Draft, On/Off Mode, stacked with device 387981		

25 Building 534, Arts (Art Museum), E-3,

25.1 Boiler B-1

<i>Device ID #</i>	114710	<i>Device Name</i>	Boiler B-1
<i>Rated Heat Input</i>	2.970 MMBtu/Hour	<i>Operator ID</i>	B-1
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	60806
<i>Model</i>	T-2970LR	<i>Rule 361 Status</i>	New/Mod
<i>Location Note</i>	E-3, Arts (Art Museum), Building 534		
<i>Emission Control Basis</i>	R361		
<i>Device Description</i>	Hot Water Boiler Fired on PUC gas Forced Draft Full Modulation		

25.2 Boiler B-2

<i>Device ID #</i>	114711	<i>Device Name</i>	Boiler B-2
<i>Rated Heat Input</i>	2.970 MMBtu/Hour	<i>Operator ID</i>	B-2
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	60805
<i>Model</i>	T-2970LR	<i>Rule 361 Status</i>	New/Mod
<i>Location Note</i>	E-3, Arts (Art Museum), Building 534		
<i>Emission Control Basis</i>	R361		
<i>Device</i>	Hot Water Boiler		
<i>Description</i>	Fired on PUC gas Forced Draft Full Modulation		

25.3 Hot-Water Boiler #1

<i>Device ID #</i>	393444	<i>Device Name</i>	Hot-Water Boiler #1
<i>Rated Heat Input</i>	2.600 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker Boilers	<i>Serial Number</i>	64023
<i>Model</i>	204L-G2640R(L)	<i>Rule 361 Status</i>	New/Mod
<i>Location Note</i>	Building 534		
<i>Emission Control Basis</i>	R361		
<i>Device</i>	Forced draft hot water boiler, equipped with a Low-NOx burner. Unit		
<i>Description</i>	de-rated by manufacturer to 2.600 MMBtu/hr from 2.640 MMBtu/hr using a preprogrammed Variable Frequency Drive to control fan speed and maximum inlet gas flow.		

26 Building 535, North Hall, D-4

26.1 E/S Diesel-fired Generator

<i>Device ID #</i>	114139	<i>Maximum Rated BHP</i>	755.00
<i>Device Name</i>	E/S Diesel-fired Generator	<i>Serial Number</i>	79468706
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	BCEXL015.AAJ
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	
<i>Model Year</i>	2011	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	QSX15-G9 NR2		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location</i>	Added note: D-4, North Hall, Building 535 :: UCSB North Hall Data Center		
<i>Note</i>	Building 535, Santa Barbara, 93106		
<i>Device</i>	Direct Diesel Injection, Turbocharger, Charge Air Cooler, Engine Control		
<i>Description</i>	Module		

27 Building 542, Ortega Dining Common, F-3

28 Building 544, Noble Hall, E-4

28.1 Boiler 1

<i>Device ID #</i>	114079	<i>Device Name</i>	Boiler 1
<i>Rated Heat Input</i>	2.600 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	58121
<i>Model</i>	T2600L	<i>Rule 361 Status</i>	Existing
<i>Location Note</i>	Added note: E-4, Noble Hall, Building 544 :: building 544		
<i>Emission Control Basis</i>	Uncontrolled		
<i>Device</i>	natural draft		
<i>Description</i>	on/off mode		

28.2 Boiler 2

<i>Device ID #</i>	114080	<i>Device Name</i>	Boiler 2
<i>Rated Heat Input</i>	2.600 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	58120
<i>Model</i>	T2600L	<i>Rule 361 Status</i>	Existing
<i>Location Note</i>	Added note: E-4, Noble Hall, Building 544 :: building 544		
<i>Emission Control Basis</i>	Uncontrolled		
<i>Device</i>	natural draft		
<i>Description</i>	on/off mode		

28.3 E/S Diesel Engine

<i>Device ID #</i>	114047	<i>Maximum Rated BHP</i>	382.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	9NR04906
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	iYCPXL105MRD
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	
<i>Model Year</i>	2001	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	3306		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Added note: E-4, Noble Hall, Building 544 ::		
<i>Note</i>			
<i>Device</i>	Emergency engine provides power for Noble Hall.		
<i>Description</i>			

29 Building 548, Santa Cruz, F-5

30 Building 549, De La Guerra (DLG), F-4

30.1 Boiler 1

<i>Device ID #</i>	393267	<i>Device Name</i>	Boiler 1
<i>Rated Heat Input</i>	2.940 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	63950
<i>Model</i>	105L-70	<i>Rule 361 Status</i>	New/Mod
<i>Location Note</i>	Building 549		
<i>Emission Control Basis</i>	R361		
<i>Device Description</i>	Steam boiler, equipped with a Low-NOx burner. Replaces an existing Rule 361 unit at building 549.		

30.2 Boiler 2

<i>Device ID #</i>	393268	<i>Device Name</i>	Boiler 2
<i>Rated Heat Input</i>	2.940 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	63946
<i>Model</i>	105L-70	<i>Rule 361 Status</i>	New/Mod
<i>Location Note</i>	Building 549		
<i>Emission Control Basis</i>	R361		
<i>Device Description</i>	Steam boiler, equipped with a Low-NOx burner. Replaces an existing Rule 361 unit at building 549.		

30.3 E/S Diesel Engine

<i>Device ID #</i>	114046	<i>Maximum Rated BHP</i>	292.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	6D16-965772
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Mitsubishi	<i>Operator ID</i>	
<i>Model Year</i>	2004	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	OD5703		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location Note</i>	Added note: F-4, De La Guerra, Building 549 ::		
<i>Device Description</i>	Emergency engine provides power for De La Guerra.		

31 Building 551, Psychology, E-4

31.1 Boiler 1

<i>Device ID #</i>	393269	<i>Device Name</i>	Boiler 1
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	63968
<i>Model</i>	G2304RL	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Bldg. 551		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Hot water boiler, equipped with a Low-NOx burner. Replaces an existing Rule 361 boiler (DID# 114100).		

31.2 Boiler 2

<i>Device ID #</i>	393270	<i>Device Name</i>	Boiler 2
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	63975
<i>Model</i>	G2304RL	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Bldg. 551		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Hot water boiler, equipped with a Low-NOx burner. Replaces an existing Rule 361 boiler (DID# 114101).		

31.3 E/S Diesel Engine

<i>Device ID #</i>	114045	<i>Maximum Rated BHP</i>	263.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	5YF02203
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	
<i>Model Year</i>	1995	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	T2160		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Added note: E-4, Psychology, Building 551 ::		
<i>Note</i>			
<i>Device Description</i>	Emergency engine provides power for the Psychology Building.		

32 Building 552, Cheadle Hall**32.1 Boiler 1**

<i>Device ID #</i>	393593	<i>Device Name</i>	Boiler 1
<i>Rated Heat Input</i>	1.536 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker Boilers	<i>Serial Number</i>	64090
<i>Model</i>	G-1536RL	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 552		
<i>Emission Control Basis</i>	BACT		
<i>Device Description</i>	Hot-Water boiler equipped with a low-NOx burner. Stacked with DID# 393594.		

32.2 Boiler 2

<i>Device ID #</i>	393594	<i>Device Name</i>	Boiler 2
<i>Rated Heat Input</i>	1.536 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Parker Boilers	<i>Serial Number</i>	64091
<i>Model</i>	G-1536RL	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 552		
<i>Emission Control Basis</i>	BACT		
<i>Device Description</i>	Hot-Water boiler equipped with a low-NOx burner. Stacked with DID# 393593.		

33 Building 553, San Miguel Hall, F-3

33.1 Boiler #1

<i>Device ID #</i>	393625	<i>Device Name</i>	Boiler #1
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker Boilers	<i>Serial Number</i>	64168
<i>Model</i>	204L-G2304R(L)	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 553		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Hot water boiler. Forced draft/fully modulated. Low-NOx burner. Operates in a stacked configuration with DID 393626. Equipped with a shared fuel meter.		

33.2 Boiler #2

<i>Device ID #</i>	393626	<i>Device Name</i>	Boiler #2
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker Boilers	<i>Serial Number</i>	64169
<i>Model</i>	204L-G2304R(L)	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 553		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Hot water boiler. Forced draft/fully modulated. Low-NOx burner. Operates in a stacked configuration with DID 393625. Equipped with a shared fuel meter.		

33.3 Emergency Backup Generator

<i>Device ID #</i>	114064	<i>Maximum Rated BHP</i>	64.00
<i>Device Name</i>	Emergency Backup Generator	<i>Serial Number</i>	PE5030T083313
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	5DJXL03.0063
<i>Manufacturer</i>	John Deere	<i>Operator ID</i>	
<i>Model Year</i>	2005	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	5030TF270		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location Note</i>	Added note: F-3, San Miguel, Building 553 :: Building #553, San Miguel Hall, UCSB		
<i>Device Description</i>	Turbocharged, diesel-fired, internal combustion engine.		

34 Building 554, Hatlen Theater, E-2

34.1 Hot-Water Boiler #1

<i>Device ID #</i>	393442	<i>Device Name</i>	Hot-Water Boiler #1
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker Boilers	<i>Serial Number</i>	64027
<i>Model</i>	204L-G2304R(L)	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 554 - Theater and Dance		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Forced draft hot water boiler, equipped with a Low-NOx burner.		

34.2 Hot-Water Boiler #2

<i>Device ID #</i>	393443	<i>Device Name</i>	Hot-Water Boiler #2
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Parker Boilers	<i>Serial Number</i>	64024
<i>Model</i>	204L-G2304R(L)	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 554		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Forced draft hot water boiler, equipped with a Low-NOx burner.		

34.3 E/S Diesel Engine

<i>Device ID #</i>	394712	<i>Device Name</i>	E/S Diesel Engine
<i>Rated Heat Input</i>	0.489 MMBtu/Hour	<i>Physical Size</i>	69.00 Horsepower
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	G 554
<i>Model</i>	4BT3.3-G5	<i>Serial Number</i>	72046028
<i>Location Note</i>	Building 554 - Theater and Dance East & Hatlen Theater		
<i>Device Description</i>	Tier 3 E/S DICE. Turbocharged/aftercooled		

35 Building 555, Marine Biotechnology Laboratory (MBL), G-5

35.1 Aboveground Storage Tank

<i>Device ID #</i>	114067	<i>Device Name</i>	Aboveground Storage Tank
<i>Rated Heat Input</i>		<i>Physical Size</i>	500.00 Gallons
<i>Manufacturer</i>	Convault	<i>Operator ID</i>	
<i>Model</i>	RN0002SF	<i>Serial Number</i>	M234301
<i>Location Note</i>	Added note: G-5, Marine Biotechnology Laboratory, Building 555 ::		
<i>Device Description</i>	Equipped with Phase I Vapor Recovery G-70-102-A. Equipped with Phase II Pre-EVR under G-70-52-AM installed under ATC 16577		

35.2 E/S Diesel Engine

<i>Device ID #</i>	114033	<i>Maximum Rated BHP</i>	355.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	11483997
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	
<i>Model Year</i>	1988	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	NT-855-G2		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Added note: G-5, Marine Biotechnology Laboratory, Building 555 ::		
<i>Note</i>			
<i>Device Description</i>	Emergency engine provides power for the Marine Science and Biotech Seawater Laboratory.		

35.3 Gasoline Dispenser

<i>Device ID #</i>	399834	<i>Device Name</i>	Gasoline Dispenser
<i>Rated Heat Input</i>		<i>Physical Size</i>	1.00 Phase II nozzles
<i>Manufacturer</i>	Fill-Rite	<i>Operator ID</i>	
<i>Model</i>	FR702VR	<i>Serial Number</i>	TBD
<i>Location Note</i>	Added note: G-5, Marine Biotechnology Laboratory, Building 555 ::		
<i>Device Description</i>	Dispenser has Fill-Rite cabinet pump unit. Model #FR702R. Equipped with Phase II pre-EVR controls, originally permitted under ATC 16577 per the conditional approval of the Risk Reduction Audit and Plan for UCSB under AB2588		

36 Building 556, Harold Frank Hall, E-5

36.1 E/S Diesel Engine

<i>Device ID #</i>	114044	<i>Maximum Rated BHP</i>	277.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	44352939
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	
<i>Model Year</i>	1989	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	6CTA-8.3-G		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Added note: E-5, Engineering I (Harold Frank Hall), Building 556 ::		
<i>Note</i>			
<i>Device</i>	Emergency engine provides power for the Engineering I Building.		
<i>Description</i>			

37 Building 557, Chemistry, D-5

37.1 E/S Diesel Engine

<i>Device ID #</i>	114043	<i>Maximum Rated BHP</i>	519.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	4ZR01873
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	
<i>Model Year</i>	1996	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	3406		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Added note: D-5, Physical Sciences, Building 557 ::		
<i>Note</i>			
<i>Device</i>	Emergency engine provides power for the Chemistry Building.		
<i>Description</i>			

38 Building 558, University Center (UCen), 558F-3

38.1 Hot-Water Boiler #1

<i>Device ID #</i>	393447	<i>Device Name</i>	Hot-Water Boiler #1
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Cleaver Brooks	<i>Serial Number</i>	604297800235
<i>Model</i>	CFC-E2000	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 558		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Forced draft, modulated hot water boiler, equipped with a Low-NOx burner and a dedicated pressure/temperature corrected fuel meter. Stacked with DID# 393448		

38.2 Hot-Water Boiler #2

<i>Device ID #</i>	393448	<i>Device Name</i>	Hot-Water Boiler #2
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Cleaver Brooks	<i>Serial Number</i>	604297800230
<i>Model</i>	CFC-E2000	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 558		
<i>Emission Control Basis</i>	R360		
<i>Device Description</i>	Forced draft, modulated hot water boiler, equipped with a Low-NOx burner and a dedicated pressure/temperature corrected fuel meter. Stacked with DID# 393447		

38.3 IC Engine

<i>Device ID #</i>	114130	<i>Maximum Rated BHP</i>	157.00
<i>Device Name</i>	IC Engine	<i>Serial Number</i>	E5M00597
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	8PKXL04.4NJ1
<i>Manufacturer</i>	CAT	<i>Operator ID</i>	
<i>Model Year</i>	2008	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	C4.4		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location</i>	Added note: F-3, University Center (UCen), Building 558 :: UCSB - B558		
<i>Note</i>	(UCEN)		
<i>Device</i>	New Tier 3 diesel-fired emergency backup generator		
<i>Description</i>			

39 Building 560, Phelps Hall, D-4**39.1 Hot-Water Boiler #1**

<i>Device ID #</i>	393441	<i>Device Name</i>	Hot-Water Boiler #1
<i>Rated Heat Input</i>	3.120 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker Boilers	<i>Serial Number</i>	64034
<i>Model</i>	204L-G3120RL	<i>Rule 361 Status</i>	New/Mod
<i>Location Note</i>	Building 560		
<i>Emission Control Basis</i>	R361		
<i>Device</i>	Forced draft hot water boiler, equipped with a Low-NOx burner.		
<i>Description</i>			

39.2 Boiler 2

<i>Device ID #</i>	387971	<i>Device Name</i>	Boiler 2
<i>Rated Heat Input</i>	1.500 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Bryan Boiler	<i>Serial Number</i>	83758
<i>Model</i>	AB150-W-FDG-LX	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 560		
<i>Emission Control Basis</i>	NA		
<i>Device</i>			
<i>Description</i>			

40 Building 561, San Nicolas Hall, F-4**40.1 Emergency Backup Generator**

<i>Device ID #</i>	114070	<i>Maximum Rated BHP</i>	64.00
<i>Device Name</i>	Emergency Backup Generator	<i>Serial Number</i>	PE5030T141914
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	6JDXL03.0063
<i>Manufacturer</i>	John Deere/Generac	<i>Operator ID</i>	
<i>Model Year</i>	2006	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	5030TF270		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location Note</i>	Added note: F-4, San Nicolas, Building 561 :: Building 561, San Nicolas Hall, UCSB		
<i>Device Description</i>	Turbocharged, diesel-fired internal combustion engine.		

40.2 Hot-Water Boiler 1

<i>Device ID #</i>	114131	<i>Device Name</i>	Hot-Water Boiler 1
<i>Rated Heat Input</i>	1.530 MMBtu/Hour	<i>Operator ID</i>	B-1
<i>Manufacturer</i>	Raypak	<i>Serial Number</i>	0708269652
<i>Model</i>	H9-1532B	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Added note: F-4, San Nicolas, Building 561 :: Building No. 561		
<i>Emission Control Basis</i>	R360		
<i>Device</i>	Forced Draft		
<i>Description</i>	Full Modulation		
	Installed: August, 2007		

40.3**Hot-Water Boiler 2**

<i>Device ID #</i>	114132	<i>Device Name</i>	Hot-Water Boiler 2
<i>Rated Heat Input</i>	1.530 MMBtu/Hour	<i>Operator ID</i>	B-2
<i>Manufacturer</i>	Raypak	<i>Serial Number</i>	0708269650
<i>Model</i>	H9-1532B	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Added note: F-4, San Nicolas, Building 561 :: Building No. 561		
<i>Emission Control Basis</i>	R360		
<i>Device</i>	Forced Draft		
<i>Description</i>	Full Modulation		
	Installed: August, 2007		

41**Building 562, Carrillo Dining Commons, F-1****41.1****E/S Diesel Engine**

<i>Device ID #</i>	114038	<i>Maximum Rated BHP</i>	207.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	87802216
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Generac	<i>Operator ID</i>	
<i>Model Year</i>	2001	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	92461		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location Note</i>	Added note: F-1, Dining Commons: Carrillo, Building 562 ::		
<i>Device Description</i>	Emergency engine provides power for the Carrillo Housing Building.		

41.2 Parker Boiler #1

<i>Device ID #</i>	114251	<i>Device Name</i>	Parker Boiler #1
<i>Rated Heat</i>	1.680 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Input</i>		<i>Serial Number</i>	60479
<i>Manufacturer</i>	Parker Boiler		
<i>Model</i>	104-40L	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>			
<i>Emission Control Basis</i>	R360		
<i>Device</i>	- Dresser Roots Shared Rotary Fuel Meter		
<i>Description</i>	- Low - NOx Burner		
	- Natural Gas		

41.3 Parker Boiler #2

<i>Device ID #</i>	114252	<i>Device Name</i>	Parker Boiler #2
<i>Rated Heat Input</i>	1.680 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Parker Boiler	<i>Serial Number</i>	60480
<i>Model</i>	104-40L	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>			
<i>Emission Control Basis</i>	R360		
<i>Device</i>	- Dresser Roots Shared Rotary Fuel Meter		
<i>Description</i>	- Low - NOx Burner		
	- Natural Gas		

41.4 Boiler B3

<i>Device ID #</i>	395683	<i>Device Name</i>	Boiler B3
<i>Rated Heat Input</i>	1.500 MMBtu/Hour	<i>Operator ID</i>	B3
<i>Manufacturer</i>	Cleaver Brooks	<i>Serial Number</i>	60436900460
<i>Model</i>	CFC-E-700-1500-125HW	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 562 – Carrillo Dining Commons		
<i>Emission Control Basis</i>	BACT		
<i>Device</i>	- Dresser Roots Shared Rotary Fuel Meter		
<i>Description</i>	- Forced Draft		
	- Full Modulation		
	- Natural Gas		

41.5 **Boiler B2**

<i>Device ID #</i>	395684	<i>Device Name</i>	Boiler B2
<i>Rated Heat Input</i>	1.500 MMBtu/Hour	<i>Operator ID Serial Number</i>	B2
<i>Manufacturer Model</i>	Cleaver Brooks CFC-E-700-1500-125HW	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 562 – Carrillo Dining Commons		
<i>Emission Control Basis</i>	BACT		
<i>Device Description</i>	- Dresser Roots Shared Rotary Fuel Meter - Forced Draft - Full Modulation - Natural Gas		

42 **Building 563, Ellison Hall, D-4**

42.1 **Boiler 1**

<i>Device ID #</i>	114124	<i>Device Name</i>	Boiler 1
<i>Rated Heat Input</i>	4.600 MMBtu/Hour	<i>Operator ID Serial Number</i>	B1 53413
<i>Manufacturer Model</i>	Parker T4600	<i>Rule 361 Status</i>	Existing
<i>Location Note</i>	Added note: D-4, Ellison Hall, Building 563 :: building 563		
<i>Emission Control Basis</i>	Uncontrolled		
<i>Device Description</i>	natural draft high/low fire mode		

42.2 Boiler 2

<i>Device ID #</i>	114125	<i>Device Name</i>	Boiler 2
<i>Rated Heat Input</i>	4.600 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	53412
<i>Model</i>	T4600	<i>Rule 361 Status</i>	Existing
<i>Location Note</i>	Added note: D-4, Ellison Hall, Building 563 :: building 563		
<i>Emission Control Basis</i>	Uncontrolled		
<i>Device</i>	natural draft		
<i>Description</i>	high/low fire mode		

43 Building 564, Girvetz Hall, E-3

43.1 Boiler 1

<i>Device ID #</i>	114110	<i>Device Name</i>	Boiler 1
<i>Rated Heat Input</i>	2.100 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Bryan	<i>Serial Number</i>	62753
<i>Model</i>	CL-210W-G1	<i>Rule 361 Status</i>	Existing
<i>Location Note</i>	Added note: E-3, Girvetz Hall, Building 564 :: building 564		
<i>Emission Control Basis</i>	Uncontrolled		
<i>Device</i>	natural draft		
<i>Description</i>	on/off mode		

44 Building 565, Environmental Health & Safety (EH&S), B-2

44.1 E/S Diesel Engine

<i>Device ID #</i>	114042	<i>Maximum Rated BHP</i>	375.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	11652215
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	
<i>Model Year</i>	1995	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	NT-855-G4		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location Note</i>	Added note: B-2, Environmental Health & Safety, Building 565 ::		
<i>Device</i>	Emergency engine provides power for the Environmental Health and Safety Building.		
<i>Description</i>			

45 Building 568, Student Affairs & Admin. Services, D-3

45.1 E/S Diesel Engine

<i>Device ID #</i>	114041	<i>Maximum Rated BHP</i>	166.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	7AK01958
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	
<i>Model Year</i>	1995	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	3056		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Added note: D-3, Student Affairs & Admin. Services, Building 568 ::		
<i>Note</i>			
<i>Device Description</i>	Emergency engine provides power for the Student Affairs, Administrative Services Building.		

46 Building 571, Biological Sciences II, E-5

46.1 E/S Diesel Engine

<i>Device ID #</i>	114040	<i>Maximum Rated BHP</i>	749.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	81Z24227
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	
<i>Model Year</i>	1999	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	3412		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Added note: E-5, Biological Sciences II, Building 571 ::		
<i>Note</i>			
<i>Device Description</i>	Emergency engine provides power for the Biological Sciences II Building.		

46.2 Hot-Water Boiler 1

<i>Device ID #</i>	114135	<i>Device Name</i>	Hot-Water Boiler 1
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B-1
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	60265
<i>Model</i>	G2304R(L)	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Added note: E-5, Biological Sciences II, Building 571 :: Bio II Building 571		
<i>Emission Control Basis</i>	BACT		
<i>Device</i>	Forced Draft		
<i>Description</i>	Full Modulation Connected to dedicated, temperature and pressure corrected Roots Meter model B3:3M		

46.3 Hot-Water Boiler 2

<i>Device ID #</i>	114136	<i>Device Name</i>	Hot-Water Boiler 2
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B-2
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	60262
<i>Model</i>	G2304R(L)	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Added note: E-5, Biological Sciences II, Building 571 :: Bio II Building 571		
<i>Emission Control Basis</i>	BACT		
<i>Device</i>	Forced Draft		
<i>Description</i>	Full Modulation Connected to dedicated, temperature and pressure corrected Roots Meter model B3:3M		

46.4 Hot-Water Boiler 3

<i>Device ID #</i>	114137	<i>Device Name</i>	Hot-Water Boiler 3
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B-3
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	60267
<i>Model</i>	G2304R(L)	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Added note: E-5, Biological Sciences II, Building 571 :: Bio II Building 571		
<i>Emission Control Basis</i>	BACT		
<i>Device</i>	Forced Draft		
<i>Description</i>	Full Modulation Connected to dedicated, temperature and pressure corrected Roots Meter model B3:3M		

46.5 Hot-Water Boiler 4

<i>Device ID #</i>	114138	<i>Device Name</i>	Hot-Water Boiler 4
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B-4
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	60266
<i>Model</i>	G2304R(L)	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Added note: E-5, Biological Sciences II, Building 571 :: Bio II Building 571		
<i>Emission Control Basis</i>	BACT		
<i>Device</i>	Forced Draft		
<i>Description</i>	Full Modulation Connected to dedicated, temperature and pressure corrected Roots Meter model B3:3M		

47 Building 572, Broida Hall, E-5

47.1 E/S Diesel Engine

<i>Device ID #</i>	114039	<i>Maximum Rated BHP</i>	755.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	14016239
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	1YCEXL015ABA
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	
<i>Model Year</i>	2001	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	QSX15-G9		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Added note: E-5, Broida Hall (Physics), Building 572 ::		
<i>Note</i>			
<i>Device</i>	Emergency engine provides power for Broida Hall.		
<i>Description</i>			

48 Building 574, Public Safety, A-1

48.1 E/S Diesel Engine #1

<i>Device ID #</i>	114037	<i>Maximum Rated BHP</i>	299.00
<i>Device Name</i>	E/S Diesel Engine #1	<i>Serial Number</i>	5YF01385
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	
<i>Model Year</i>	1993	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	3208		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Added note: A-1, Public Safety, Building 574 ::		
<i>Note</i>			
<i>Device</i>	Emergency engine provides power for the Public Safety Community Services		
<i>Description</i>	Building.		

48.2 E/S Diesel Engine

<i>Device ID #</i>	394714	<i>Maximum Rated BHP</i>	69.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	72046731
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	KCEXL03.3BAA
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	G 574
<i>Model Year</i>	2019	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	4BT3.3-G5		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location</i>	Building 574 - Public Safety (Fire & Police Station)		
<i>Note</i>			
<i>Device Description</i>	Tier 3 E/S DICE. Turbocharged/aftercooled		

49 Building 585, Pump Station Bldg., D-5**49.1 E/S Diesel Engine**

<i>Device ID #</i>	114036	<i>Maximum Rated BHP</i>	742.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	81Z16822
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	
<i>Model Year</i>	1999	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	3412		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Added note: D-5, Physical Sciences, Building 557 ::		
<i>Note</i>			
<i>Device Description</i>	Emergency engine provides power for the Main Water Pump Station.		

50 Building 588, Student Health, D-1**50.1 B1**

<i>Device ID #</i>	114127	<i>Device Name</i>	B1
<i>Rated Heat Input</i>	2.160 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	55378
<i>Model</i>	T2160	<i>Rule 361 Status</i>	Existing
<i>Location Note</i>	Added note: D-1, Student Health Center, Building 588 :: building 588		
<i>Emission Control Basis</i>	Uncontrolled		
<i>Device</i>	natural draft		
<i>Description</i>	on/off mode		

50.2 Boiler B2

<i>Device ID #</i>	393200	<i>Device Name</i>	Boiler B2
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Parker Boilers	<i>Serial Number</i>	63576
<i>Model</i>	G-2304RL	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 588 - Student Health Center		
<i>Emission Control Basis</i>	R360		
<i>Device</i>	Low-NOx burner, induced draft hot water boiler, stacked with Device		
<i>Description</i>	#114127. Equipped with a shared Roots 3M175 rotary fuel meter.		

50.3 E/S Diesel Generator

<i>Device ID #</i>	388960	<i>Maximum Rated BHP</i>	315.00
<i>Device Name</i>	E/S Diesel Generator	<i>Serial Number</i>	45500344
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	GPKXL07.0PW1
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	G 588
<i>Model Year</i>	2016	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	D200-2		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location</i>	Student Health Building 588		
<i>Note</i>			
<i>Device</i>	Tier 3, 315 bhp diesel-fired, turbocharged, aftercooled backup generator		
<i>Description</i>			

51 Building 615, Materials Research Laboratory (MRL), D-5

51.1 Hot-Water Boiler #1

<i>Device ID #</i>	393446	<i>Device Name</i>	Hot-Water Boiler #1
<i>Rated Heat Input</i>	2.500 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker Boilers	<i>Serial Number</i>	64026
<i>Model</i>	204L-G2640R(L)	<i>Rule 361 Status</i>	New/Mod
<i>Location Note</i>			
<i>Emission Control Basis</i>	R361		
<i>Device Description</i>	Forced draft hot water boiler, equipped with a Low-NOx burner. Unit de-rated by manufacturer to 2.500 MMBtu/hr from 2.640 MMBtu/hr using a preprogrammed Variable Frequency Drive to control fan speed and maximum inlet gas flow.		

51.2 E/S Diesel Engine

<i>Device ID #</i>	114035	<i>Maximum Rated BHP</i>	380.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	34810589
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	
<i>Model Year</i>	1996	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	LTA-10G1		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location Note</i>	Added note: D-5, Materials Research Laboratory, Building 615 ::		
<i>Device Description</i>	Emergency engine provides power for the Materials Research Laboratory.		

52 Building 657, Physical Science Bldg. No. (PSBN), D-5

52.1 Boiler B-2

<i>Device ID #</i>	398589	<i>Device Name</i>	Boiler B-2
<i>Rated Heat Input</i>	1.999 MMBtu/Hour	<i>Operator ID</i>	B-2
<i>Manufacturer</i>	Lochinvar/Crest	<i>Serial Number</i>	2346-136512491
<i>Model</i>	FCB2000N	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	UCSB Physical Sciences Building - North (PSB-N / Bldg #657)		
<i>Emission Control Basis</i>	NA		
<i>Device Description</i>	Replacement of DID 386829. Originally exempt from offsets under Rule 802.B.2 (ATC 16116); the exemption was removed and NOx offsets were provided under ATC-Mod 16116-01 (see Tables 7.1 and 7.2).[APR30.1][WS30.2] Equipped with a Low-NOx burner.		

52.2 Boiler B-3

<i>Device ID #</i>	398590	<i>Device Name</i>	Boiler B-3
<i>Rated Heat Input</i>	1.999 MMBtu/Hour	<i>Operator ID</i>	B-3
<i>Manufacturer</i>	Lochinvar/Crest	<i>Serial Number</i>	2346-136512494
<i>Model</i>	FCB2000N	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	UCSB Physical Sciences Building - North (PSB-N / Bldg #657)		
<i>Emission Control Basis</i>	NA		
<i>Device Description</i>	Equipped with a Low-NOx burner.		

52.3 Boiler B-4

<i>Device ID #</i>	398591	<i>Device Name</i>	Boiler B-4
<i>Rated Heat Input</i>	1.999 MMBtu/Hour	<i>Operator ID</i>	B-4
<i>Manufacturer</i>	Lochinvar/Crest	<i>Serial Number</i>	2345-136413324
<i>Model</i>	FCB2000N	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	UCSB Physical Sciences Building - North (PSB-N / Bldg #657)		
<i>Emission Control Basis</i>	NA		
<i>Device Description</i>	Equipped with a Low-NOx burner.		

52.4 **Boiler B-5**

<i>Device ID #</i>	398592	<i>Device Name</i>	Boiler B-5
<i>Rated Heat Input</i>	1.999 MMBtu/Hour	<i>Operator ID</i>	B-5
<i>Manufacturer</i>	Lochinvar/Crest	<i>Serial Number</i>	2345-136512488
<i>Model</i>	FCB2000N	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	UCSB Physical Sciences Building - North (PSB-N / Bldg #657)		
<i>Emission Control Basis</i>	NA		
<i>Device Description</i>	Equipped with a Low-NOx burner.		

52.5 **E/S Diesel Engine**

<i>Device ID #</i>	114034	<i>Maximum Rated BHP</i>	890.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	81Z13042
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	
<i>Model Year</i>	1995	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	3412		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location Note</i>	Added note: D-5, Physical Sciences, Building 557 ::		
<i>Device Description</i>	Emergency engine provides power for the Physical Sciences Building - North.		

53 Building 860, Santa Catalina Residence Hall**53.1 E/S Diesel Engine**

<i>Device ID #</i>	114060	<i>Maximum Rated BHP</i>	367.00
<i>Device Name</i>	E/S Diesel Engine	<i>Serial Number</i>	6D24-334394
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Mitsubishi	<i>Operator ID</i>	
<i>Model Year</i>	2000	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	W31066D240PT-GN01(000)		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Added note: Off, Santa Catalina Residence Hall, Building 860 ::		
<i>Note</i>			
<i>Device Description</i>	Emergency engine provides power for the Francisco Torres Building.		

53.2 Firewater Pump Engine

<i>Device ID #</i>	114029	<i>Maximum Rated BHP</i>	130.00
<i>Device Name</i>	Firewater Pump Engine	<i>Serial Number</i>	44729276
<i>Engine Use</i>	Fire Water Pump	<i>EPA Engine Family Name</i>	
<i>Manufacturer</i>	Cummins	<i>Operator ID</i>	
<i>Model Year</i>	1992	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	6BTA5.9-F2		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location</i>	Added note: Off, Santa Catalina Residence Hall, Building 860 ::		
<i>Note</i>			
<i>Device Description</i>	Firewater pump serves the building sprinkler system.		

53.3

Boiler 1

<i>Device ID #</i>	393008	<i>Device Name</i>	Boiler 1
<i>Rated Heat Input</i>	1.500 MMBtu/Hour	<i>Operator ID</i>	B1
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	63446
<i>Model</i>	G-1536RL	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 860		
<i>Emission Control Basis</i>	BACT		
<i>Device</i>	- Natural Draft		
<i>Description</i>	- Full Modulation		
	- Natural Gas		
	- Equipped with a BACT Low-NOx burner, achieves 12 ppmv NOx @3% O2		
	-Stacked with two identical units, shared Temperature and pressure corrected fuel meter.		

53.4

Boiler 2

<i>Device ID #</i>	393011	<i>Device Name</i>	Boiler 2
<i>Rated Heat Input</i>	1.500 MMBtu/Hour	<i>Operator ID</i>	B2
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	63451
<i>Model</i>	G-1536RL	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 860		
<i>Emission Control Basis</i>	BACT		
<i>Device</i>	- Natural Draft		
<i>Description</i>	- Full Modulation		
	- Natural Gas		
	- Equipped with a BACT Low-NOx burner, achieves 12 ppmv NOx @3% O2		
	-Stacked with two identical units, shared Temperature and pressure corrected fuel meter.		

53.5

Boiler 3

<i>Device ID #</i>	393012	<i>Device Name</i>	Boiler 3
<i>Rated Heat Input</i>	1.500 MMBtu/Hour	<i>Operator ID</i>	B3
<i>Manufacturer</i>	Parker	<i>Serial Number</i>	63449
<i>Model</i>	G-1536RL	<i>Stacked Unit?</i>	Yes
<i>Location Note</i>	Building 860		
<i>Emission Control Basis</i>	BACT		
<i>Device Description</i>	- Natural Draft - Full Modulation - Natural Gas - Equipped with a BACT Low-NOx burner, achieves 12 ppmv NOx @3% O2 - Stacked with two identical units, shared Temperature and pressure corrected fuel meter.		

54

Paint Shop Warehouse, B-2

54.1

Automotive Type Spray Booth

<i>Device ID #</i>	114068	<i>Device Name</i>	Automotive Type Spray Booth
<i>Rated Heat Input</i>		<i>Physical Size</i>	1.50 Horsepower (Electric Motor)
<i>Manufacturer</i>	Custom Made	<i>Operator ID</i>	
<i>Model</i>	n/a	<i>Serial Number</i>	n/a
<i>Location Note</i>	Added note: B-2, Paint Shop Warehouse, Building::		
<i>Device Description</i>	Three-sided, 10.5' l x 8.0' w x 7.0' h		

54.2

High Transfer Efficiency Coating Application Equipment

<i>Device ID #</i>	114069	<i>Device Name</i>	High Transfer Efficiency Coating Application Equipment
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>	Added note: B-2, Paint Shop Warehouse, Building::		
<i>Device Description</i>			

55 Building 1861, Portola Dining Commons

55.1 E/S Diesel Generator

<i>Device ID #</i>	388928	<i>Maximum Rated BHP</i>	284.00
<i>Device Name</i>	E/S Diesel Generator	<i>Serial Number</i>	PE6068L993343
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family Name</i>	FJDXL06.8120
<i>Manufacturer</i>	John Deere	<i>Operator ID</i>	G 1861
<i>Model Year</i>	2016	<i>Fuel Type</i>	
<i>Model</i>	6068HFG82		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	50
<i>Location</i>			
<i>Note</i>			
<i>Device</i>	Turbocharged		
<i>Description</i>			

56 Coating Operations

<i>Device ID #</i>	387790	<i>Device Name</i>	Coating Operations
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>		<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Location Note</i>			
<i>Device</i>	Coating Operations at various locations around UCSB. 2.91 lb/day ROC		
<i>Description</i>	emissions limit. Includes emissions from the Spray Booth.		

57 Portable E/S Diesel Water Pump

<i>Device ID #</i>	388929	<i>Maximum Rated BHP</i>	113.00
<i>Device Name</i>	Portable E/S Diesel Water Pump	<i>Serial Number</i>	PE4045T539451
<i>Engine Use</i>	Pumping Flood Water	<i>EPA Engine Family Name</i>	5JDXL06.8082
<i>Manufacturer</i>	John Deere	<i>Operator ID</i>	Portable Water Pump
<i>Model Year</i>	2005	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	4045TF275		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	30
<i>Location</i>			
<i>Note</i>			
<i>Device</i>			
<i>Description</i>			

Portable ES DICE

<i>Device ID #</i>	398878	<i>Maximum Rated BHP</i>	546.00
<i>Device Name</i>	Portable ES DICE	<i>Serial Number</i>	BGA01006
<i>Engine Use</i>	Electrical Power	<i>EPA Engine Family</i>	1cpxl15.8eSk
		<i>Name</i>	
<i>Manufacturer</i>	Caterpillar	<i>Operator ID</i>	UCSB-FM-P1
<i>Model Year</i>	2001	<i>Fuel Type</i>	CARB Diesel - ULSD
<i>Model</i>	3456		
<i>DRP/ISC?</i>	No	<i>Healthcare Facility?</i>	No
<i>Daily Hours</i>	2.00	<i>Annual Hours</i>	20
<i>Location</i>	Maintenance and testing only allowed at buildings 220, 222, and 224.		
<i>Note</i>			
<i>Device</i>	Portable emergency standby generator. EPA Tier 2, turbocharger, aftercooler,		
<i>Description</i>	CARB Diesel fueled.		

E DE-PERMITTED EQUIPMENT**1 Building 336, Mesa Road Fuel Station****2 Building 479, Old Gym, D-3****3 Water Heater 1**

<i>Device ID #</i>	114112	<i>Device Name</i>	Water Heater 1
<i>Rated Heat Input</i>	3.000 MMBtu/Hour	<i>Physical Size</i>	
<i>Manufacturer</i>	Parker	<i>Operator ID</i>	B1
<i>Model</i>	WH3000L	<i>Serial Number</i>	51924
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	natural draft		
<i>Description</i>	full modulation mode		
	Demolished.		

4

Water Heater 2

<i>Device ID #</i>	114113	<i>Device Name</i>	Water Heater 2
<i>Rated Heat Input</i>	3.000 MMBtu/Hour	<i>Physical Size</i>	
<i>Manufacturer</i>	Parker	<i>Operator ID</i>	B2
<i>Model</i>	WH3000L	<i>Serial Number</i>	53804
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	natural draft		
<i>Description</i>	full modulation mode Demolished.		

5

Hot-Water Boiler 1

<i>Device ID #</i>	394662	<i>Device Name</i>	Hot-Water Boiler 1
<i>Rated Heat Input</i>	3.900 MMBtu/Hour	<i>Physical Size</i>	
<i>Manufacturer</i>	Cleaver Brooks	<i>Operator ID</i>	B1
<i>Model</i>	CFCE-4000	<i>Serial Number</i>	604767400002
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Forced draft, full modulation hot water boiler, equipped with a Low-NOx burner and a pressure/temperature corrected fuel meter. Replaces two existing units in building 657 and 557. Operates in a stacked configuration with DID# 386829 and a heat recovery system to provide heat service for building 657 and 557. Demolished as part of PTO 16116.		
<i>Description</i>			

6

Boiler B-2

<i>Device ID #</i>	386829	<i>Device Name</i>	Boiler B-2
<i>Rated Heat Input</i>	2.000 MMBtu/Hour	<i>Physical Size</i>	2.00 MMBtu/Hour
<i>Manufacturer</i>	Parker	<i>Operator ID</i>	B-2
<i>Model</i>	TC 600 (L)	<i>Serial Number</i>	23080055095
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Depermitted under ATC 16116 and relocated as a standalone unit under Rule 202.G.1 exemption.		
<i>Description</i>			

7

E/S Diesel Engine

<i>Device ID #</i>	114059	<i>Device Name</i>	E/S Diesel Engine
<i>Rated Heat Input</i>		<i>Physical Size</i>	56.00 Brake Horsepower
<i>Manufacturer</i>	Generac	<i>Operator ID</i>	
<i>Model</i>	70874	<i>Serial Number</i>	70874
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Emergency engine provides power for the Ortega Dining Commons.		
<i>Description</i>	Replaced with exempt engine.		

8

Gasoline Dispenser

<i>Device ID #</i>	114066	<i>Device Name</i>	Gasoline Dispenser
<i>Rated Heat Input</i>		<i>Physical Size</i>	
<i>Manufacturer</i>	Fill-Rite	<i>Operator ID</i>	
<i>Model</i>	FR702R	<i>Serial Number</i>	B3194582
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Dispenser has Fill-Rite cabinet pump unit. Model #FR702R.		
<i>Description</i>			

9

Aboveground Storage Tank Bldg. 336

<i>Device ID #</i>	387554	<i>Device Name</i>	Aboveground Storage Tank Bldg. 336
<i>Rated Heat Input</i>		<i>Physical Size</i>	6000.00 Gallons
<i>Manufacturer</i>	Convault	<i>Operator ID</i>	
<i>Model</i>		<i>Serial Number</i>	
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	Tank from original PTO 9406, transferred to PTO 14414. Phase 1		
<i>Description</i>	executive order: VR-401-C		
	Phase 2 executive order: G-70-116-F		
	Standing Loss Control Executive Order: VR-301-D		

Fuel Dispensers (2 Nozzle)

<i>Device ID #</i>	394768	<i>Device Name</i>	Fuel Dispensers (2 Nozzle)
<i>Rated Heat Input</i>		<i>Physical Size</i>	6000.00 Gallons
<i>Manufacturer</i>	Gasboy	<i>Operator ID</i>	
<i>Model</i>	9853KX DFZ	<i>Serial Number</i>	AT00008558
<i>Depermitted</i>		<i>Facility Transfer</i>	
<i>Device</i>	two (2) Gasboy 9853KX DFZ dispensers, each equipped with one nozzle		
<i>Description</i>	(two nozzles total)		
	Both Serial No are AT00008558 and AT00008559. Demolished.		

Attachment 10.2. External Combustion Equipment Operational Requirements

Building	Make	Model	Rule	Tune-Ups	Fuel Use Monitor	Low Use	Source Test	NOx ppmvd @3% O ₂	CO ppmvd @3% O ₂	Basis	Installed
Bldg. 221	Raypac	H9-2072A	361	Biannual	Fuel Meter	yes	no	--	--	--	2006
Bldg. 225	Parker	G2304RL	360	annual	Fuel Meter	no	no	20	400	SCAQMD	2016
Bldg. 225	Parker	G2304RL	360	annual	Fuel Meter	no	no	20	400	SCAQMD	2016
Bldg. 225	Parker	G2304RL	360	annual	Fuel Meter	no	no	20	400	SCAQMD	2016
Bldg. 235	Lochinvar	FBN2001	360	annual	Fuel Meter	no	no	20	400	Rule 360	2020
Bldg. 235	Parker	G2304RL	360	annual	Fuel Meter	no	no	20	400	Rule 360	2019
Bldg. 266	Parker	G2304RL	360	annual	Fuel Meter	no	no	30	400	Rule 360	2018
Bldg. 266	Parker	G2304RL	360	annual	Fuel Meter	no	no	30	400	Rule 360	2018
Bldg. 266	Rite	325WG	361	Biannual	Fuel Meter	yes	no	--	--	--	2005
Bldg. 276	Parker	WH2270L	361	Biannual	Fuel Meter	no	no	30	400	Rule 361	2008
Bldg. 276	Parker	WH2270L	361	Biannual	Fuel Meter	no	no	30	400	Rule 361	2008
Bldg. 503	Parker	T1460LR	360	annual	Default	no	no	20	400	SCAQMD	2016
Bldg. 503	Lochinvar	SBN1500m7	360	annual	Fuel Meter	no	no	20	400	SCAQMD	2012
Bldg. 503	Lochinvar	SBN1500m7	360	annual	Fuel Meter	no	no	20	400	SCAQMD	2012
Bldg. 503	Lochinvar	SBN1500m7	360	annual	Fuel Meter	no	no	20	400	SCAQMD	2012
Bldg. 503	Lochinvar	SBN1500m7	360	annual	Fuel Meter	no	no	20	400	SCAQMD	2012
Bldg. 503	Lochinvar	SBN1500m7	360	annual	Fuel Meter	no	no	20	400	SCAQMD	2012
Bldg. 503	Lochinvar	SBN1500m7	360	annual	Fuel Meter	no	no	20	400	SCAQMD	2012
Bldg. 505	Parker	G-1536RL	360	annual	Fuel Meter	no	no	20	400	Rule 360	2019
Bldg. 505	Parker	G-1536RL	360	annual	Fuel Meter	no	no	20	400	Rule 360	2019

Building	Make	Model	Rule	Tune-Ups	Fuel Use Monitor	Low Use	Source Test	NOx ppmvd @3% O ₂	CO ppmvd @3% O ₂	Basis	Installed
Bldg. 512	Camus	AVNH4000	361	Biannual	Fuel Meter	no	Initial and Upon District Request Thereafter	9	100	BACT	2019
Bldg. 512	Camus	AVNH4000	361	Biannual	Fuel Meter	no	Initial and Upon District Request Thereafter	9	100	BACT	2019
Bldg. 512	Fulton	ISC-9.5	360	annual	Fuel Meter	no	no	20	50	BACT	2016
Bldg. 512	Fulton	ISC-9.5	360	annual	Fuel Meter	no	no	20	50	BACT	2016
Bldg. 512	Fulton	ISC-9.5	360	annual	Fuel Meter	no	no	20	50	BACT	2016
Bldg. 512	Fulton	ISC-9.5	360	annual	Fuel Meter	no	no	20	50	BACT	2016
Bldg. 512	Fulton	ISC-9.5	360	annual	Fuel Meter	no	no	20	50	BACT	2016
Bldg. 512	Fulton	ISC-9.5	360	annual	Fuel Meter	no	no	20	50	BACT	2016
Bldg. 512	Fulton	ISC-9.5	360	annual	Fuel Meter	no	no	20	50	BACT	2016
Bldg. 512	Fulton	ISC-9.5	360	annual	Fuel Meter	no	no	20	50	BACT	2016
Bldg. 515	Bryan	AB250	361	Biannual	Fuel Meter	yes	no	--	--	--	1995
Bldg. 515	Bryan	AB250	361	Biannual	Fuel Meter	yes	no	--	--	--	1995
Bldg. 515	Bryan	AB250	361	Biannual	Fuel Meter	yes	no	--	--	--	1995
Bldg. 516	Cleaver Brooks	CFCE700-2000-125HW	360	annual	Fuel Meter	no	no	20	400	Rule 360	2019
Bldg. 516	Cleaver Brooks	CFCE700-2000-125HW	360	annual	Fuel Meter	no	no	20	400	Rule 360	2019
Bldg. 516	Cleaver Brooks	CFCE700-2000-125HW	360	annual	Fuel Meter	no	no	20	400	Rule 360	2019
Bldg. 520	Parker	T4600LR	361	Biannual	Default	no	no	30	400	Rule 361	2003
Bldg. 521	Parker	T2970LR	361	Biannual	Default	no	no	30	400	Rule 361	2001
Bldg. 525	Parker	G2304RL	360	annual	Default	no	no	20	400	Rule 360	2019
Bldg. 525	Parker	G2304RL	360	annual	Default	no	no	20	400	Rule 360	2019
Bldg. 526	Parker	WH1410	360	no	Default	no	no	--	--	--	2002

Building	Make	Model	Rule	Tune-Ups	Fuel Use Monitor	Low Use	Source Test	NOx ppmvd @3% O ₂	CO ppmvd @3% O ₂	Basis	Installed
Bldg. 526	Parker	WH1410	360	no	Default	no	no	--	--	--	2002
Bldg. 528	Parker	G2304RL	360	no	Fuel Meter	no	no	30	400	Rule 360	2018
Bldg. 528	Bryan	AB150-W-FDG-LX	360	no	Fuel Meter	no	no	--	--	--	2014
Bldg. 533	Parker	WH1900	360	no	Default	no	no	--	--	--	2001
Bldg. 533	Parker	WH1900	360	no	Default	no	no	--	--	--	2001
Bldg. 533	Parker	WH1900	360	no	Default	no	no	--	--	--	2001
Bldg. 533	Parker	WH1900	360	no	Default	no	no	--	--	--	2001
Bldg. 534	Parker	T-2970LR	361	Biannual	Fuel Meter	no	no	30	400	Rule 361	2013
Bldg. 534	Parker	T-2970LR	361	Biannual	Fuel Meter	no	no	30	400	Rule 361	2013
Bldg. 534	Parker	G2640RL	361	Biannual	Fuel Meter	no	no	30	400	Rule 361	2019
Bldg. 544	Parker	T2600L	361	Biannual	Default	no	no	30	400	Rule 361	2007
Bldg. 544	Parker	T2600L	361	Biannual	Default	no	no	30	400	Rule 361	2007
Bldg. 549	Parker	105L-70	361	Biannual	Default	no	no	30	400	Rule 361	2019
Bldg. 549	Parker	105L-70	361	Biannual	Default	no	no	30	400	Rule 361	2019
Bldg. 551	Parker	G2304RL	360	annual	Fuel Meter	no	no	20	400	Rule 360	2019
Bldg. 551	Parker	G2304RL	360	annual	Fuel Meter	no	no	20	400	Rule 360	2019
Bldg. 552	Parker	G-1536RL	360	annual	Default	no	Initial and Upon District Request Thereafter	12	100	BACT	2019
Bldg. 552	Parker	G-1536RL	360	annual	Default	no	Initial and Upon District Request Thereafter	12	100	BACT	2019
Bldg. 553	Parker	204L-G2304RL	360	annual	Fuel Meter	no	no	20	400	Rule 360	2019
Bldg. 553	Parker	204L-G2304RL	360	annual	Fuel Meter	no	no	20	400	Rule 360	2019
Bldg. 554	Parker	G2304RL	360	annual	Default	no	no	20	400	Rule 360	2019

Building	Make	Model	Rule	Tune-Ups	Fuel Use Monitor	Low Use	Source Test	NOx ppmvd @3% O ₂	CO ppmvd @3% O ₂	Basis	Installed
Bldg. 554	Parker	G2304RL	360	annual	Default	no	no	20	400	Rule 360	2019
Bldg. 558	Cleaver Brooks	CFC-E2000	360	annual	Fuel Meter	no	no	20	400	Rule 360	2019
Bldg. 558	Cleaver Brooks	CFC-E2000	360	annual	Fuel Meter	no	no	20	400	Rule 360	2019
Bldg. 560	Bryan	AB150-W-FDG-LX	360	no	Fuel Meter	no	no	--	--	--	2013
Bldg. 560	Parker	G3120RL	361	Biannual	Fuel Meter	no	no	30	400	Rule 361	2019
Bldg. 561	Raypac	H9-15323B	360	annual	Default	no	no	30	400	Rule 360	2007
Bldg. 561	Raypac	H9-15323B	360	annual	Default	no	no	30	400	Rule 360	2007
Bldg. 562	Cleaver Brooks	CFC-E-700-1500-125HW	360	annual	Fuel Meter	no	no	12	100	BACT	2022
Bldg. 562	Cleaver Brooks	CFC-E-700-1500-125HW	360	annual	Fuel Meter	no	no	12	100	BACT	2022
Bldg. 562	Parker	104-40L	360	annual	Fuel Meter	no	no	30	400	Rule 360	2011
Bldg. 562	Parker	104-40L	360	annual	Fuel Meter	no	no	30	400	Rule 360	2011
Bldg. 563	Parker	T-4600	361	Biannual	Fuel Meter	yes	no	--	--	--	2001
Bldg. 563	Parker	T-4600	361	Biannual	Fuel Meter	yes	no	--	--	--	2001
Bldg. 564	Bryan	CL210W	361	Biannual	Fuel Meter	yes	no	--	--	--	1986
Bldg. 571	Parker	G2304R(L)	360	annual	Fuel Meter	no	no	20	100	SCAQMD	2011
Bldg. 571	Parker	G2304R(L)	360	annual	Fuel Meter	no	no	20	100	SCAQMD	2011
Bldg. 571	Parker	G2304R(L)	360	annual	Fuel Meter	no	no	20	100	SCAQMD	2011
Bldg. 571	Parker	G2304R(L)	360	annual	Fuel Meter	no	no	20	100	SCAQMD	2011
Bldg. 588	Parker	T2160	361	Biannual	Fuel Meter	yes	no	--	--	--	1987
Bldg. 588	Parker	G2304RL	360	Annual	Fuel Meter	no	no	30	400	Rule 360	2018
Bldg. 615	Parker	G2304R(L)	361	Biannual	Fuel Meter	no	no	30	400	Rule 361	2019

Building	Make	Model	Rule	Tune-Ups	Fuel Use Monitor	Low Use	Source Test	NOx ppmvd @3% O ₂	CO ppmvd @3% O ₂	Basis	Installed
Bldg. 657	Lochinvar	FCB2000N	360	annual	Default	no	Initial and Upon District Request Thereafter	12	100	BACT	2024
Bldg. 657	Lochinvar	FCB2000N	360	annual	Default	no	Initial and Upon District Request Thereafter	12	100	BACT	2024
Bldg. 657	Lochinvar	FCB2000N	360	annual	Default	no	Initial and Upon District Request Thereafter	12	100	BACT	2024
Bldg. 657	Lochinvar	FCB2000N	360	annual	Default	no	Initial and Upon District Request Thereafter	12	100	BACT	2024
Bldg. 860	Parker	G-1536RL	360	annual	Default	no	Initial and Upon District Request Thereafter	12	100	BACT	2018
Bldg. 860	Parker	G-1536RL	360	annual	Default	no	Initial and Upon District Request Thereafter	12	100	BACT	2018
Bldg. 860	Parker	G-1536RL	360	annual	Default	no	Initial and Upon District Request Thereafter	12	100	BACT	2018

Attachment 10.3. Internal Combustion Equipment Operational Requirements

Building	Operator ID	Device ID	Fuel Type	Make	Model	Rating (bhp)	Engine Use	Hrs/Day	Hrs/Yr	Installed
Bldg. 205	Emer. Generator	114058	Diesel	Caterpillar	3208	299	Emer. Gen.	2	20	2000
Bldg. 221	Emer. Generator	114030	Diesel	Cummins	QSM11-G2	470	Emer. Gen.	2	50	2005
Bldg. 225	Emer. Generator	114057	Diesel	Cummins	06T30-G5-NRI	1490	Emer. Gen.	2	20	2002
Bldg. 226	Emer. Generator	393553	Diesel	Caterpillar	C7.1	281	Emer. Gen.	2	50	2020
Bldg. 235	Emer. Generator	114056	Diesel	Volvo	TAD1631GE	768	Emer. Gen.	2	20	2004
Bldg. 250	Emer. Generator	114055	Diesel	John Deere	6059TF002	152	Emer. Gen.	2	20	1998
Bldg. 266	Emer. Generator	114054	Diesel	Caterpillar	3512	2172	Emer. Gen.	2	20	2004
Bldg. 276	Emer. Generator	114071	Diesel	Caterpillar	C9	398	Emer. Gen.	2	50	2007
Bldg. 503	Emer. Generator	114134	Diesel	Caterpillar	c15	798	Emer. Gen.	2	50	2009
Bldg. 506	Emer. Generator	395544	Diesel	Caterpillar	C4.4	161	Emer. Gen.	2	40	2021
Bldg. 511	Emer. Generator	114052	Diesel	Cummins	6BTA5.9-G4	170	Emer. Gen.	2	20	1994
Bldg. 512	Emer. Generator	388947	Diesel	Mitsubishi	S12R-Y2PTAW-1	1881	Emer. Gen.	2	50	2016
Bldg. 515	Emer. Generator	114051	Diesel	Det. Diesel	12V71TA	750	Emer. Gen.	2	20	1995
Bldg. 516	Emer. Generator	114050	Diesel	Cummins	4B3.9-G	68	Emer. Gen.	2	20	2004
Bldg. 520	Emer. Generator	114049	Diesel	Cummins	QSX15-G9	755	Emer. Gen.	2	20	2003
Bldg. 521	Emer. Generator	114048	Diesel	Cummins	NTA-855-G3	535	Emer. Gen.	2	20	2001

Building	Operator ID	Device ID	Fuel Type	Make	Model	Rating (bhp)	Engine Use	Hrs/Day	Hrs/Yr	Installed
Bldg. 525	Emer. Generator	386852	Diesel	Caterpillar	C15	762	Emer. Gen.	2	50	2014
Bldg. 526	Emer. Generator	393041	Diesel	Caterpillar	C4.4	96	Emer. Gen.	2	50	2018
Bldg. 529	Emer. Generator	393551	Diesel	Cummins	QSB7	324	Emer. Gen.	2	50	2019
Bldg. 529	Emer. Generator	393552	Diesel	Cummins	QSB7	324	Emer. Gen.	2	50	2019
Bldg. 531	Emer. Generator	394710	Diesel	Cummins	4BT3.3-G5	69	Emer. Gen.	2	50	2020
Bldg. 535	Emer. Generator	114139	Diesel	Cummins	QSX15-G9 NR2	755	Emer. Gen.	2	50	2011
Bldg. 544	Emer. Generator	114047	Diesel	Caterpillar	3306	382	Emer. Gen.	2	20	2001
Bldg. 549	Emer. Generator	114046	Diesel	Mitsubishi	OD5703	292	Emer. Gen.	2	20	2004
Bldg. 551	Emer. Generator	114045	Diesel	Caterpillar	3208	263	Emer. Gen.	2	20	1995
Bldg. 553	Emer. Generator	114064	Diesel	John Deere	5030TF270	64	Emer. Gen.	2	50	2005
Bldg. 554	Emer. Generator	394712	Diesel	Cummins	4BT3.3-G5	69	Emer. Gen.	2	50	2020
Bldg. 555	Emer. Generator	114033	Diesel	Cummins	NT-855-G2	355	Emer. Gen.	2	20	1988
Bldg. 556	Emer. Generator	114044	Diesel	Cummins	6CTA-8.3-G	277	Emer. Gen.	2	20	1989
Bldg. 557	Emer. Generator	114043	Diesel	Caterpillar	3406	519	Emer. Gen.	2	20	1996
Bldg. 558	Emer. Generator	114130	Diesel	Perkins	C4.4 ACERT 3362/1800	157	Emer. Gen.	2	50	2008
Bldg. 561	Emer. Generator	114070	Diesel	John Deere	5030TF270 / SD040	64	Emer. Gen.	2	50	2006
Bldg. 562	Emer. Generator	114038	Diesel	Caterpillar	92461	207	Emer. Gen.	2	20	2001

Building	Operator ID	Device ID	Fuel Type	Make	Model	Rating (bhp)	Engine Use	Hrs/Day	Hrs/Yr	Installed
Bldg. 565	Emer. Generator	114042	Diesel	Cummins	NT-855-G4	375	Emer. Gen.	2	20	1995
Bldg. 568	Emer. Generator	114041	Diesel	Caterpillar	3056	166	Emer. Gen.	2	20	1995
Bldg. 571	Emer. Generator	114040	Diesel	Caterpillar	3412	749	Emer. Gen.	2	20	1999
Bldg. 572	Emer. Generator	114039	Diesel	Cummins	Q5X15-G9	755	Emer. Gen.	2	20	2001
Bldg. 574	Emer. Generator	394714	Diesel	Cummins	4BT3.3-G5	69	Emer. Gen.	2	50	2020
Bldg. 574	Emer. Generator	114037	Diesel	Caterpillar	3208	299	Emer. Gen.	2	20	1993
Bldg. 585	Emer. Generator	114036	Diesel	Caterpillar	3412	742	Emer. Gen.	2	20	1994
Bldg. 588	Emer. Generator	388960	Diesel	Caterpillar	D200-2	315	Emer. Gen.	2	50	2016
Bldg. 615	Emer. Generator	114035	Diesel	Cummins	LTA10G1	380	Emer. Gen.	2	20	1996
Bldg. 657	Emer. Generator	114034	Diesel	Caterpillar	3412DI	890	Emer. Gen.	2	20	1995
Bldg. 860	Emer. F/W Pump	114029	Diesel	Cummins	6BTA5.9-F2	130	F/W Pump	NA	NA	1992
Bldg. 860	Emer. Generator	114060	Diesel	Mitsubishi	W31066D240PT-GN01(000)	367	Emer. Gen.	2	20	2000
Bldg. 1861	Emer. Generator	388928	Diesel	John Deere	6068HFG82	284	Emer. Gen.	2	50	2016
Portable	Emer. Water Pump	388929	Diesel	John Deere	4045TF275	113	Emer. Pump	2	30	2005
Portable	Emer. Generator	398878	Diesel	Caterpillar	3456	546	Emer. Gen.	2	20	TBD

Attachment 10.4. Vapor Recovery System Testing Requirements

Annual testing required. The permittee shall conduct and successfully pass Static Leak Decay testing once per year (at least 350 days between tests, but not to exceed 410 days between tests). Routine testing shall consist of at least one compliance test per year according to the test protocols outlined in Exhibit 4 of Executive Order VR-401-C. The test listed above, and any other VRS specific tests required in the applicable Executive Orders, are required to be performed by the permittee. At any time, the District may require the permittee to perform any applicable ARB Test Procedure if operational VRS problems are observed. The permittee shall document all failures by detailing the cause(s) and corrective action(s) taken to eliminate the failure(s) on District Form ENF-99.

All Static Leak Decay tests are subject to the following requirements: (a) during the test the tank ullage shall meet the requirements specified in TP-201.3 - Determination of 2 Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities; (b) no fuel drops shall occur within 3 hours prior to the test; (c) no other Static Leak Tests shall occur within 24 hours prior to the test.

Compliance test results (including initial failures) shall be documented by using SBCAPCD or ARB approved reporting forms¹ (as applicable). Document all failures by detailing the cause(s) and corrective action(s) taken to eliminate the failure(s). "Successfully passing" a test means that all test results indicate compliance initially, without replacing, adjusting or repairing any equipment, part or item of the VRS. Example: If initial testing indicates a failure, and the equipment is adjusted, retested, and then passes, this is considered a failed test and shall be noted as such in the repair records and reporting forms.

Components and/or systems failing the any required test shall not be used to dispense or receive gasoline, unless the permittee contacts the District via email at enfr@sbcapcd.org to obtain Rule 505 "Breakdown" protection for the failed equipment for 24 hours. Components unable to be repaired within 24 hours must be removed from service unless a variance is obtained from the District Hearing Board. All failed equipment shall be tagged as "out of order" until repaired.

Attachment 10.5. Vapor Recovery System Facility Repair Log and Testing Records

The permittee shall maintain a Facility Repair Log and maintain the results of all VRS Testing Records in a folder or filing system separate from other regulatory agency documents and as noted below:

1. **Facility Repair Log:** A Repair Log that includes the information below. District Form ENF –99 shall be used. An alternative log form may be used if approved, in advance, by the District.
 - Date and time the problem was detected (e.g., component malfunction, defect, ISD Warning alarm, ISD Failure alarm, reconnection of breakaways)
 - Date and time the component was removed from service
 - Date and time the call for service was placed (including calls for service due to an ISD Warning alarm or ISD Failure alarm)
 - Date of actual service for which the component or defect was repaired or replaced (indicate if the ISD Failure alarm was “cleared”)
 - Name of the person performing the service and telephone number
 - Affiliation (company name) of the person performing the service
 - Indicate whether the service call was due to an ISD Warning alarm or ISD Failure alarm
 - Provide a short description of the service performed and list each component repaired, serviced, or removed, (include the component(s) manufacturer's (or re-manufacturer's) name and model number
 - Receipts for parts used in the repair and, if applicable, work orders, which shall include the name and signature of the person responsible for performing the repairs shall be made available to the District upon request
 - Any other information specifically required by the applicable Executive Orders
2. **Testing Records:** Records of all Compliance Tests, and any other VRS specific tests required in the applicable Executive Orders that include:
 - The date and start time of each test;
 - The type of test (specify ARB TP number);
 - Name(s), employer (or affiliation), address and phone number of the person(s) performing the tests;
 - Test data and calibration data for all equipment used;
 - Date and time each test is completed and the facility owner/operator is notified of the test results. For a test that fails, a description of the reason(s) for the test failure shall also be included; and
 - For a retest following a failed test, a description of the repairs performed prior to the retest (or a cross-reference to the Facility Repair Log above).
 - Completed CARB or District-approved reporting forms¹.

Attachment 10.6. Health Risk Assessment Calculations

Device #388928 - 284 bhp diesel engine provides electrical backup power to the Portola Dining Commons (Building 1861):

Health Risk Assessment Report

University of California – Santa Barbara Portola Dining Commons

1.0 SUMMARY

In May 2016, the Santa Barbara County Air Pollution Control District (District) conducted a screening health risk assessment for the installation of a new emergency standby diesel engine at UCSB's Portola Dining Commons in Isla Vista using Lakes AERSCREEN View Version 2.0.0, for Authority to Construct No. 14783. The District performed a public notice for this project because it is located within 1000 feet of Isla Vista Elementary School. In response to public comments, the District conducted a refined air toxics Health Risk Assessment (HRA) for the project in July 2016, using the Hotspots Analysis and Reporting Program (HARP) software, Version 2 (Build 16088). Cancer risk and chronic and acute non-cancer Hazard Index (HI) risk values were calculated and compared to significance thresholds for cancer and chronic and acute non-cancer risk adopted by the District's Board of Directors. The calculated risk values and applicable thresholds are as follows:

	<u>UCSB Portola Max Risks</u>	<u>Significance Threshold</u>
Cancer risk:	6.1/million	≥10/million
Chronic non-cancer risk:	< 0.1	>1
Chronic 8-hour non-cancer risk:	< 0.1	>1
Acute non-cancer risk:	0.3	>1

Based on these results, the proposed diesel engine will not pose a significant risk to the surrounding community. For this reason, Authority to Construct No. 14783 will be issued for this facility.

2.0 BACKGROUND

2.1 Facility Operations

UCSB is installing a new diesel-fired engine to provide electrical backup power to the Portola Dining Commons. The HRA also includes emissions from other major equipment in the Portola Dining Commons area: three existing boilers, two new boilers, and two existing diesel engines. A school notice is required because the facility is within 1000 feet of Isla Vista Elementary School.

2.2 Health Risk

As used in this report, the term "health risk" addresses the likelihood that exposure to a given toxic air contaminant under a given set of conditions will result in an adverse health effect. Health risk is affected by several factors, such as: the amount, toxicity, and concentration of the contaminant; the meteorological conditions; the distance from emission sources to people; the distance between emission sources; the age,

health, and lifestyle of the people living or working at a location; and, the duration of exposure to the toxic air contaminant.

Health effects are divided into cancer and non-cancer risks. “Cancer risk” refers to the increased chance of contracting cancer as a result of an exposure, and is expressed as a probability: chances-in-a-million. The values expressed for cancer risk do not predict actual cases of cancer that will result from exposure to toxic air contaminants. Rather, they state a possible risk of contracting cancer over and above the background level.

For non-cancer health effects, risk is characterized by a “Hazard Index” (HI), which is obtained by dividing the predicted concentration of a toxic air contaminant (TAC) by a Reference Exposure Level (REL) for that pollutant that has been determined by health professionals, the Office of Environmental Health Hazard Assessment (OEHHA) and the California Air Resources Board (ARB). RELs are used as indicators of the potential adverse effects of chemicals. A REL is the concentration at or below which no adverse health effects are anticipated for specific exposure duration. Thus, the HI is a measure of the exposure relative to a level of safety and is appropriately protective of public health. Each TAC emitted by the facility has a different emission rate and a different REL. A HI for each TAC is calculated separately at each modeled receptor location. A composite HI at each receptor is then calculated as the sum of HIs for each individual TAC. The maximum HI reported here for each scenario is the maximum composite HI among all receptors.

2.3 May 2016 Screening Health Risk Assessment

In May 2016, the District conducted a screening health risk assessment for the new diesel-fired emergency standby generator using Lakes AERSCREEN View Version 2.0.0. The screening tool is a more simplistic approach to risk assessment and is designed to be conservative. The screening HRA only included emissions from the proposed diesel generator. Additional information on the May 2016 screening HRA can be found in the folder in the Attachments section of this report. The calculated risk values and applicable thresholds were as follows:

	<u>UCSB Portola Max Risks</u>	<u>Significance Threshold</u>
Cancer risk:	3.36/million	≥10/million
Chronic non-cancer risk:	0.010	>1
Acute non-cancer risk:	0.001	>1

The District received comments concerned about the cumulative impacts from other emitting sources at UCSB. For that reason, the District prepared a refined HRA for the UCSB Portola Dining Commons. The refined HRA includes emissions from major emitting devices in the Portola Dining Commons area, including the proposed diesel generator.

3.0 FACILITY INFORMATION

<u>EQUIPMENT OWNER/OPERATOR:</u>	University of California – Santa Barbara
<u>SOURCE IDENTIFICATION NUMBER:</u>	02795
<u>EQUIPMENT LOCATION:</u>	6850 El Colegio Rd, Isla Vista
<u>FACILITY UTM COORDINATES:</u>	UCSB provided UTM coordinates for the emitting devices modeled in this HRA. The District estimated the buildings and property boundary UTM coordinates from Google Earth and a site plan submitted by UCSB. UTM Zone 10, Datum: NAD 83 Easting: 787888.4 m, Northing: 3812955.6 m
<u>EQUIPMENT DESCRIPTION:</u>	The HRA addresses emissions from three existing natural gas-fired boilers, two new natural gas-fired boilers, two existing diesel generators and the proposed new diesel generator.

4.0 STACKS AND MODELING PARAMETERS

The source release parameter inputs to the dispersion model are outlined in Table 4.1. All UTM coordinates in this report are in Zone 10 and the datum is NAD83. The source parameters for the existing boilers (Source ID 1) were obtained from the permit application for the equipment, but the stack height and UTM coordinates were adjusted so that the stack is located on top of the Portola Dining Commons building (as described in the boilers' permit application for ATC-PTO 13879). The source parameters for the existing diesel engines (Source IDs 2 and 3) were obtained from UCSB's most recent AB 2588 HRA for Inventory Year 2008. The source parameters for the new diesel engine (Source ID 4) were obtained from the permit application for ATC 14783. The parameters for the two new boilers (Source ID 5) were obtained from an email correspondence with UCSB's Environmental Compliance Manager, Jodi Woods. This information may be found in the *UCSB Portola HRA.zip* file referenced in the Attachments section of this report.

Table 4.1 – Summary of Stack Parameter Inputs

Source ID	Source Type	UTME (m)	UTMN (m)	Release Height (ft)	Temp. (°F)	Stack Vel (ft/min)	Stack Dia (in)
1	Point	787833.8	3812926.1	9.84	205	1750	6.00
2	Point	787867.4	3812920.8	9.00	660	14000	8.00
3	Capped Point	787856.0	3812923.9	11.00	834	10400	6.00
4	Point	787978.1	3812970.0	5.82	901	13000	3.86
5	Point	787953.6	3812944.8	38.0	300	350	8.00

5.0 EMISSIONS

The facility's calculated annual and hourly emissions are shown in Table 5.1. The average annual emissions are based on actual equipment usage for existing equipment and maximum potential-to-emit for new equipment. The maximum hourly emissions are based on all equipment operating at full load for an hour.

Table 5.1 – UCSB Portola Dining Commons Emissions Summary

Pollutant	Average Annual Emissions (lb/yr)	Maximum Hourly Emissions (lb/hr)
Benzene	4.75E-02	8.33E-03
Formaldehyde	1.01E-01	7.68E-02
PAHs	2.38E-03	2.49E-03
PAHs (w/o naphth)	5.94E-04	1.61E-03
Naphthalene	1.78E-03	8.78E-04
Acetaldehyde	2.55E-02	3.49E-02
Acrolein	1.60E-02	1.52E-03
1,3-butadiene	--	9.67E-03
Chlorobenzene	--	8.89E-06
Propylene	4.34E+00	2.46E-02
Toluene	2.17E-01	4.88E-03
Xylenes	1.62E-01	2.03E-03
Ethyl Benzene	5.64E-02	5.34E-04
Hexane	3.74E-02	1.23E-03
Hydrochloric acid	--	8.28E-03
Arsenic	1.19E-03	7.22E-05
Barium	2.61E-02	2.29E-05
Beryllium	7.13E-05	6.23E-08
Cadmium	6.54E-03	7.24E-05
Chromium	8.32E-03	3.40E-05
Chromium 6+	--	4.45E-06
Cobalt	4.99E-04	4.36E-07
Copper	5.05E-03	1.87E-04
Lead	--	3.69E-04
Manganese	2.26E-03	1.40E-04
Mercury	1.54E-03	9.03E-05
Molybdenum	6.54E-03	5.71E-06
Nickel	1.25E-02	1.84E-04
Selenium	1.43E-04	9.79E-05
Vanadium	1.37E-02	1.19E-05
Zinc	1.72E-01	1.15E-03
Diesel PM	1.18E+01	4.96E-01

The emissions for the five boilers were calculated based on the manufacturer's specified maximum heat inputs for the equipment and the default heating value of 1020 Btu/scf. Emission factors for organic toxic pollutants were obtained from the Ventura County APCD's *AB 2588 Combustion Emission Factors* for natural gas-fired external combustion equipment rated less than 10 MMBtu/hr. Metal emissions were calculated using the USEPA's AP-42 Table 1.4-4, *Emission Factors for Metals from Natural Gas Combustion*. The hourly emissions are based on the boilers operating at full load for an hour. The annual emissions for the three existing boilers are based on the actual combined usage of 1109.01 MMBtu from the most recent annual report for 2014. Because the two new boilers are used for kitchen operations, the annual emissions are based on operation at full load for the entire time the kitchen is open (5AM to 10PM every day).

The emissions for the three diesel engines were calculated based on the Ventura County APCD's *AB 2588 Combustion Emission Factors* for diesel-fired internal combustion engines. The PM emission factors come from each engine's permit. The fuel usage for each engine was calculated using the manufacturer's specified maximum horsepower rating and the default brake-specific fuel consumption and high heating values for diesel engines from the District's *Piston IC Engine Technical Reference Document*. The hourly emissions are based on the diesel engines operating at full load for an hour. The annual emissions for the two existing engines are based on the actual usages from the most recent annual report for 2014. The engine corresponding to Source ID 2 was used for 13.3 hours, and the engine corresponding to Source ID 3 was used for 9.8 hours for maintenance and testing in 2014. The annual emissions for the new diesel engine are based on the maximum permitted maintenance & testing hours: 50 hours per year.

6.0 BUILDING INFORMATION

The UTM coordinates for the existing buildings were submitted by UCSB in their AB 2588 HRA for Inventory Year 2008. The coordinates for these buildings were adjusted using Google Earth. The height of one of the buildings, the Portola Dining Commons, was changed to 3 meters, the average height of a one-story building. Many new buildings are being constructed around the Portola Dining Commons area; the UTM coordinates for these buildings were obtained using Google Earth and a site plan submitted by UCSB. All of the new building heights were submitted by UCSB. Lakes AERMOD View was used to determine which of the surrounding buildings would have building downwash effects on the sources that were modeled. The building information was included in the HRA and may be found under *UCSB_Portola_Buildings.xlsx* located in the *UCSB Portola HRA.zip* file.

7.0 MET DATA & DEM FILES

Meteorological data used in the air dispersion analyses were acquired at the Santa Barbara Airport from 2010-2014. These files, *SBA10-14.PFL* and *SBA10-14.SFC*, were processed by the District using AERMET version 14134 and can be found in the *UCSB Portola HRA.zip* file. The Digital Elevation Model (DEM) files used were *Goleta.dem* and *Dos_Pueblos_Canyon.dem*, which are also located in the .zip file.

8.0 MODEL INFORMATION

The dispersion modeling and risk assessment were conducted using the California Air Resources Board Hotspots Analysis and Reporting Program, Version 2 (Build 16088). The regulatory non-default Control option was selected to enable capped stack releases. The rural option was enabled. Variable emissions were used for the two new boilers (Source ID 5) that operate from 5AM to 10PM every day. The

receptors were placed 20 meters apart in a 1400-meter by 1400-meter grid around the facility. Boundary receptors were generated along the property boundary 10 meters apart. All receptors had a flagpole height of 1.5 meters. Grid and receptor data may be found in *UCSB_PORTOLA_AERMAP.REC* located in the *UCSB Portola HRA.zip* file referenced in the Attachments section of this report.

The cancer risks for the residential receptors and the point of maximum impact (PMI) were determined using the “individual resident” receptor type, 30-year exposure duration, and the intake rate from the “RMP using the Derived Method.” The chronic non-cancer hazard indices for the residential receptors and the PMI were determined using the “individual resident” receptor type and the intake rate from the “OEHHA Derived Method.” The diesel engines are uncontrolled, but the only pollutant with chronic health impacts emitted by the diesel engines is diesel PM, which is not a multipathway pollutant. The only other sources of emissions are natural gas-fired boilers, which emit particulate matter less than 2.5 microns. Therefore, the deposition rate of 0.02 m/s was used for this analysis. The soil and mother’s milk pathways were included, using default Tier 1 values. The dermal pathway was included, with a “Warm” climate. The homegrown produce, chicken and egg pathways were also included, using the default values for households that garden and raise/hunt chickens because there are no farms close to this project. The default fractions of contaminated animal food were used, shown in Table 3.4.9.1 and Table 3.4.9.2 of the District’s *Modeling Guidelines for Health Risk Assessments*, Form-15i. The acute non-cancer hazard indices were calculated for all receptors. The multipathway analysis does not apply for acute non-cancer risk.

Isla Vista Elementary School was within the 1 in a million cancer risk isopleth after the initial HRA was ran without fraction of time at residence (FAH) values applied. Per OEHHA’s guidelines, the risk was calculated again using the FAH values only for age bins equal to or greater than 16 years under the inhalation pathway for the residential receptors and the PMI for the cancer risk. FAH values do not apply for worker receptors or for any non-cancer risk calculations.

The cancer risks for the worker receptors were determined using the “worker” receptor type, 25-year exposure duration and the intake rate from the “OEHHA Derived Method.” Although the diesel engines do not operate continuously, a worker adjustment factor was not applied because operation of the engines are not restricted to a certain time. The chronic non-cancer hazard indices for the worker receptors were determined using the “worker” receptor type and the intake rate from the “OEHHA Derived Method.” The default values for the soil pathway and the default values for a “Warm” climate for the dermal pathway were selected for the worker cancer and chronic non-cancer risk analysis. Per OEHHA Guidelines, the chronic 8-hour non-cancer hazard indices were calculated only for worker receptors because operation of the diesel engines is not restricted to a certain time. The default 8-hour moderate intensity intake rate was chosen for the chronic 8-hour risk. The multipathway analysis does not apply for chronic 8-hour non-cancer risk.

9.0 RESULTS

Risk assessment results at the off-site point of maximum impact (PMI) and the maximally exposed individual resident (MEIR) and worker (MEIW) receptor locations for cancer and for chronic and acute non-cancer health effects are shown in Table 9.1. The *italicized* values indicate the maximum risk for each risk category. The chronic 8-hour non-cancer risk at the MEIW is 0.00012 at Receptor No. 2092 (UTME 787828.4, UTMN 3812836). The on-site PMI for acute non-cancer risk is 0.342 at Receptor No. 2596 (UTME 787968.4, UTMN 3812976).

Table 9.1 – Risk at PMI, MEIR and MEIW Receptors

Type of Receptor	Receptor Number	Cancer Risk (in a million)	Chronic Non-Cancer HI	Acute Non-Cancer HI (Screening)	UTME (m)	UTMN (m)
PMI	5111	8.00	0.0071	0.228	787813.9	3812904
PMI	5098	4.95	0.0162	0.158	787943.8	3812908
PMI	2318	1.79	0.0016	0.261	788088.4	3812896
MEIR	2092	6.06	0.0048	0.211	787828.4	3812836
MEIR	2161	5.85	0.0046	0.220	787788.4	3812856
MEIW	2092	0.63	0.0030	0.211	787828.4	3812836
MEIW	2161	0.61	0.0029	0.220	787788.4	3812856

The PMIs for cancer and chronic non-cancer risk are located on the property boundary on the south side of the facility. The off-site PMI for acute non-cancer risk is located on El Colegio Rd, southeast of the facility. The MEIRs and MEIWs are located on the north side of Isla Vista Elementary School. The residential cancer risk contours were plotted on aerial photographs using Google Earth for informational purposes (shown in Attachment A). The 10 in a million cancer risk isopleth does not leave the property boundary. The other risk contours were not plotted because none of the calculated risks were above the District's significance thresholds.

The screening acute risk is a timesaving approximation that is conservative in nature. It is calculated by assuming that the contribution of risk from each source is at its maximum at the same instant in time. If there is more than one source, the maximum hourly risk from each source is summed to give the screening value, as if they had all occurred at the same time. In reality, the time that the risk from each source is at a maximum will differ depending on location and meteorology. The refined analysis was not performed because the acute risk at the on-site PMI is below the significance threshold of 1.0.

10.0 CONCLUSION

Per District guidelines, if a facility's toxic emissions result in a cancer risk equal to or greater than 10 in a million, it is considered a *significant risk* facility. For non-cancer risk, if a facility's toxic emissions result in a Hazard Index greater than 1.0, it is considered a *significant risk* facility. The risk assessment results show that the addition of a new diesel-fired emergency standby engine would not present a significant risk to the surrounding community. For this reason, Authority to Construct No. 14783 may be granted for this facility.

11.0 REFERENCES

- Risk notification levels were adopted by the Santa Barbara County Air Pollution Control Board of Directors on June 1993. The risk notification levels were set at 10 per million for cancer risk and a Hazard Index of 1.0 for non-cancer risk.
- Risk reduction thresholds were adopted by the Santa Barbara County Air Pollution Control Board of Directors on September 17, 1998. These risk reduction thresholds were set at the same level as public notification thresholds, i.e., 10 per million for cancer risk and a Hazard Index of 1.0 for non-cancer risk.

- Office of Environmental Health Hazard Assessment. *Air Toxics Hot Spots Program: Risk Assessment Guidelines*. February 2015. California Environmental Protection Agency. <http://oehha.ca.gov/media/downloads/crn/2015guidancemanual.pdf>.
- Santa Barbara County Air Pollution Control District. *Modeling Guidelines for Health Risk Assessments*. August 2015. <http://www.ourair.org/wp-content/uploads/apcd-15i.pdf>.
- Santa Barbara County Air Pollution Control District. *Piston IC Engine Technical Reference Document*. November 2002. <http://www.ourair.org/wp-content/uploads/sbcapcdicerefdoc.pdf>.
- Ventura County Air Pollution Control District. *AB 2588 Natural Gas Combustion Emission Factors*. May 2001. <http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf>.
- USEPA. *Table 1.4-4. Emission Factors for Metals from Natural Gas Combustion*. July 1998. <http://www.epa.gov/ttn/chie/ap42/ch01/final/c01s04.pdf>.

12.0 ATTACHMENTS

A – UCSB Portola Dining Commons: Residential Cancer Risk Isopleth

Source parameter data and HRA input and output files may be found in the following location:
<\\sbcapcd.org\shares\Toxics\SourceFiles\SSID02795UCSB\ATC 14783 Refined HRA\UCSB Portola HRA.zip>.

Information on the May 2016 screening HRA may be found in the following location:
<\\sbcapcd.org\shares\Toxics\SourceFiles\SSID02795UCSB\ATC 14783 HRA Screening>.

A – UCSB PORTOLA DINING COMMONS

RESIDENTIAL CANCER RISK ISOPLETH



10 IN A MILLION CANCER RISK ISOPLETH IN RED
1 IN A MILLION CANCER RISK ISOPLETH IN YELLOW
PROPERTY BOUNDARY IN BLUE
ISLA VISTA ELEMENTARY SCHOOL CIRCLED IN GREEN

Device #393041 – 96 bhp diesel engine providing electrical backup power to Webb Hall (Building 526):

1.0 SUMMARY

An air toxics Health Risk Assessment (HRA) screening was conducted by the Santa Barbara County Air Pollution Control District (District) for a proposed diesel-fired internal combustion engine (DICE) located at Webb Hall at UCSB. The proposed engine is a 96-bhp Model C4.4, manufactured by Caterpillar. The HRA screening was conducted using the District's DICE Screening Tool, which was developed using the USEPA-recommended screening model, AERSCREEN, and the Hotspots Analysis and Reporting Program (HARP) software, Version 2. Cancer risk and chronic non-cancer Hazard Index (HI) risk values were calculated and compared to *significance thresholds* for cancer and chronic non-cancer risk adopted by the District's Board of Directors. The calculated risk values and applicable thresholds are as follows:

	<u>Webb Hall DICE Max Risks</u>	<u>Significance Threshold</u>
Cancer risk:	0.5/million	≥10/million
Chronic non-cancer risk:	<0.1	>1

Based on these results, the proposed DICE at Webb Hall does not present a significant risk to the surrounding community. For this reason, Authority to Construct No. 15147 was issued for this project.

2.0 MODELING INFORMATION

The inputs to the DICE Screening Tool are shown in Figure 2.1 below.

Engine Data User Inputs

Dispersion

☐ Urban

☒ Rural

Engine Brake Horsepower

96 bhp

Distance from Source to the Nearest

Resident 850 meters **Worker** 850 meters

Engine Fuel Consumption

☒ Diesel - Naturally Aspirated

☐ Diesel - Turbocharged

☐ Diesel - TC/Aftercooled

☐ Engine Specific

Emission Factor for Diesel PM

0.15 g/bhp-hr

Permitted Hours

50 hr/yr

Meteorological Data Set

☒ Santa Maria Airport

☐ Santa Barbara Airport

Building Downwash

☒ Include Building Downwash

☐ No Building Downwash

Figure 2.1 – User Inputs to DICE Screening Tool

3.0 EMISSIONS

The calculated emissions for this DICE are shown in Table 3.1. The maximum permitted usage of 50 hours per year for maintenance and testing purposes, maximum rated brake horsepower of 96 bhp for this engine, and the ARB's *Airborne Toxic Control Measure for Stationary Compression Ignition Engines* particulate matter (PM) emission standard of 0.15 g/bhp-hr were used to calculate the annual emissions of diesel PM.

Table 3.1 –Facility Emissions Summary

Pollutant	Emissions (lb/yr)
Diesel PM	1.587

4.0 RESULTS

The cancer and chronic non-cancer risks are higher at the maximally exposed individual resident (MEIR) than at the maximally exposed individual worker (MEIW). Table 4.1 displays the cancer and chronic non-cancer risks at the MEIR. All of the calculated risk values are below the District's significance thresholds.

Table 4.1 – Summary of Screening Model Results

Pollutant	C _{annual} at MEIR ($\mu\text{g}/\text{m}^3$)	Cancer Risk (per million)	Chronic Non-Cancer Risk (Hazard Index)
Diesel PM	0.00068	0.51	0.0001

5.0 REFERENCES

- Risk notification levels were adopted by the Santa Barbara County Air Pollution Control Board of Directors on June 1993. The risk notification levels were set at 10 per million for cancer risk and a Hazard Index of greater than 1.0 for non-cancer risk.
- Air Resources Board. May 2011. "Final Regulation Order: Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines."
<https://www.arb.ca.gov/diesel/documents/FinalReg2011.pdf>.
- Office of Environmental Health Hazard Assessment. February 2015. "Air Toxics Hot Spots Program: Risk Assessment Guidelines." California Environmental Protection Agency.
<http://oehha.ca.gov/media/downloads/crn/2015guidancemanual.pdf>.
- Santa Barbara County Air Pollution Control District. August 2015. "Modeling Guidelines for Health Risk Assessments." <http://www.ourair.org/wp-content/uploads/apcd-15i.pdf>.

6.0 ATTACHMENT

The DICE Screening Tool spreadsheet for this permit may be found in the following location:
[\\sbcapcd.org/shares/Toxics/SourceFiles/SSID02795UCSB/ATC 15147 HRA Screening](https://sbcapcd.org/shares/Toxics/SourceFiles/SSID02795UCSB/ATC 15147 HRA Screening)

Devices #393551 and #393552 – two 324 bhp diesel engines providing electrical backup power to the Sewage Lift Station (Building 529):

1.0 SUMMARY

An air toxics Health Risk Assessment (HRA) screening was conducted by the Santa Barbara County Air Pollution Control District (District) for two proposed diesel-fired internal combustion engines (DICEs) located at the Building 529 Sewage Lift Station at the University of California – Santa Barbara (UCSB). The proposed engines are both 324-bhp Model QSB7, manufactured by Cummins. The HRA screening was conducted using the District's DICE Screening Tool, which was developed using the USEPA-recommended screening model, AERSCREEN, and the Hotspots Analysis and Reporting Program (HARP) software, Version 2. Cancer risk and chronic non-cancer Hazard Index (HI) risk values were calculated and compared to *significance thresholds* for cancer and chronic non-cancer risk adopted by the District's Board of Directors. The calculated risk values and applicable thresholds are as follows:

	<u>UCSB Bldg 529 DICE Max Risks</u>	<u>Significance Threshold</u>
Cancer risk:	0.8/million	≥ 10 /million
Chronic non-cancer risk:	<0.1	>1

Based on these results, the two proposed DICEs at UCSB do not present a significant risk to the surrounding community. For this reason, Authority to Construct No. 15369 was issued for this project.

2.0 MODELING INFORMATION

The inputs to the DICE Screening Tool are shown in Figure 2.1 below. Because the two engines are identical, one spreadsheet was used to calculate the total risks from both engines. The total annual usage for both engines (for maintenance and testing purposes) of 100 hours/year was entered to account for the total emissions from both engines.

Engine Data User Inputs

Dispersion

☐ Urban

☒ Rural

Engine Size

324 bhp

Distance from Source to

Nearest Resident:

700 meters

Nearest Worker:

500 meters

Diesel PM Emission Factor

0.15 g/bhp-hr

Permitted Hours

100 hr/yr

Meteorological Data Set

☐ Santa Maria Airport

☒ Santa Barbara Airport

Building Downwash

☒ Include Building Downwash

☐ No Building Downwash

Figure 2.1 – User Inputs to DICE Screening Tool

3.0 EMISSIONS

The total calculated emissions for both engines are shown in Table 3.1. The maximum permitted usage of 50 hours per year for maintenance and testing purposes, maximum rated brake horsepower of 324 bhp, and CARB's *Final Regulation Order: Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines* particulate matter (PM) emission standard of 0.15 g/bhp-hr were used to calculate the annual emissions of diesel PM for each engine.

Table 3.1 – Facility Emissions Summary

Pollutant	Emissions (lb/yr)
Diesel PM	10.7

4.0 RESULTS

The cancer and chronic non-cancer risks are higher at the maximally exposed individual worker (MEIW) than at the maximally exposed individual resident (MEIR). Table 4.1 displays the cancer and chronic non-cancer risk results at the MEIW. All of the calculated risk values are below the District's significance thresholds.

Table 4.1 – Summary of Screening Tool Results

Pollutant	C _{annual} at MEIW (µg/m ³)	Cancer Risk (per million)	Chronic Non-Cancer Risk (Hazard Index)
Diesel PM	0.0135	0.83	0.003

5.0 REFERENCES

- Risk notification levels were adopted by the Santa Barbara County Air Pollution Control Board of Directors on June 1993. The risk notification levels were set at 10 per million for cancer risk and a Hazard Index of greater than 1.0 for non-cancer risk.
- California Air Resources Board. May 2011. *Final Regulation Order: Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines*. <https://www.arb.ca.gov/diesel/documents/FinalReg2011.pdf>.
- Office of Environmental Health Hazard Assessment. February 2015. *Air Toxics Hot Spots Program: Risk Assessment Guidelines*. California Environmental Protection Agency. <http://oehha.ca.gov/media/downloads/crnrr/2015guidancemanual.pdf>.
- Santa Barbara County Air Pollution Control District. February 2019. *Modeling Guidelines for Health Risk Assessments*. <http://www.ourair.org/wp-content/uploads/apcd-15i.pdf>.
- Santa Barbara County Air Pollution Control District. 2019. *DICE Health Risk Assessment Screening Tool*. <https://www.ourair.org/dice-health-risk-assessment-screening-tool/>.

6.0 ATTACHMENT

The DICE Screening Tool spreadsheet for this permit may be found in the following location:
<https://sbcpd.org/shares/Toxics/SourceFiles/SSID02795UCSB/ATC 15369 HRA Screening>

Device #393553 – 281 bhp diesel engine providing electrical backup power to Henley Hall (Building 226):

1.0 SUMMARY

This Health Risk Assessment was conducted as part of ATC 15374 assuming a maximum rating of 315 bhp. After installation, the device was determined to have a maximum rating of 281 bhp. The District determined a new Health Risk Assessment was not required as the assessed risk represents a worst-case scenario. An air toxics Health Risk Assessment (HRA) screening was conducted by the Santa Barbara County Air Pollution Control District (District) for the proposed diesel-fired internal combustion engine (DICE) located at Henley Hall at the University of California – Santa Barbara (UCSB). The proposed engine is a 315-bhp Model C7.1, manufactured by Caterpillar. The HRA screening was conducted using the District's DICE Screening Tool, which was developed using the USEPA-recommended screening model, AERSCREEN, and the Hotspots Analysis and Reporting Program (HARP) software, Version 2. Cancer risk and chronic non-cancer Hazard Index (HI) risk values were calculated and compared to *significance thresholds* for cancer and chronic non-cancer risk adopted by the District's Board of Directors. The calculated risk values and applicable thresholds are as follows:

	<u>UCSB Henley Hall DICE Max Risks</u>	<u>Significance Threshold</u>
Cancer risk:	3.3/million	≥10/million
Chronic non-cancer risk:	<0.1	>1

Based on these results, the proposed DICE at Henley Hall in UCSB does not present a significant risk to the surrounding community. For this reason, Authority to Construct No. 15374 will be issued for this project.

2.0 MODELING INFORMATION

The inputs to the DICE Screening Tool are shown in Figure 2.1 below. The total annual usage (for maintenance and testing purposes) of 50 hours/year was entered to account for the total emissions from the engine.

Engine Data User Inputs

Dispersion
☒ Urban
☐ Rural

Engine Size
 315 bhp

Distance from Source to
Nearest Resident:
 638 meters
Nearest Worker:
 39 meters

Diesel PM Emission Factor
 0.15 g/bhp-hr

Permitted Hours
 50 hr/yr

Meteorological Data Set
☐ Santa Maria Airport
☒ Santa Barbara Airport

Building Downwash
☒ Include Building Downwash
☐ No Building Downwash

Figure 2.1 – User Inputs to DICE Screening Tool

3.0 EMISSIONS

The total calculated emissions for the engine is shown in Table 3.1. The maximum permitted usage of 50 hours per year for maintenance and testing purposes, maximum rated brake horsepower of 315 bhp, and CARB's *Final Regulation Order: Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines* particulate matter (PM) emission standard of 0.15 g/bhp-hr were used to calculate the annual emissions of diesel PM for the engine.

Table 3.1 – Facility Emissions Summary

Pollutant	Emissions (lb/yr)
Diesel PM	5.21

4.0 RESULTS

The cancer and chronic non-cancer risks are higher at the maximally exposed individual worker (MEIW) than at the maximally exposed individual resident (MEIR). Table 4.1 displays the cancer and chronic non-cancer risk results at the MEIW. All of the calculated risk values are below the District's significance thresholds.

Table 4.1 – Summary of Screening Tool Results

Pollutant	C _{annual} at MEIW (µg/m ³)	Cancer Risk (per million)	Chronic Non-Cancer Risk (Hazard Index)
Diesel PM	0.05301	3.28	0.0106

5.0 REFERENCES

- Risk notification levels were adopted by the Santa Barbara County Air Pollution Control Board of Directors on June 1993. The risk notification levels were set at 10 per million for cancer risk and a Hazard Index of greater than 1.0 for non-cancer risk.
- California Air Resources Board. May 2011. *Final Regulation Order: Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines*. <https://www.arb.ca.gov/diesel/documents/FinalReg2011.pdf>.
- Office of Environmental Health Hazard Assessment. February 2015. *Air Toxics Hot Spots Program: Risk Assessment Guidelines*. California Environmental Protection Agency. <http://oehha.ca.gov/media/downloads/crn/2015guidancemanual.pdf>.
- Santa Barbara County Air Pollution Control District. February 2019. *Modeling Guidelines for Health Risk Assessments*. <http://www.ourair.org/wp-content/uploads/apcd-15i.pdf>.
- Santa Barbara County Air Pollution Control District. 2019. *DICE Health Risk Assessment Screening Tool*. <https://www.ourair.org/dice-health-risk-assessment-screening-tool/>.

Device #394710 – 69 bhp diesel engine providing electrical backup power to the Music and Lotte Lehmann Concert Hall Building (Building 531):

1.0 SUMMARY

An air toxics Health Risk Assessment (HRA) screening was conducted by the Santa Barbara County Air Pollution Control District (District) for a proposed diesel-fired internal combustion engine (DICE) located at Building 531, Music and Lotte Lehmann Concert Hall at UCSB. The proposed engine is a 69-bhp Model 4BT3.3-G5, manufactured by Cummins. The HRA screening was conducted using the District's DICE Screening Tool, which was developed using the USEPA-recommended screening model, AERSCREEN, and the Hotspots Analysis and Reporting Program (HARP) software, Version 2. Cancer risk and chronic non-cancer Hazard Index (HI) risk values were calculated and compared to *significance thresholds* for cancer and chronic non-cancer risk adopted by the District's Board of Directors. The calculated risk values and applicable thresholds are as follows:

	<u>UCSB Bldg 531 DICE Max Risks</u>	<u>Significance Threshold</u>
Cancer risk:	0.8/million	$\geq 10/\text{million}$
Chronic non-cancer risk:	<0.1	>1

Based on these results, the proposed DICE at UCSB does not present a significant risk to the surrounding community. For this reason, Authority to Construct No. 15404 will be issued for this project.

2.0 MODELING INFORMATION

The inputs to the DICE Screening Tool are shown in Figure 2.1 below.

Engine Data User Inputs

Dispersion

☐ Urban

☒ Rural

Engine Size

69 bhp

Distance from Source to

Nearest Resident:

150 meters

Nearest Worker:

20 meters

Diesel PM Emission Factor

0.15 g/bhp-hr

Permitted Hours

50 hr/yr

Meteorological Data Set

☐ Santa Maria Airport

☒ Santa Barbara Airport

Building Downwash

☒ Include Building Downwash

☐ No Building Downwash

Figure 2.1 – User Inputs to DICE Screening Tool

3.0 EMISSIONS

The calculated emissions for this DICE are shown in Table 3.1. The maximum permitted usage of 50 hours per year for maintenance and testing purposes, maximum rated brake horsepower of 69 bhp for this engine, and CARB's *Final Regulation Order: Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines* particulate matter (PM) emission standard of 0.15 g/bhp-hr were used to calculate the annual emissions of diesel PM.

Table 3.1 – Facility Emissions Summary

Pollutant	Emissions (lb/yr)
Diesel PM	1.14

4.0 RESULTS

The cancer risk is higher at the maximally exposed individual resident (MEIR) than at the maximally exposed individual worker (MEIW), and the chronic non-cancer risk is higher at the MEIW than at the MEIR. Table 4.1 displays the cancer risk at the MEIR and the chronic non-cancer risk at the MEIW. All of the calculated risk values are below the District's significance thresholds.

Table 4.1 – Summary of Screening Tool Results

Pollutant	C _{annual} at MEIR (µg/m ³)	C _{annual} at MEIW (µg/m ³)	Cancer Risk (per million)	Chronic Non-Cancer Risk (Hazard Index)
Diesel PM	0.00105	0.0105	0.80	0.002

5.0 REFERENCES

- Risk notification levels were adopted by the Santa Barbara County Air Pollution Control Board of Directors on June 1993. The risk notification levels were set at 10 per million for cancer risk and a Hazard Index of greater than 1.0 for non-cancer risk.
- California Air Resources Board. May 2011. *Final Regulation Order: Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines*. <https://www.arb.ca.gov/diesel/documents/FinalReg2011.pdf>.
- Office of Environmental Health Hazard Assessment. February 2015. *Air Toxics Hot Spots Program: Risk Assessment Guidelines*. California Environmental Protection Agency. <http://oehha.ca.gov/media/downloads/crn/2015guidancemanual.pdf>.
- Santa Barbara County Air Pollution Control District. July 2019. *Modeling Guidelines for Health Risk Assessments*. <http://www.ourair.org/wp-content/uploads/apcd-15i.pdf>.
- Santa Barbara County Air Pollution Control District. 2019. *DICE Health Risk Assessment Screening Tool*. <https://www.ourair.org/dice-health-risk-assessment-screening-tool/>.

6.0 ATTACHMENT

The DICE Screening Tool spreadsheet for this permit may be found in the following location:
<\\sbcapcd.org\shares\Toxics\SourceFiles\SSID02795UCSB\ATC 15404 HRA Screening>

Device #394712 – 69 bhp diesel engine providing electrical backup power to Theater and Dance East & Hatlen Theater Building (Building 554):

1.0 SUMMARY

An air toxics Health Risk Assessment (HRA) screening was conducted by the Santa Barbara County Air Pollution Control District (District) for a proposed diesel-fired internal combustion engine (DICE) located at Building 554, Theater and Dance East & Hatlen Theater at UCSB. The proposed engine is a 69-bhp Model 4BT3.3-G5, manufactured by Cummins. The HRA screening was conducted using the District's DICE Screening Tool, which was developed using the USEPA-recommended screening model, AERSCREEN, and the Hotspots Analysis and Reporting Program (HARP) software, Version 2. Cancer risk and chronic non-cancer Hazard Index (HI) risk values were calculated and compared to *significance thresholds* for cancer and chronic non-cancer risk adopted by the District's Board of Directors. The calculated risk values and applicable thresholds are as follows:

	<u>UCSB Bldg 554 DICE Max Risks</u>	<u>Significance Threshold</u>
Cancer risk:	0.6/million	≥ 10 /million
Chronic non-cancer risk:	<0.1	>1

Based on these results, the proposed DICE at UCSB does not present a significant risk to the surrounding community. For this reason, Authority to Construct No. 15405 will be issued for this project.

2.0 MODELING INFORMATION

The inputs to the DICE Screening Tool are shown in Figure 2.1 below.

Engine Data User Inputs

Dispersion

☐ Urban

☒ Rural

Engine Size

69 bhp

Distance from Source to

Nearest Resident:

220 meters

Nearest Worker:

60 meters

Meteorological Data Set

☐ Santa Maria Airport

☒ Santa Barbara Airport

Building Downwash

☒ Include Building Downwash

☐ No Building Downwash

Diesel PM Emission Factor

0.15 g/bhp-hr

Permitted Hours

50 hr/yr

Figure 2.1 – User Inputs to DICE Screening Tool

3.0 EMISSIONS

The calculated emissions for this DICE are shown in Table 3.1. The maximum permitted usage of 50 hours per year for maintenance and testing purposes, maximum rated brake horsepower of 69 bhp for this engine, and CARB's *Final Regulation Order: Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines* particulate matter (PM) emission standard of 0.15 g/bhp-hr were used to calculate the annual emissions of diesel PM.

Table 3.1 – Facility Emissions Summary

Pollutant	Emissions (lb/yr)
Diesel PM	1.14

4.0 RESULTS

The cancer risk is higher at the maximally exposed individual resident (MEIR) than at the maximally exposed individual worker (MEIW), and the chronic non-cancer risk is higher at the MEIW than at the MEIR. Table 4.1 displays the cancer risk at the MEIR and the chronic non-cancer risk at the MEIW. All of the calculated risk values are below the District's significance thresholds.

Table 4.1 – Summary of Screening Tool Results

Pollutant	C _{annual} at MEIR (µg/m ³)	C _{annual} at MEIW (µg/m ³)	Cancer Risk (per million)	Chronic Non-Cancer Risk (Hazard Index)
Diesel PM	0.00080	0.00592	0.61	0.001

5.0 REFERENCES

- Risk notification levels were adopted by the Santa Barbara County Air Pollution Control Board of Directors on June 1993. The risk notification levels were set at 10 per million for cancer risk and a Hazard Index of greater than 1.0 for non-cancer risk.
- California Air Resources Board. May 2011. *Final Regulation Order: Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines*. <https://www.arb.ca.gov/diesel/documents/FinalReg2011.pdf>.
- Office of Environmental Health Hazard Assessment. February 2015. *Air Toxics Hot Spots Program: Risk Assessment Guidelines*. California Environmental Protection Agency. <http://oehha.ca.gov/media/downloads/crn/2015guidancemanual.pdf>.
- Santa Barbara County Air Pollution Control District. July 2019. *Modeling Guidelines for Health Risk Assessments*. <http://www.ourair.org/wp-content/uploads/apcd-15i.pdf>.
- Santa Barbara County Air Pollution Control District. 2019. *DICE Health Risk Assessment Screening Tool*. <https://www.ourair.org/dice-health-risk-assessment-screening-tool/>.

6.0 ATTACHMENT

The DICE Screening Tool spreadsheet for this permit may be found in the following location:
https://sbcapcd.org/shares/Toxics/SourceFiles/SSID02795UCSB/ATC_15405_HRA_Screening

Device #394714 – 69 bhp diesel engine providing electrical backup power to the Public Safety Building (Building 574):

1.0 SUMMARY

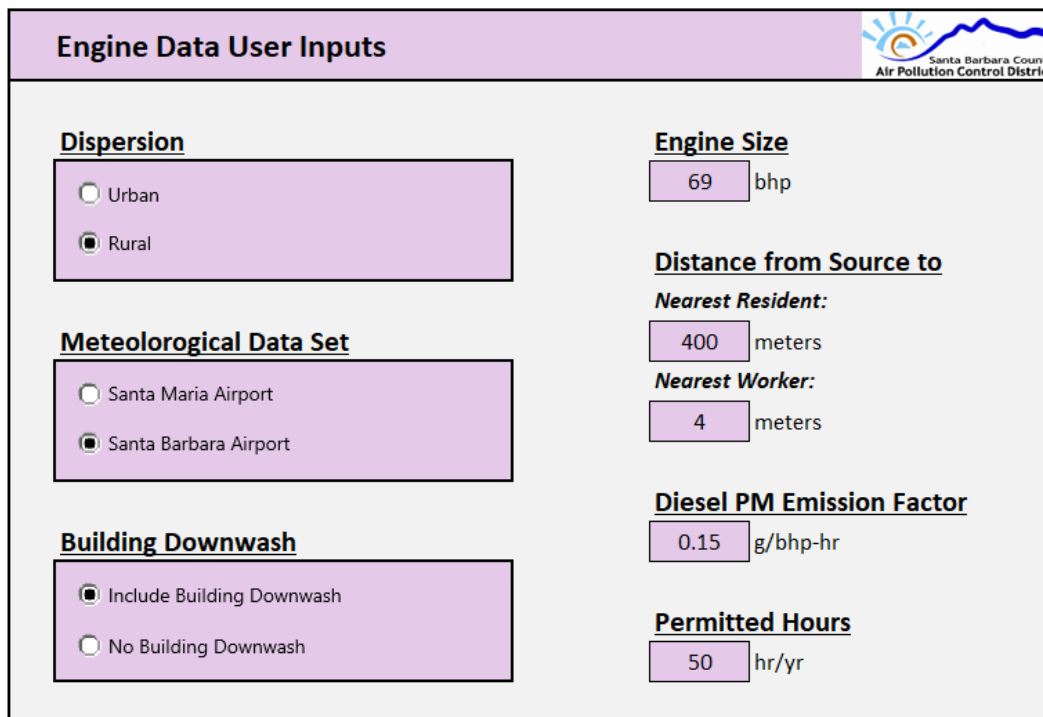
An air toxics Health Risk Assessment (HRA) screening was conducted by the Santa Barbara County Air Pollution Control District (District) for a proposed diesel-fired internal combustion engine (DICE) located at Building 574, Public Safety at UCSB. The proposed engine is a 69-bhp Model 4BT3.3-G5, manufactured by Cummins. The HRA screening was conducted using the District's DICE Screening Tool, which was developed using the USEPA-recommended screening model, AERSCREEN, and the Hotspots Analysis and Reporting Program (HARP) software, Version 2. Cancer risk and chronic non-cancer Hazard Index (HI) risk values were calculated and compared to *significance thresholds* for cancer and chronic non-cancer risk adopted by the District's Board of Directors. The calculated risk values and applicable thresholds are as follows:

	<u>UCSB Bldg 574 DICE Max Risks</u>	<u>Significance Threshold</u>
Cancer risk:	3.2/million	≥ 10 /million
Chronic non-cancer risk:	<0.1	>1

Based on these results, the proposed DICE at UCSB does not present a significant risk to the surrounding community. For this reason, Authority to Construct No. 15406 will be issued for this project.

2.0 MODELING INFORMATION

The inputs to the DICE Screening Tool are shown in Figure 2.1 below.



Engine Data User Inputs

Dispersion

☐ Urban

☒ Rural

Engine Size

69 bhp

Meteorological Data Set

☐ Santa Maria Airport

☒ Santa Barbara Airport

Distance from Source to

Nearest Resident:

400 meters

Nearest Worker:

4 meters

Diesel PM Emission Factor

0.15 g/bhp-hr

Building Downwash

☒ Include Building Downwash

☐ No Building Downwash

Permitted Hours

50 hr/yr

Figure 2.1 – User Inputs to DICE Screening Tool

3.0 EMISSIONS

The calculated emissions for this DICE are shown in Table 3.1. The maximum permitted usage of 50 hours per year for maintenance and testing purposes, maximum rated brake horsepower of 69 bhp for this engine, and CARB's *Final Regulation Order: Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines* particulate matter (PM) emission standard of 0.15 g/bhp-hr were used to calculate the annual emissions of diesel PM.

Table 3.1 – Facility Emissions Summary

Pollutant	Emissions (lb/yr)
Diesel PM	1.14

4.0 RESULTS

The cancer risk and chronic non-cancer risk are higher at the maximally exposed individual worker (MEIW) than at the maximally exposed individual resident (MEIR). Table 4.1 displays the cancer and chronic non-cancer risk results at the MEIW. All of the calculated risk values are below the District's significance thresholds.

Table 4.1 – Summary of Screening Tool Results

Pollutant	C _{annual} at MEIW (µg/m ³)	Cancer Risk (per million)	Chronic Non-Cancer Risk (Hazard Index)
Diesel PM	0.0516	3.19	0.010

5.0 REFERENCES

- Risk notification levels were adopted by the Santa Barbara County Air Pollution Control Board of Directors on June 1993. The risk notification levels were set at 10 per million for cancer risk and a Hazard Index of greater than 1.0 for non-cancer risk.
- California Air Resources Board. May 2011. *Final Regulation Order: Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines*. <https://www.arb.ca.gov/diesel/documents/FinalReg2011.pdf>.
- Office of Environmental Health Hazard Assessment. February 2015. *Air Toxics Hot Spots Program: Risk Assessment Guidelines*. California Environmental Protection Agency. <http://oehha.ca.gov/media/downloads/crn/2015guidancemanual.pdf>.
- Santa Barbara County Air Pollution Control District. July 2019. *Modeling Guidelines for Health Risk Assessments*. <http://www.ourair.org/wp-content/uploads/apcd-15i.pdf>.
- Santa Barbara County Air Pollution Control District. 2019. *DICE Health Risk Assessment Screening Tool*. <https://www.ourair.org/dice-health-risk-assessment-screening-tool/>.

6.0 ATTACHMENT

The DICE Screening Tool spreadsheet for this permit may be found in the following location: https://sbcapcd.org/shares/Toxics/SourceFiles/SSID02795UCSB/ATC_15406_HRA_Screening

1.0 SUMMARY

An air toxics Health Risk Assessment (HRA) screening was conducted by the Santa Barbara County Air Pollution Control District (District) for a proposed diesel-fired internal combustion engine (DICE) located at Bldg 506 at UCSB in Santa Barbara. The proposed engine is a 161-bhp Model C4.4, manufactured by Caterpillar. The HRA screening was conducted using the USEPA-recommended screening model, AERSCREEN, with the Hotspots Analysis and Reporting Program (HARP) software, Version 2 (Build 21081). Cancer risk and chronic non-cancer Hazard Index (HI) risk values were calculated and added to existing refined HRA results for UCSB for inventory year 2008. The sum of the cancer and chronic non-cancer risk results were compared to *significance thresholds* adopted by the District's Board of Directors. The calculated risk values and applicable thresholds are as follows:

	<u>UCSB DICE Max Risks</u>	<u>Significance Threshold</u>
Cancer risk:	9.3/million	≥10/million
Chronic non-cancer risk:	0.3	>1

Based on these results, the proposed DICE at Bldg 506 at UCSB does not present a significant risk to the surrounding community.

2.0 MODELING INFORMATION

The stack parameter inputs to AERSCREEN View are outlined in Table 2.1.

Table 2.1 – Summary of Stack Parameter Inputs

Source ID	Source Type	Release Type	Release Height (ft)	Temperature (°F)	Velocity (ft/s)	Diameter (ft)
STCK1	POINT	Capped	8.0	942.0	87.137	0.417

The rural option was enabled, and a flagpole height of 1.5 meters was used for all receptors. The AERSURFACE output file for the 2012-2016 Santa Barbara Airport meteorological data set was used. The closest residential receptor at 93 m and the closest worker receptor at 204 m from the source were included. The inversion break-up fumigation and shoreline fumigation options were not enabled. Terrain effects were not included in the model. Building downwash was included, and the building information is shown in Table 2.2. The X and Y coordinates in the table are relative to the location of the diesel engine.

Table 2.2 – Summary of Building Information

Building ID	Height (m)	Building Type	SW Corner X-coordinate (m)	SW Corner Y-coordinate (m)	X-Length (m)	Y-Length (m)	Rotation Angle (deg)
BLD1	24.99	Rectangular	-15.0	0.0	92.35	59.13	0
BLD2	34.14	Rectangular	-13.0	73.15	75.9	193.85	0
BLD3	20.42	Rectangular	70.0	73.0	69.49	51.82	0
BLD4	7.62	Rectangular	5.5	-15.0	19.51	7.01	0
BLD5	4.57	Rectangular	-4.0	-8.0	7.01	35.36	180
BLD6	14.33	Rectangular	28.0	-69.0	50.6	61.57	0

After the pollutant concentrations were entered into HARP 2, the cancer risk was determined at the maximally exposed individual resident (MEIR) using the “individual resident” receptor type and the breathing rate from the “RMP using the Derived Method” for an exposure duration of 30 years. Under the inhalation pathway, the fraction of time at home (FAH) values were not applied for any age bins. The cancer risk was also determined at the maximally exposed individual worker (MEIW) using the “worker” receptor type and the breathing rate from the “OEHHA Derived Method” for an exposure duration of 25 years, with a worker adjustment factor of 4.2. The chronic non-cancer hazard index was calculated for the MEIR using the “individual resident” receptor type and the breathing rate from the “OEHHA Derived Method.” The chronic non-cancer hazard index was also calculated for the MEIW using the “worker” receptor type and the breathing rate from the “OEHHA Derived Method.” The only exposure pathway analyzed was the inhalation pathway because diesel PM is not a multipathway pollutant. A list of multipathway pollutants can be found in Table 5.1 of OEHHA’s 2015 Guidance Manual, which is included in Section 4.4 of the District’s *Modeling Guidelines for Health Risk Assessments*, referenced in Section 5.0 of this document.

3.0 EMISSIONS

The calculated emissions for this DICE are shown in Table 3.1. The maximum permitted usage of 40 hours per year for maintenance and testing purposes, maximum rated brake horsepower of 161 bhp for this engine, and CARB’s *Airborne Toxic Control Measure for Stationary Compression Ignition Engines* particulate matter (PM) emission standard of 0.15 g/bhp-hr were used to calculate the annual emissions of diesel PM.

Table 3.1 – Facility Emissions Summary

Pollutant	Emissions (lb/yr)
Diesel PM	2.13

4.0 RESULTS

Table 4.1 displays the cancer and chronic non-cancer risk results at the MEIR and MEIW for the HRA screening for this DICE, the results for the 2008 refined HRA for UCSB, and the sum of the risk results. All of the calculated risk values are below the District’s significance thresholds.

Table 4.1 – Summary of Risk Results

	Cancer Risk at the MEIR (per million)	Cancer Risk at the MEIW (per million)	Chronic Non-Cancer Risk at the MEIR (Hazard Index)	Chronic Non-Cancer Risk at the MEIW (Hazard Index)
DICE Screening:	4.29	1.03	0.001	0.001
2008 HRA:	5.02	0.93	0.293	0.120
Total:	9.31	1.96	0.294	0.121

5.0 REFERENCES

- Risk notification levels were adopted by the Santa Barbara County Air Pollution Control Board of Directors on June 1993. The risk notification levels were set at 10 per million for cancer risk and a Hazard Index of greater than 1.0 for non-cancer risk.

- California Air Resources Board. May 2011. *Final Regulation Order: Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines*. <https://www.arb.ca.gov/diesel/documents/FinalReg2011.pdf>.
- Office of Environmental Health Hazard Assessment. February 2015. *Air Toxics Hot Spots Program: Risk Assessment Guidelines*. California Environmental Protection Agency. <http://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf>.
- Santa Barbara County Air Pollution Control District. December 2018. *DRAFT Health Risk Assessment Report: University of California Santa Barbara*.
- Santa Barbara County Air Pollution Control District. June 2020. *Modeling Guidelines for Health Risk Assessments*. <https://www.ourair.org/wp-content/uploads/apcd-15i.pdf>.
- Santa Barbara County Air Pollution Control District. 2021. *Meteorological Data*. <https://www.ourair.org/metdata/>.

6.0 ATTACHMENT

Source parameter data and the AERSCREEN and HARP 2 input and output files for this project may be found in the following location:

<\\sbcapcd.org\shares\Toxics\SourceFiles\SSID02795UCSB\ATC 15774 HRA Screening>

Attachment 10.7. Gasoline Tank Emissions

EMISSION CALCULATIONS

Device 114067 and 114066 in Marine Biotech Lab Building 555

FID 2795

last revised: 11/25/2014

Facility Data

Parameter	Annual		Daily	
	Value	Units	Value	Units
Gasoline Throughput ¹	20,000	gals/yr	55	gals/day

Notes:

(1) Daily throughput is based on permitted gallons per year divided by 365 days/month.

Gasoline Emission Factors

Selection (enter "X")	Scenario	Scenario Description	Emission Factors					
			Loading	Breathing	Refueling	Spillage	Total	Units
	1	AG: No Control	8.58	2.15	8.58	0.62	19.93	lbs/1000 gals
X	2	AG: Phase I only	0.43	2.15	8.58	0.62	11.78	lbs/1000 gals
	3A	AG: Phase I and II w/o Vent Valve	0.43	2.15	0.43	0.43	3.43	lbs/1000 gals
	3B	AG: Phase I and II w/Vent Valve	0.43	0.54	0.00	0.00	0.97	lbs/1000 gals
	4	UG: No Control	8.58	1.02	8.58	0.62	18.80	lbs/1000 gals
	5A	UG: Phase I only	0.43	1.02	8.58	0.62	10.65	lbs/1000 gals
	5B	UG: Phase I with Vent Valve	0.43	0.26	8.58	0.62	9.89	lbs/1000 gals
	6A	UG: Phase I and II w/o Vent Valve	0.43	1.02	0.43	0.43	2.31	lbs/1000 gals
	6B	UG: Phase I and II w/Vent Valve	0.43	0.26	0.43	0.43	1.54	lbs/1000 gals
	6C	UG: Phase I EVR and II w/Vent Valve	0.17	0.26	0.43	0.43	1.28	lbs/1000 gals

Notes:

(1) Reference: GDF Emission Factors Memo (5-20-03).

AST Tank Emissions

$$E_{\text{day}} = 0.14 \text{ lb/day}$$

$$E_{\text{yr}} = 0.03 \text{ tons/year}$$

Notes:

- (1) Loading of fuel into the AST bulk storage tank(s).
- (2) Emissions include loading and breathing losses.

Fueling Boats

$$E_{\text{day}} = 0.50 \text{ lb/day}$$

$$E_{\text{yr}} = 0.09 \text{ tons/year}$$

Notes:

- (1) Loading of fuel from the dispenser into boats
- (2) Uncontrolled. Loading of fuel from the dispenser into boats.
- (3) Emissions include refueling and spillage.

Total AvGas Emissions

$$E_{\text{day}} = 0.65 \text{ lb/day}$$

$$E_{\text{yr}} = 0.12 \text{ tons/year}$$

Gasoline Dispensing Facility (GDF) Emissions Calculations - Building 336

DATE: 10/20/2020
Permit: PTO 13725 - R2
FID: 2795
Annual TP: 240,000 gal/yr
Scenario: 3C
Emission Factor: 1.515 lb/1000 gal

Daily: 1.20 lb/day
Annual: 0.19 tpy

Parameter	Annual		Daily	
	Value	Units	Value	Units
Gasoline Throughput ¹	240,000	gals/yr	--	--

Selection (enter "X")	Scenario	Scenario Description	Loading	Breathing	Refueling	Spillage	Total	Units
	1	AG: No Control	8.40	2.10	8.40	0.61	19.51	lbs/1000 gals
	2	AG: Phase I only	0.42	2.10	8.40	0.61	11.53	lbs/1000 gals
	3A	AG: Phase I and II w/o Vent Valve	0.42	2.10	0.42	0.42	3.36	lbs/1000 gals
	3B	AG: Phase I and II w/Vent Valve	0.42	0.53	0.42	0.42	1.79	lbs/1000 gals
X	3C	AG: Phase I EVR and II w/Vent Valve	0.15	0.53	0.42	0.42	1.52	lbs/1000 gals
	4	UG: No Control	8.40	1.00	8.40	0.61	18.41	lbs/1000 gals
	5A	UG: Phase I only	0.42	1.00	8.40	0.61	10.43	lbs/1000 gals
	5B	UG: Phase I with Vent Valve	0.42	0.25	8.40	0.61	9.68	lbs/1000 gals
	6A	UG: Phase I and II w/o Vent Valve	0.42	1.00	0.42	0.42	2.26	lbs/1000 gals
	6B	UG: Phase I and II w/Vent Valve	0.42	0.25	0.42	0.42	1.51	lbs/1000 gals
	6C	UG: Phase I EVR and II w/Vent Valve	0.15	0.25	0.42	0.42	1.24	lbs/1000 gals
	7	UG: Phase I EVR and Phase II EVR w/V	0.15	0.00	0.38	0.24	0.77	lbs/1000 gals

Basis: GDF Emission Factors Memo (11-18-2019)

AST Tank Emissions

$E_{day} = 0.44$ lb/day
 $E_{yr} = 0.08$ tons/year

Notes:

- (1) Loading of fuel into the AST bulk storage tank(s).
- (2) Emissions include loading and breathing losses.

Fueling Vehicles

$E_{day} = 0.55$ lb/day
 $E_{yr} = 0.10$ tons/year

Notes:

- (1) Controlled Loading of fuel from the dispenser to vehicles
- (3) Emissions include refueling and spillage.

Hose Permeation Emissions - Balance Type

0.1 lb/day-per hose
 3.74 lb/day-per hose

Number of Hoses 2
 $E_{day} = 0.2$
 $E_{yr} = 0.00374$

Total AvGas Emissions

$E_{day} = 1.20$ lb/day
 $E_{yr} = 0.19$ tons/year

Attachment 10.8. Coating Operation Emissions

coatings and solvents:

material	brand	id #	material density (ppg)	ROC content (percent)	material use gal/day	gal/month	ROC emissions lb/day	tpy
primer	Frazee	n/a	10.70	51.00	0.05	1.00	0.251	0.033
enamel	Frazee	n/a	9.70	40.00	0.05	1.00	0.179	0.023
enamel	Dunn Edwards	n/a	11.52	25.00	0.05	1.00	0.133	0.017
epoxy primer	Zehrun	n/a	13.30	44.00	0.05	1.00	0.269	0.035
primer	O'Brien	n/a	11.40	30.00	0.02	0.50	0.079	0.010
solvent	Certified	n/a	10.00	100.00	0.02	0.50	0.230	0.030
solvent	Certified	n/a	10.00	100.00	0.02	0.50	0.230	0.030
enamel reducer	Dunn Edwards	n/a	8.50	100.00	0.05	1.00	0.391	0.051
varnish	Dunn Edwards	n/a	7.64	60.00	0.05	1.00	0.211	0.028
shellac	Zehrun	n/a	11.67	69.00	0.02	0.50	0.185	0.024
lacquer	Dunn Edwards	n/a	7.58	75.00	0.05	1.00	0.262	0.034
thinner	Dunn Edwards	n/a	6.63	100.00	0.05	1.00	0.305	0.040
spray paint	Borden	n/a	11.68	69.00	0.02	0.50	0.185	0.024
coating/solvent subtotals							2.91	0.38

Notes:

1. Material data and usage rates originate from the SBCAPCD Engineering Evaluation for the 1989 issuance of PTO 7601.
2. Alternatives to the permitted coatings/solvents and different individual usage rates may be used provided the emission limits are not violated.
3. The materials listed above have been used as the basis for setting the emission limits on PTO 10056 and are not intended as signifying compliance or non-compliance with the ROC limits in any APCD rule.

Attachment 10.9. Permits Incorporated into PTO 13725 – R4

Permit Type	Permit No.	Issue Date	Description	Subject to NSR
PTO	16116	1/29/2025	Installation of four boilers	Yes
PTO	16255	3/23/2026	Operation of a portable ES DICE	Yes
PTO	16442	*TBD	Removal of existing sources	No
PTO	16577	*TBD	Installation of Phase II Pre-EVR for AB2588	Yes

*TBD indicates the PTO issuance is directly incorporated into the issuance of PT-70 13725-R4.

Attachment 10.10. UCSB Maps



Attachment 10.11. Fee Statement



air pollution control district
SANTA BARBARA COUNTY

FEE STATEMENT
PT-70/Reeval No. 13725 - R4
FID: 02795 UCSB / SSID: 02795

Device Fee

Device No.	Device Name	Fee Schedule	Qty of Fee Units	Fee per Unit	Fee Units	Max or Min. Fee Apply?	Number of Same Devices	Pro Rate Factor	Device Fee	Penalty Fee?	Fee Credit	Total Fee per Device
114058	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114076	Boiler 1	A4	2.070	977.52	Per 1 million Btu input	No	1	1.000	2,023.47	0.00	0.00	2,023.47
114030	Diesel Emergency Standby Generator Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
390201	Benchtop Spray Booth	A3	1.000	67.56	Per total rated hp	Min	1	1.000	129.46	0.00	0.00	129.46
388327	Boiler #1	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
388329	Boiler #3	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
388328	Boiler #2	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
114057	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
393553	E/S Diesel Engine	A0	2.237	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
394764	Hot Water Boiler	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
393445	Hot-Water Boiler #2	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
114056	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114055	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
393026	Boiler B1	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
393027	Boiler B2	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
114063	Boiler B-3	A4	3.250	977.52	Per 1 million Btu input	No	1	1.000	3,176.94	0.00	0.00	3,176.94
114054	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114071	Diesel Engine - ESSB	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114128	Heater 1	A4	2.270	977.52	Per 1 million Btu input	No	1	1.000	2,218.97	0.00	0.00	2,218.97
114129	Heater 2	A4	2.270	977.52	Per 1 million Btu input	No	1	1.000	2,218.97	0.00	0.00	2,218.97
388948	Boiler B-1	A4	1.460	977.52	Per 1 million Btu input	No	1	1.000	1,427.18	0.00	0.00	1,427.18
386140	Boiler B-2	A4	1.500	977.52	Per 1 million Btu input	No	1	1.000	1,466.28	0.00	0.00	1,466.28
386141	Boiler B-3	A4	1.500	977.52	Per 1 million Btu input	No	1	1.000	1,466.28	0.00	0.00	1,466.28
386142	Boiler B-4	A4	1.500	977.52	Per 1 million Btu input	No	1	1.000	1,466.28	0.00	0.00	1,466.28
386143	Boiler B-5	A4	1.500	977.52	Per 1 million Btu input	No	1	1.000	1,466.28	0.00	0.00	1,466.28

386144	Boiler B-6	A4	1.500	977.52	Per 1 million Btu input	No	1	1.000	1,466.28	0.00	0.00	1,466.28
386145	Boiler B-7	A4	1.500	977.52	Per 1 million Btu input	No	1	1.000	1,466.28	0.00	0.00	1,466.28
114134	Emergency Backup Generator	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
393029	Boiler B-1	A4	1.450	977.52	Per 1 million Btu input	No	1	1.000	1,417.40	0.00	0.00	1,417.40
393030	Boiler B-2	A4	1.450	977.52	Per 1 million Btu input	No	1	1.000	1,417.40	0.00	0.00	1,417.40
395544	E/S Engine	A0	1.143	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114052	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
388947	E/S Diesel Generator	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
394908	Boiler #1	A4	4.000	977.52	Per 1 million Btu input	No	1	1.000	3,910.08	0.00	0.00	3,910.08
394910	Boiler #2	A4	4.000	977.52	Per 1 million Btu input	No	1	1.000	3,910.08	0.00	0.00	3,910.08
388933	Boiler #6	A4	0.398	977.52	Per 1 million Btu input	No	1	1.000	389.05	0.00	0.00	389.05
388935	Boiler #7	A4	0.398	977.52	Per 1 million Btu input	No	1	1.000	389.05	0.00	0.00	389.05
388936	Boiler #8	A4	0.398	977.52	Per 1 million Btu input	No	1	1.000	389.05	0.00	0.00	389.05
388937	Boiler #9	A4	0.398	977.52	Per 1 million Btu input	No	1	1.000	389.05	0.00	0.00	389.05
388938	Boiler #10	A4	0.398	977.52	Per 1 million Btu input	No	1	1.000	389.05	0.00	0.00	389.05
388939	Boiler #11	A4	0.398	977.52	Per 1 million Btu input	No	1	1.000	389.05	0.00	0.00	389.05
388940	Boiler #12	A4	0.398	977.52	Per 1 million Btu input	No	1	1.000	389.05	0.00	0.00	389.05
388941	Boiler #13	A4	0.398	977.52	Per 1 million Btu input	No	1	1.000	389.05	0.00	0.00	389.05
114092	Boiler 1	A4	2.500	977.52	Per 1 million Btu input	No	1	1.000	2,443.80	0.00	0.00	2,443.80
114093	Boiler 2	A4	2.500	977.52	Per 1 million Btu input	No	1	1.000	2,443.80	0.00	0.00	2,443.80
114094	Boiler 3	A4	2.500	977.52	Per 1 million Btu input	No	1	1.000	2,443.80	0.00	0.00	2,443.80
114051	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
393622	Boiler #1	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
393623	Boiler #2	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
393624	Boiler #3	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
114050	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00

114084	Boiler 1	A4	4.600	977.52	Per 1 million Btu input	No	1	1.000	4,496.59	0.00	0.00	4,496.59
114049	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114085	Boiler 1	A4	2.970	977.52	Per 1 million Btu input	No	1	1.000	2,903.23	0.00	0.00	2,903.23
114048	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
393439	Hot-Water Boiler #1	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
393440	Hot-Water Boiler #2	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
386852	E/S Diesel Generator	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
387978	Boiler 1	A4	1.410	977.52	Per 1 million Btu input	No	1	1.000	1,378.30	0.00	0.00	1,378.30
387979	Boiler 2	A4	1.410	977.52	Per 1 million Btu input	No	1	1.000	1,378.30	0.00	0.00	1,378.30
393041	E/S Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
393266	Boiler 1	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
387629	Boiler 2	A4	1.500	977.52	Per 1 million Btu input	No	1	1.000	1,466.28	0.00	0.00	1,466.28
393551	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
393552	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
394710	E/S Diesel Engine	A0	0.489	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
387982	Boiler 4	A4	1.900	977.52	Per 1 million Btu input	No	1	1.000	1,857.29	0.00	0.00	1,857.29
387983	Boiler 3	A4	1.900	977.52	Per 1 million Btu input	No	1	1.000	1,857.29	0.00	0.00	1,857.29
387981	Boiler 2	A4	1.900	977.52	Per 1 million Btu input	No	1	1.000	1,857.29	0.00	0.00	1,857.29
387980	Boiler 1	A4	1.900	977.52	Per 1 million Btu input	No	1	1.000	1,857.29	0.00	0.00	1,857.29
114710	Boiler B-1	A4	2.970	977.52	Per 1 million Btu input	No	1	1.000	2,903.23	0.00	0.00	2,903.23
114711	Boiler B-2	A4	2.970	977.52	Per 1 million Btu input	No	1	1.000	2,903.23	0.00	0.00	2,903.23
393444	Hot-Water Boiler #1	A4	2.600	977.52	Per 1 million Btu input	No	1	1.000	2,541.55	0.00	0.00	2,541.55
114139	E/S Diesel-fired Generator	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114079	Boiler 1	A4	2.600	977.52	Per 1 million Btu input	No	1	1.000	2,541.55	0.00	0.00	2,541.55
114080	Boiler 2	A4	2.600	977.52	Per 1 million Btu input	No	1	1.000	2,541.55	0.00	0.00	2,541.55
114047	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
393267	Boiler 1	A4	2.940	977.52	Per 1 million Btu input	No	1	1.000	2,873.91	0.00	0.00	2,873.91

393268	Boiler 2	A4	2.940	977.52	Per 1 million Btu input	No	1	1.000	2,873.91	0.00	0.00	2,873.91
114046	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
393269	Boiler 1	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
393270	Boiler 2	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
114045	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
393593	Boiler 1	A4	1.536	977.52	Per 1 million Btu input	No	1	1.000	1,501.47	0.00	0.00	1,501.47
393594	Boiler 2	A4	1.536	977.52	Per 1 million Btu input	No	1	1.000	1,501.47	0.00	0.00	1,501.47
393625	Boiler #1	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
393626	Boiler #2	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
114064	Emergency Backup Generator	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
393442	Hot-Water Boiler #1	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
393443	Hot-Water Boiler #2	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
394712	E/S Diesel Engine	A0	0.489	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114067	Aboveground Storage Tank	A8	1.000	977.19	Per permit	No	1	1.000	977.19	0.00	0.00	977.19
114033	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
399834	Gasoline Dispenser	A7	1.000	74.93	Per nozzle	Min	1	1.000	520.93	0.00	0.00	520.93
114044	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114043	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
393447	Hot-Water Boiler #1	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
393448	Hot-Water Boiler #2	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
114130	IC Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
393441	Hot-Water Boiler #1	A4	3.120	977.52	Per 1 million Btu input	No	1	1.000	3,049.86	0.00	0.00	3,049.86
387971	Boiler 2	A4	1.500	977.52	Per 1 million Btu input	No	1	1.000	1,466.28	0.00	0.00	1,466.28
114070	Emergency Backup Generator	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114131	Hot-Water Boiler 1	A4	1.530	977.52	Per 1 million Btu input	No	1	1.000	1,495.61	0.00	0.00	1,495.61
114132	Hot-Water Boiler 2	A4	1.530	977.52	Per 1 million Btu input	No	1	1.000	1,495.61	0.00	0.00	1,495.61
114038	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114251	Parker Boiler #1	A4	1.680	977.52	Per 1 million Btu input	No	1	1.000	1,642.23	0.00	0.00	1,642.23
114252	Parker Boiler #2	A4	1.680	977.52	Per 1 million Btu input	No	1	1.000	1,642.23	0.00	0.00	1,642.23

395683	Boiler B3	A4	1.500	977.52	Per 1 million Btu input	No	1	1.000	1,466.28	0.00	0.00	1,466.28
395684	Boiler B2	A4	1.500	977.52	Per 1 million Btu input	No	1	1.000	1,466.28	0.00	0.00	1,466.28
114124	Boiler 1	A4	4.600	977.52	Per 1 million Btu input	No	1	1.000	4,496.59	0.00	0.00	4,496.59
114125	Boiler 2	A4	4.200	977.52	Per 1 million Btu input	No	1	1.000	4,105.58	0.00	0.00	4,105.58
114110	Boiler 1	A4	2.100	977.52	Per 1 million Btu input	No	1	1.000	2,052.79	0.00	0.00	2,052.79
114042	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114041	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114040	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114135	Hot-Water Boiler 1	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
114136	Hot-Water Boiler 2	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
114137	Hot-Water Boiler 3	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
114138	Hot-Water Boiler 4	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
114039	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114037	E/S Diesel Engine #1	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
394714	E/S Diesel Engine	A0	0.489	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114036	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114127	B1	A4	2.160	977.52	Per 1 million Btu input	No	1	1.000	2,111.44	0.00	0.00	2,111.44
393200	Boiler B2	A4	2.000	977.52	Per 1 million Btu input	No	1	1.000	1,955.04	0.00	0.00	1,955.04
388960	E/S Diesel Generator	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
393446	Hot-Water Boiler #1	A4	2.500	977.52	Per 1 million Btu input	No	1	1.000	2,443.80	0.00	0.00	2,443.80
114035	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
398589	Boiler B-2	A4	1.999	977.52	Per 1 million Btu input	No	1	0.612	1,195.89	0.00	0.00	1,195.89
398590	Boiler B-3	A4	1.999	977.52	Per 1 million Btu input	No	1	0.612	1,195.89	0.00	0.00	1,195.89
398591	Boiler B-4	A4	1.999	977.52	Per 1 million Btu input	No	1	0.612	1,195.89	0.00	0.00	1,195.89
398592	Boiler B-5	A4	1.999	977.52	Per 1 million Btu input	No	1	0.612	1,195.89	0.00	0.00	1,195.89
114034	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114060	E/S Diesel Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
114029	Firewater Pump Engine	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
393008	Boiler 1	A4	1.500	977.52	Per 1 million Btu input	No	1	1.000	1,466.28	0.00	0.00	1,466.28

393011	Boiler 2	A4	1.500	977.52	Per 1 million Btu input	No	1	1.000	1,466.28	0.00	0.00	1,466.28
393012	Boiler 3	A4	1.500	977.52	Per 1 million Btu input	No	1	1.000	1,466.28	0.00	0.00	1,466.28
114068	Automotive Type Spray Booth	A3	1.500	67.56	Per total rated hp	Min	1	1.000	129.46	0.00	0.00	129.46
388928	E/S Diesel Generator	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
388929	Portable E/S Diesel Water Pump	A0	1.000	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
398878	Portable ES DICE	A0	3.876	0.00	Per device	No	1	1.000	0.00	0.00	0.00	0.00
Device Fee Sub-Totals =									\$172,900.80	\$0.00	\$0.00	
Device Fee Total =												\$172,900.80

Permit Fee

Fee Based on Devices

\$172,900.80

Fee Statement Grand Total = \$172,900

Notes:

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- (1) Fee Schedule Items are listed in District Rule 210, Fee Schedule "A".
 - (2) The term "Units" refers to the unit of measure defined in the Fee Schedule.

Attachment 10.12. Permit Exempt Equipment

UCSB Non-Permitted Equipment Inventory

Small Boilers and Hot Water Heaters

Bldg Number	Building Name	Equipment Type	Manufacturer	Rated Heat Input (MMBtu/hr)	Manufacture Year	Equipment ID	Model	Serial Number
221	Student Resources Bldg (SRB)	Water Heater	Bradford White Co.	0.076	2011		U2XR75S6RN	LD34243352
225	Engineering Science Bldg (ESB)	Water Heater	AO Smith	0.199	2003		BTR 197 110	ME03-2497548-110
235	Life Sciences Bldg (LSB)	Water Heater	Bradford White Co.	0.199		Water Heater WH-1	DCG31	FC11704203
235	Life Sciences Bldg (LSB)	Water Heater	American	0.199		Water Heater WH-2	DCG32	ZH3588701
243	Intercollegiate Athletics	Boiler	Parker	1.140	2004	Boiler-B1	T114OL	55434
243	Intercollegiate Athletics	Boiler	Lochinvar	0.740	2004	Boiler-B2	CWN0745PN	1031100157899
266	Nanosystems	Boiler	Raypak	0.181	2004	GIWH-1	WH1-0181	411228310
266	Nanosystems	Boiler	Raypak	0.181	2004	GIWH-2	WH1-0181	411228309
276	Media Studies	Water Heater	Bradford White Co.	0.040	2006		M45036FBN	EK11158296
276	Media Studies	Water Heater	Rheem	0.040	2014		PROG48-40U RH58	RHUNM061413096
355	Orfalea Family Childrens Center	Water Heater	Rheem	0.075	2009	Water Heater	42V75F	RHLN0310N00084
451	Military Science	Water Heater	Bradford White Co.	0.040	2006		MI5036FBN	EH10971735
479	Old Gym	Water Heater	Rheem	0.075	2010	Water Heater	42V75F	RHLN0110N00020
489	Sycamore Hall	Boiler	Raypak	0.136			133A-T	0186100282
489	Sycamore Hall	Water Heater	American Water Heater Co.	0.033			G61-30T33-3N	218119346
494	College of Creative Studies	Boiler	Raypak	0.510		Boiler-B1	E510T	0882102505
494	College of Creative Studies	Water Heater	Rheem	0.038			22V50F1	RHLN0606Z03325
503	Engineering II	Boiler	Parker	1.460	2008		T1460LR	59157
503	Engineering II	Water Heater	Bradford White Co.	0.085			100T88B3N	KB17771910
504	Biological Science	Water Heater	AO Smith	0.030		Water Heater WH-2	PGC 30 930	NA83-25200-N62
505	Events Center	Boiler	AO Smith	0.420	1999		HW 420 932	932 J 99 52707
505	Events Center	Boiler	AO Smith	0.420	1999		HW 420 932	932 J 99 52589
511	Recreation Center (Rec Cen)	Boiler	Lochinvar	0.750	2004	Boiler-B1	CFN751PM	F041100165183
511	Recreation Center (Rec Cen)	Boiler	Lochinvar	0.750	2004	Boiler-B2	CFN751PM	F041100165187
514	Ocean Science Education Building	Water Heater	AO Smith	0.076	2013		BTX80 100	1111M000322
515	Humanities and Social Sciences	Boiler	Raypak	0.627	?	Boiler-B5	N0624CDEARDA	9505123710
515	Humanities and Social Sciences	Boiler	Bryan	0.350	1995	Boiler-B4	F350WGI	77043
515	Humanities and Social Sciences	Water Heater	Bradford White Co.	0.150			EF100T150E3N2	CD7630003
512	BioEngineering	Steam Boiler	Fulton	0.398	2016	B3	ICS-9.5	
512	BioEngineering	Steam Boiler	Fulton	0.398	2016	B4	ICS-9.5	
512	BioEngineering	Steam Boiler	Fulton	0.398	2016	B5	ICS-9.5	
516	Recreation Center (Rec Cen)	Furnace	Hastings	0.800		HV-1	RDG-400-HME	45868
516	Recreation Center (Rec Cen)	Boiler	Lochinvar	0.750	1994	Boiler-B3	C11N0750	D933943
516	Recreation Center (Rec Cen)	Boiler	Lochinvar	0.750	1994	Boiler-B4	C11N0750	D933930
516	Recreation Center (Rec Cen)	Boiler	Lochinvar	0.750	1994	Boiler-B8	C11N0750	K939030
516	Recreation Center (Rec Cen)	Boiler	Lochinvar	0.750	1994	Boiler-B9	C11N0750	D933934
516	Recreation Center (Rec Cen)	Boiler	Lochinvar	0.500	1994	Boiler-B1	C11N0500	D933935
516	Recreation Center (Rec Cen)	Boiler	Lochinvar	0.500	1994	Boiler-B2	C11N0500	D933934
516	Recreation Center (Rec Cen)	Boiler	Parker	0.395			WH395L	60493

517	Mosher Alumni House	Boiler	Parker	0.672	2011	Boiler B-1		60421
520	Marine Science Research Bldg	Boiler	Ventura	0.270	2003	Boiler-B2	27V125AMXL	903110976
520	Marine Science Research Bldg	Water Heater	Bradford White Co.	0.085			I00T88B3N	HM15900475
521	Ben School of Environmental Science (Dues)	Water Heater	Bradford White Co.	0.199	2001		D100L199E3N	BH6504843
525	Davidson Library	Boiler	Parker	1.730	1985	Boiler-B1	T1730	31277
525	Davidson Library	Boiler	Parker	1.730	1987	Boiler-B2	T1730	34233
525	Davidson Library Addition	Boiler	Parker	0.788		B-01	TC210	
525	Davidson Library Addition	Boiler	Parker	0.535		B-02	TC210	
526	Geology	Boiler	Parker	1.410	2002	Boiler-B1	W111410	53909
526	Geology	Boiler	Parker	1.410	2002	Boiler-B2	W111410	53910
526	Geology	Water Heater	Rheem	0.038	2008		22V50F1	RHLN0608Z06481
527	Santa Rosa Hall 1100s	Boiler	Lochinvar	0.800	2012	Boiler#1	Knight	F12H10213774
527	Santa Rosa Hall 1100s	Boiler	Lochinvar	0.800	2012	Boiler#2	Knight	H12H10227793
527	Santa Rosa Hall 1200s	Boiler	Cleaver Brooks	0.500		Boiler #B1	CFC-E	604724300002
527	Santa Rosa Hall 1200s	Boiler	Cleaver Brooks	0.500		Boiler #B2	CFC-E	604724300001
531	Musik and Lotte Lehman Concert Hall	Boiler	Raypak	1.120	1986	Boiler-B1	E1125T	786103667
531	Musik and Lotte Lehman Concert Hall	Water Heater	Bradford White Co.	0.076	2004	Water Heater WH-1	M2XR75S6BN	EK11183334
531	Musik and Lotte Lehman Concert Hall	Water Heater	Bradford White Co.	0.040	2013		U440T6RN	LJ34993112
533	Robertson Gym	Boiler	Parker	1.900	2001	Boiler-B1	W119100	53110
533	Robertson Gym	Boiler	Parker	1.900	2001	Boiler-B2	W119100	53111
533	Robertson Gym	Boiler	Parker	1.900	2001	Boiler-B3	W119100	53108
533	Robertson Gym	Boiler	Parker	1.900	2001	Boiler-B4	W119100	53109
533	Robertson Gym	Boiler	Vanguard	0.330	2001	Boiler-B5	Power Pack 330N	0501330N106
534	Arts Museum	Boiler	Bryan	0.350	1999	Boiler-B4	F350WGI	83867
534	Arts Museum	Water Heater	Bradford White Co.	0.199			D100L199E3N	JG16911394
534	Arts Museum	Water Heater	Rheem	0.040	2014	Water Heater	PROG48-40U RH58	RHUNM111410612
538	Campbell Hall	Boiler	Raypak	0.627	1985	Boiler-B1	E624T	0685102995
538	Campbell Hall	Water Heater	Bradford White Co.	0.040	2009	Water Heater WH-1	U45036FRN	KB17898727
540	Greenhouse	Water Heater	Bradford White Co.	0.032	2006		M430T6FBN	FM12722268
542	Ortega Dining Commons	Boiler	Parker	0.995		SB 1	25L(23)	60955
542	Ortega Dining Commons	Boiler	Parker	0.995		SB2	25L(23)	60956

544	Noble Hall	Water Heater	Bradford White Co.	0.125		GHW-1	D75T125E3N	CL8473649
544	Noble Hall	Water Heater	Bradford White Co.	0.076		GHW-2	75T80B3N	CJ8269528
546	Woodhouse	Water Heater	Bradford White Co.	0.032	2009		U430T6FRN	KJ8824701
547	Anacapa Hall 1000s-Public Areas	Boiler	Lochinvar	0.999	2013	Boiler 1	SBN100	K11H00237090
547	Anacapa Hall 1000s-Public Areas	Boiler	Lochinvar	0.999	2013	Boiler 2	SBN100	J11H00236463
548	Santa Cruz	Boiler	Cleaver Brooks	0.999			CFCE-700-1000-125HW	6.04297E+11
548	Santa Cruz	Boiler	Cleaver Brooks	0.999			CFCE-700-1000-125HW	6.04297E+11
551	Psychology	Boiler	Bryan	0.650	1985	Boiler-B3	FN650SG	61079
552	Cheadle Hall	Boiler	Raypak	1.630	1982	Boiler-B1	EC1630T	882102507
552	Cheadle Hall	Boiler	Raypak	1.630	1982	Boiler-B2	EC1630T	882102508
552	Cheadle Hall	Water Heater	American	0.080	1996	Water Heater WH-1	CG32100T884N	982120080
555	Marine Science and Biotech Seawater	Boiler	Raypak	1.570	1989	Boiler-B2	11157ACRA11CBA	688103925
555	Marine Science and Biotech Seawater	Boiler	Raypak	0.510	2003	Boiler-B3	W1110514	301204013
555	Marine Science and Biotech Seawater	Boiler	Parker	0.395	2012		966525	60952
556	Engineering I	Boiler	Parker	1.730	1991	Boiler-B1	T1730	39604
556	Engineering I	Water Heater	Bradford White Co.	0.040	2009	Hot Water Heater WH-1	U45036FRN	LA33917160
557	Chemistry	Boiler	Raypak	1.220	1983	Boiler B-3	EC1223T	183100003
560	Phelps Hall	Water Heater	AO Smith	0.040			GNR 50 200	1235T457838
563	Ellison Hall	Water Heater	Bradford White Co.	0.040	2006	Hot Water Heater WH-1	M45036FBN	FD11834236
564	Girvetz Hall	Water Heater	Rheem	0.050	2004		42V50-50NT	RHLN0504102673
565	Environmental Health and Safety	Water Heater	Bradford White Co.	0.040	2009		U440T6FRN	LA33819108
565	Environmental Health and Safety	Water Heater	Bradford White Co.	0.032	2006		M430T6FBN	EH10963234
567	Kohn Hall	Boiler	Parker	0.672	2015		G672RL	62052
567	Kohn Hall	Boiler	Parker	0.395	2004	Boiler-B2	T395L	55444
568	Student Affairs- Administrative	Boiler	Bryan	1.200	1996	Boiler-B1	AB120WFDGLNX	78178
568	Student Affairs- Administrative	Water Heater	Rheem	0.038	2010	Water Heater WH-1	22V50F1	RHLN0810Z00872
568	Student Affairs- Administrative	Water Heater	Rheem	0.038	2014	Water Heater WH-2	PROG38-38U RH60	RHUNM141417233
569	Biology Shop	Boiler	American Standard	0.870		Boiler-B1	G607	
570	Physical Science	Boiler	Bradford White Co.	0.270	2004		D100L270E3N	HJ15568840
570	Physical Science	Water Heater	Rinnai	0.199			REU-KA3237WD-US	CKBA-028668
570	Physical Science	Boiler	Rheem	0.180			G76-180	URNG 0801G02458
571	Biological Sciences II	Boiler	Parker	0.390	1978	Steam Boiler SB-5	10395	24487
571	Biological Sciences II	Boiler	Parker	0.390	1978	Steam Boiler SB-6	10395	24485
571	Biological Sciences II	Boiler	Parker	0.199	2011	Steam Boiler AB	966224	60271
571	Biological Sciences II	Boiler	Parker	0.199	2011	Steam Boiler CD	966224	60289
571	Biological Sciences II	Boiler	Parker	0.199	2011	Steam Boiler EF	966224	60272
571	Biological Sciences II	Boiler	Parker	0.199	2011	Steam Boiler GH	966224	60290
571	Biological Sciences II	Water Heater	Bradford White Co.	0.125	2004	Water Heater WH-1	EF60T125E3NA2	GK14026727
571	Biological Sciences II	Water Heater	Bradford White Co.	0.125	2004	Water Heater WH-2	EF60T125E3NA2	GK14026725
572	Broida Hall (Physics Bldg)	Water Heater	Bradford White Co.	0.199	2011	Domestic Water Heater WH-4	D100L199E3N	KB17839050
572	Broida Hall (Physics Bldg)	Water Heater	Bradford White Co.	0.085	2004	Industrial Water Heater WH-1	M1100T6BN	GF13639126
572	Broida Hall (Physics Bldg)	Water Heater	Bradford White Co.	0.085	2004	Domestic Water Heater WH-3	M1100T6BN	HF15139699
572	Broida Hall (Physics Bldg)	Water Heater	Bradford White Co.	0.076	2011	Industrial Water Heater WH-2	U75T80R3N	LC34228663

573	Buchanan Hall	Boiler	American Standard	1.740	1986	Boiler-B1	2BJ3	G-6013
575	Cloud Lab	Water Heater	Bradford White Co.	0.040	2006	Water Heater WH-1	M44076FBN	EM11331151
580	Harderr Stadium	Boiler	Parker	1.140	1994	Boiler-B1	T1140	43708
588	Student Health	Water Heater	American Water Heater Co.	0.199		Water Heater WH-2	BCG3100T1996NOX 108	1313M000121
588	Student Health	Water Heater	American Water Heater Co.	0.199		Water Heater WH-3	BCG3100T1996NOX 108	1039M000018
588	Student Health	Water Heater	AO Smith	0.076		Water Heater WH-1	BT 80 110	ME02-1679792-110
591	Kerr Hall	Water Heater	AO Smith	0.040	2006	Water Heater WH-1	GVR 50 100	D06J007886
591	Kerr Hall	Water Heater	Bradford White Co.	0.040	2009	Water Heater WH-2	U45036FRN	LC34188174
591	Kerr Hall	Boiler	Parker	2.000		G2304RL	G2304RL	63969
615	Materials Research Lab (MRL)	Water Heater	Bradford White Co.	0.040	2009	Water Heater WH-1	U45036FRN	KC18048488
615	Materials Research Lab (MRL)	Water Heater	American Water Heater Co.	0.040		Water Heater WH-2	G61-50T40-3N	0218126111
650	San Joaquin Villages	Boiler	Parker	0.420		B-1	G672R(L)	
650	San Joaquin Villages	Boiler	Parker	0.350		B-2	G672R(L)	
650	San Joaquin Villages	Boiler	Parker	0.300		B-1 Cluster 1	G672R(L)	
650	San Joaquin Villages	Boiler	Parker	0.350		B-2 Cluster 3	G672R(L)	
657	Physical Sciences Building North	Boiler	Ajax	0.250		Boiler-B3	SGXFD250	83186
657	Physical Sciences Building North	Water Heater	Bradford White Co.	0.076			75T80B3N	EB10208844
657	Physical Sciences Building North	Water Heater	Bradford White Co.	0.076			U2XR75S6RN	KB17784064
672	Physical Sciences Building South	Water Heater	Rheem	0.040	2004	Water Heater WH-1	42V40-40F	RHLN 0804V11151
708	West Campus Office & Front	Water Heater	American	0.199		W736-BLD-BOILER	DCG31-100T199-6NOX	ZF3359163
708	West Campus Room & Back	Water Heater	American	0.199		W737-BLD-BOILER	DCG3100L2706N	982120036
740	West Campus Boiler Rm740-S-2018-220	Boiler	Raypac lo nox	0.334	03/10/2000	Boiler	WH1- 0331	1101318993
741	West Campus Boiler Rm741-S-2018-220	Boiler	Raypac	0.334		Boiler	WH1-0330	201190476
742	West Campus Boiler Rm742-S-2018-220	Boiler	Raypac lo nox	0.334	03/14/2000	Boiler	WH1-0031	A00-54788
743	West Campus Boiler Rm743-S-2018-220	Boiler	Raypac	0.334		Boiler	WH1-0331	605251752
744	West Campus Boiler Rm744-S-2018-220	Boiler	Raypac	0.334	11/23/2002	Boiler	WH1-0331	810288567
745	West Campus Boiler Rm745-S-2018-220	Boiler	Raypac-Raytherm	0.334	10/12/2004	Boiler	WH10331	0401215898
745	West Campus Boiler Rm745-S-2018-220	Boiler	Raypac lo nox	0.334	10/12/2004	Storage Tank-Boiler	WH1-0331	401215898
746	West Campus Boiler Rm746-S-2018-220	Boiler	Raypac	0.334	04/15/2003	Boiler	WH1-0331	605251751
747	West Campus Boiler Rm747-S-2018-220	Boiler	Raypac	0.334	08/23/1999	Boiler	WH1-0330	104181820
748	West Campus Boiler Rm748-S-2018-220	Boiler	Raypac	0.334	11/16/2005	Boiler	WH1-0331	1006311561
749	West Campus Boiler Rm749-S-2018-220	Boiler	Raypac lo nox	0.334		Boiler	WH1-0331	1011316242
750	West Campus Boiler Rm750-S-2018-220	Boiler	Raypac	0.334		Boiler	WH1-0330	306209236

751	West Campus Boiler Rm751- C-2346-7234	Boiler	Raypac	0.334	07/14/2004	Boiler	WH1-0331	401215897
752	West Campus Boiler Rm752- C-2346-7234	Boiler	Raypac	0.334	02/19/2003	Boiler	WH1-0331	810288563
753	West Campus Boiler Rm753- C-2346-7234	Boiler	Raypac	0.334	01/07/2003	Boiler	WH1-0031	605251750
754	West Campus Boiler Rm754- C-2346-7234	Boiler	Raypac	0.334		Boiler	WH10-0331	510241371
755	West Campus Boiler Rm755- C-2346-7234	Boiler	Raypac	0.334	04/24/2006	Boiler	WH1-0331	805282472
756	West Campus Boiler Rm756- C-2346-7234	Boiler	Raypac lo nox	0.334	09/25/2002	Boiler	WH1-0331	1101318862
757	West Campus Boiler Rm757- C-2346-7234	Boiler	Raypac lo nox	0.334	06/11/2002	Boiler	WH1-0331	1101318862
768	Storke Office & Laundry	Water Heater	American	0.275	02/13/2014	S786-BLD-WHC	BCG3100T1996NOX108	1204M002012
778	Storke Grounds Shop & Lndy	Water Heater	American	0.275		S778-BLD-WHC	BCG3100T2756NOX108	1113M001671
799	Storke Community Ctr	Water Heater	Rheem	0.030		S799-BLD-WHC	21X30-7N	RN0595134167
808	Santa Ynez Community Center	Water Heater	American	0.030		Y808-BLD-WHC	G51-30T33-3N	9724354707
815	Santa Ynez Community Ctr	Water Heater	AO Smith	0.199		Y815-BLD-WHC	BTR197100	ML980788209
817	Santa Ynez Office and Laundry	Water Heater	American	0.270	40210	Y817-BLD-BOILER	DCG3-100T270	0918F704269
818	Santa Ynez Jameson OAL	Water Heater	American	0.040		Y818-BLD-WHC	GCV-40-200-00L010S45	1049J006150
823	Santa Ynez Community Ctr	Water Heater	American	0.030		Y823-BLD-WHC	GVF90-333T	9029305234
831	Santa Ynez Fitness Center	Water Heater		0.031		Y831-BLD-WHC	N30FFHEMV	I86RNO-01275047
831	Santa Ynez Casitas Fitness Center	Water Heater		0.031			N30FFHMEV	I86RNO1275033
832	Santa Ynez Maintenance Shp	Water Heater	American	0.034	12/20/2000	Y832-BLD-WHC	G61-40T34-3N	0016110690
841	San Clemente Arrowhead Village	Boiler	Lochinvar	0.638	2008	Boiler (DHW)	CHN751	A07H00193917
841	San Clemente Arrowhead Village	Boiler	Lochinvar	0.638	2008	Boiler (DHW)	CHN751	I06H00190753
841	San Clemente Arrowhead Village	Boiler	Lochinvar	0.400	2008	Boiler (HHW)	CFN401PM	B07H00194709
841	San Clemente Arrowhead Village	Boiler	Lochinvar	0.400	2008	Boiler (HHW)	CFN401PM	A07H00194707
843	San Clemente Castaic Village	Boiler	Lochinvar	0.638	2008	Boiler (DHW)	CHN751	K06H00192816
843	San Clemente Castaic Village	Boiler	Lochinvar	0.638	2008	Boiler (DHW)	CHN751	K06H00192815
843	San Clemente Castaic Village	Boiler	Lochinvar	0.400	2008	Boiler (HHW)	CFN401PM	A07H00194042
843	San Clemente Castaic Village	Boiler	Lochinvar	0.400	2008	Boiler (HHW)	CFN401PM	A07H00194706
845	San Clemente Encino Village	Boiler	Lochinvar	0.638	2008	Boiler (DHW)	CHN751	C06H00185265
845	San Clemente Encino Village	Boiler	Lochinvar	0.638	2008	Boiler (DHW)	CHN751	J06H00192171
845	San Clemente Encino Village	Boiler	Lochinvar	0.400	2008	Boiler (HHW)	CFN401PM	K06H00192672
845	San Clemente Encino Village	Boiler	Lochinvar	0.400	2008	Boiler (HHW)	CFN401PM	A07H00194044
846	San Clemente Donner Village	Boiler	Lochinvar	0.638	2008	Boiler (DHW)	CHN751	I06H00190754
846	San Clemente Donner Village	Boiler	Lochinvar	0.638	2008	Boiler (DHW)	CHN751	I06H00190757
846	San Clemente Donner Village	Boiler	Lochinvar	0.400	2008	Boiler (HHW)	CFN401PM	A07H00194705
846	San Clemente Donner Village	Boiler	Lochinvar	0.400	2008	Boiler (HHW)	CFN401PM	J06H00192437
849	San Clemente Bradbury Village	Boiler	Lochinvar	0.638	2008	Boiler (DHW)	CHN751	A07H00193918
849	San Clemente Bradbury Village	Boiler	Lochinvar	0.638	2008	Boiler (DHW)	CHN751	A07H00193919
849	San Clemente Bradbury Village	Boiler	Lochinvar	0.400	2008	Boiler (HHW)	CFN401PM	B07H00194708
849	San Clemente Bradbury Village	Boiler	Lochinvar	0.400	2008	Boiler (HHW)	CFN401PM	A07H00193956

860	Portola Dining Commons	Boiler	Max Performance	0.800		Steam Boiler	SBX-1375	86-29389
864	MV La Patera Quad-La Cumbre	Water Heater	Raypac-Raytherm	0.650	09/01/2002	MVLP-884-1225	WH3-0652	0203192637
864	MV La Patera Quad-La Cumbre	Boiler	Weil-McLain	0.494	09/01/2002	Boiler (2.3)	478	CP4160597
878	MV Las Encinas Quad-Cienaga	Water Heater	Raypac-Raytherm	0.650	09/01/2002	MVLE-878-1101	WH3-0652	203192634
878	MV Las Encinas Quad-Cienaga	Boiler	Weil-McLain	0.494	09/01/2002	Boiler (1.2)	478	CP4160599
880	MV Las Encinas Quad-Arguello	Water Heater	Raypac-Raytherm	0.650	09/01/2002	MVLE-880-1301	WH3-0652	0203192633
880	MV Las Encinas Quad-Arguello	Boiler	Weil-McLain	0.494	09/01/2002	Boiler (1.4)	478	CP4160594
881	MV Las Encinas Quad-Miranda	Water Heater	Raypac-Raytherm	0.650	09/01/2002	MVLE-881-1414	WH3-0652	203192629
881	MV Las Encinas Quad-Miranda	Boiler	Weil-McLain	0.494	09/01/2002	Boiler (1.5)	478	CP4160596
883	MV La Patera Quad-Condor	Water Heater	Raypac-Raytherm	0.650	09/01/2002	MVLP-883-1102	WH3-0652	203192636
883	MV La Patera Quad-Condor	Boiler	Weil-McLain	0.494	09/01/2002	Boiler (2.2)	478	CP4160601
886	MV La Patera Quad-Tepusquet	Water Heater	Raypac-Raytherm	0.650	09/01/2002	MVLP-886-1427	WH3-0652	203192631
886	MV La Patera Quad-Tepusquet	Boiler	Weil-McLain	0.494	09/01/2002	Boiler (2.5)	478	CP4160602
889	MV Los Robles Quad-Camuesa	Water Heater	Raypac-Raytherm	0.650	09/01/2002	MVLR-889-1102	WH3-0652	203192635
889	MV Los Robles Quad-Camuesa	Boiler	Weil-McLain	0.494	09/01/2002	Boiler (3.2)	478	CP4160598
890	MV Los Robles Quad-Pendola	Water Heater	Raypac-Raytherm	0.650	09/01/2002	MVLR-890-1224	WH3-0652	203192632
890	MV Los Robles Quad-Pendola	Boiler	Weil-McLain	0.494	09/01/2002	Boiler (3.3)	478	CP4160595
892	MV Los Robles Quad-Madulce	Water Heater	Raypac-Raytherm	0.650	09/01/2002	MVLR-892-1425	WH3-0652	203192630
892	MV Los Robles Quad-Madulce	Boiler	Weil-McLain	0.494	09/01/2002	Boiler (3.5)	478	CP4160600
945	El Dorado Apartments-Entire	Water Heater	American	0.199	42039	945-CPLX-BOILER	BCG3100T1996NOX108	1346M000826
945	El Dorado Apartments-Entire	Water Heater	American	0.199	42039	945-CPLX-BOILER	BCG3100T1996NOX108	1201M001458
947	Westgate Apartments-Entire	Water Heater	American	0.199	05/03/2002	947-CPLX-BOILER	DCG3-100T199-6NOH	0905F704349
947	Westgate Apartments-Entire	Water Heater	American	0.199	3/24/2009	947-CPLX-BOILER	DCG3-100T199-6NOH	0905F704351
1861	Portola Dining Commons	Boiler	Parker	0.563		B-1	TC150 (L)	
1861	Portola Dining Commons	Boiler	Parker	0.563		B-2	TC150 (L)	
1863	Tenaya South Tower	Boiler	Parker	0.325		B-1	G72RL	
1863	Tenaya South Tower	Boiler	Parker	0.325		B-2	G72RL	
1864	Tenaya North Tower	Boiler	Parker	0.325		B-1	G72RL	
1864	Tenaya North Tower	Boiler	Parker	0.325		B-2	G72RL	
6560	KITP Residence	Boiler	AERCO	0.990		B-1	BMK 1000	
6560	KITP Residence	Boiler	AERCO	0.990		B-2	BMK 1001	
7940	Del Mar Cottage	Water Heater	AO Smith	0.040	07/31/2008	DMC-WHC	GCV 40 100 00L010545	0804J004173
226	Henley Hall	Water Heater	Parker	0.895		B-1	TC350L	
226	Henley Hall	Water Heater	Parker	0.895		B-2	TC350L	

Total 103.247

Heat Input 0.075 - 0.4 MMBtu 26.073

Heat Input 0.4 - 2 MMBtu/h 77.174

Heat input total (MMBtu/hr) for uncontrolled units (.075-.4 MMBtu/hr)	Emission Factors (lb/MMBtu) ¹						short term emissions					
	NOx	ROC	CO	SOx	PM	GHG	NOx lb/day	ROC lb/day	CO lb/day	Sox lb/day	Pm lb/day	GHG
15,258	0.092	0.0054	0.039	0.0137	0.0075	117	33.69	1.98	14.28	5.02	2.75	42844.46
Heat input total (MMBtu/hr) for Rule 360 units (.075-.4 MMBtu/hr)	Emission Factors (lb/MMBtu) ²						short term emissions					
	NOx	ROC	CO	SOx	PM	GHG	NOx lb/day	ROC lb/day	CO lb/day	Sox lb/day	Pm lb/day	GHG
12,275	0.096	0.0054	0.039	0.0137	0.0075	117	19.44	1.59	11.49	4.04	2.21	34468.20
Heat input total (MMBtu/hr) for uncontrolled units (.4-2 MMBtu/hr)	Emission Factors (lb/MMBtu) ³						short term emissions					
	NOx	ROC	CO	SOx	PM	GHG	NOx lb/day	ROC lb/day	CO lb/day	Sox lb/day	Pm lb/day	GHG
54,229	0.098	0.0054	0.082	0.0137	0.0075	117	127.55	7.03	106.72	17.83	9.76	152275.03
Heat input total (MMBtu/hr) for Rule 360 units (.4-2 MMBtu/hr)	Emission Factors (lb/MMBtu) ⁴						short term emissions					
	NOx	ROC	CO	SOx	PM	GHG	NOx lb/day	ROC lb/day	CO lb/day	Sox lb/day	Pm lb/day	GHG
23,545	0.036	0.0054	0.297	0.0137	0.0075	117	20.34	3.05	167.83	7.74	4.24	66114.36

Equipment split into four groups with specific emission factors from AP42 and Rule 360

Notes
¹ Units rated less than or equal to .4 MMBtu/hr with a manufacture year of 2003 or earlier used AP42 uncontrolled EF's for units rated between 0.075 - .040 MMBtu/hr
² Units rated less than or equal to .4 MMBtu/hr with a manufacture year of 2004 or greater used Rule 360 EF's for units rated between 0.075 - .040 MMBtu/hr
³ Units rated greater than .4MMBtu/hr with a manufacture year of 2003 or earlier used AP42 uncontrolled EF's for units rated between 0.4 - 2.0 MMBtu/hr
⁴ Units rated greater than .4 MMBtu/hr with a manufacture year of 2004 or greater used Rule 360 EF's for units rated between 0.4 - 2.0 MMBtu/hr

Total Long Term Emissions (TPY)					
NOx	ROC	CO	SOx	PM	GHG
36.69	2.49	54.81	6.32	3.46	53965.63

UCSB Non-Permitted Equipment Inventory

Natural Gas Furnaces

Bldg Number	Building Name	Equipment Type	Manufacturer	Rated Heat Input (MMBtu/hr)	Equipment ID	Model	Serial Number
266	California Nanosystems Institute (CNSI)	Humidifier/Furnace	Nortec	0.280	TH-1	GST C200NOC	649442GS2A07
266	California Nanosystems Institute (CNSI)	Humidifier/Furnace	Nortec	0.280	TH-2	GST C200NOC	649442GS2A09
266	California Nanosystems Institute (CNSI)	Humidifier/Furnace	Nortec	0.280	PH-1	GST C200NOC	649442GS2A06
266	California Nanosystems Institute (CNSI)	Humidifier/Furnace	GTS	0.800		GT S-800 DI	1229451-01-02
266	California Nanosystems Institute (CNSI)	Humidifier/Furnace	GTS	0.800		GT S-800 DI	1229451-01-01
354	West Creative Studies	Furnace	Goodman	0.075		GMP075-3	9810625205
370	Facilities Management	Furnace	AMA	0.088		395CAV036075	2192A09663
371	Facilities Management	Furnace	Unknown	0.080		T GLS080B12MP11A	W0B9610387
371	Facilities Management	Furnace	AMA	0.088		395CAV036075	2192A09662
551	Psychology	Furnace	Payne	0.125		125U-19A	EEGCB35476
551	Psychology	Furnace	Payne	0.125		125U-19A	MDGCA-58179
437	Facilities Management	Furnace	Payne	0.100		394GAW000100	4781C08070
437	Facilities Management	Furnace	Payne	0.125		394GAW048125	4881A00653
437	Facilities Management	Furnace	York	0.135		D2NP060N11025NXA	NOA8601468
439	Facilities Management	Furnace	Payne	0.080		80U-19	MBKGB 14540
439	Facilities Management	Furnace	Payne	0.080		80U-19	MBKGB 14632
439	Facilities Management	Furnace	Payne	0.100		100U-19	MBKGB 27678
439	Facilities Management	Furnace	Bryant	0.115		582APW060115NAAG	2104G51754
451	Military Science	Furnace	Payne	0.150		150061-19A	unknown
479	Old Gym	Furnace	Modine	0.175		BO175SE2530	1510101100-7872
479	Old Gym	Furnace	Modine	0.175		BO175SE2530	
489	Sycamore Hall	Furnace	Goodman	0.140		GMH81405DXCA	0904005077
489	Sycamore Hall	Furnace	Goodman	0.140		GMH81405DXCB	100170815
494	College of Creative Studies	Furnace	International Comfort Products	0.144		PGF090H16AA	L003588069
494	College of Creative Studies	Furnace	International Comfort Products	0.080		GPCM36H080F	Q073211725
504	Biological Science	Furnace	International Comfort Products	0.090	DX-2	PDG34809H001C1	C112930458
504	Biological Science	Furnace	Trane	0.060	DC-3		415102094L
504	Biological Science	Furnace	International Comfort Products	0.080	DX-1	GPCM48H080F	G053741130
504	Biological Science	Furnace	Sterling Radiator	0.400	RTU-7	F3G-RT40A6B01A41D20B1A5	M01246933007001
504	Biological Science	Furnace	Sterling Radiator	0.400	RTU-6	F3G-RT40A6B01A41D20B1A5	M0124933006001
504	Biological Science	Furnace	Sterling Radiator	0.400	RTU-4	F3G-RT40A6B01A41D20B1A5	M0124933004001
504	Biological Science	Furnace	Sterling Radiator	0.400	RTU-5	F3G-RT40A6B01A41D20B1A5	M0124933005001
504	Biological Science	Furnace	Sterling Radiator	0.150	RTU-3	E3G-RT15C6B01A41A020B1A8A5	M0124933003001
504	Biological Science	Furnace	Sterling Radiator	0.200	RTU-2	E3G-RT20A6B01A41D20B1A5	M0124933002001
504	Biological Science	Furnace	Sterling Radiator	0.100	RTU-1	E3G-RT10C6B01A41A20B1A8A5	M0124933001001
516	Recreation Center (Rec Cen)	Furnace	Hastings	0.800	HV-1	RDG-400-HME	45868
526	Geology	Furnace	Bryant	0.060		574DPWA36060NA	211C75926
526	Geology	Furnace	Bryant	0.060		574DPWA36060NA	211C75923
539	Greenhouse Shop	Water Heater	International Comfort Products	0.100		GPCM60H100F	G053750984
540	Greenhouse	Furnace	Sterling Radiator	0.106		CFE-125	C8734764
540	Greenhouse	Furnace	Sterling Radiator	0.123		CFE-150	C8734767
540	Greenhouse	Furnace	Aerothermes	0.100		2E369D	A98C005477
546	Woodhouse	Furnace	Lennox	0.120	DX-4	GCS16-060-120-4Y	5603M07730
546	Woodhouse	Furnace	International Comfort Products	0.244	DX-2	PGF090H22AAA	G054820598
546	Woodhouse	Furnace	Carrier	0.060	New DX Unit	48HJL006-541	1607G05373
546	Woodhouse	Furnace	Lennox	0.125	HDX-7	CS16-653-125-1Y	
546	Woodhouse	Furnace	Arcoaire	0.090	DX-9	PGD33609H001C1	C120803798
546	Woodhouse	Furnace	Arcoaire	0.060	DX-6	PGD330060K001C1	C112500847
546	Woodhouse	Furnace	Arcoaire	0.090	DX-5	PGD33609H001C1	C114341028
546	Woodhouse	Furnace	Lennox	0.120	DX-3	GCS16-060-120-4Y	56003M07727
546	Woodhouse	Furnace	Lennox	0.120	DX-1	GCS16-060-120-4Y	5603M07728
565	Environmental Health and Safety	Furnace	International Comfort Products	0.090	DX-6	RG060HMAA0AAA	G104530270
565	Environmental Health and Safety	Furnace	Carrier	0.115	DX-4	48TJE006-B501QE	2994G20187
565	Environmental Health and Safety	Furnace	Carrier	0.074	DX-5	48TJD005-B501QE	2994G20266
565	Environmental Health and Safety	Furnace	Carrier	0.115	DX-3	48TJE006-B501QE	3194G21551
565	Environmental Health and Safety	Furnace	Carrier	0.115	DX-2	48TJE006-B501QE	3194G21558
565	Environmental Health and Safety	Furnace	Carrier	0.115	DX-1	48TJE006-B501QE	3194G21549
567	Kohn Hall	Furnace	Carrier	0.115	AC-2	48TCRA07D2A6A0A0A0	4213C88836
567	Kohn Hall	Furnace	Carrier	0.180	AC-1	48TCS014D3A6A0A0A0	4213G20032
567	Kohn Hall	Furnace	Carrier	0.090	AC-5	48TMA04D2A6A0A0A0	4113C88690
567	Kohn Hall	Furnace	Carrier	0.180	AC-6	48TCS014D3A6A0A0A0	4313P60254
567	Kohn Hall	Furnace	Carrier	0.180	AC-4	48TCS014D3A6A0A0A0	4213C20031
567	Kohn Hall	Furnace	Carrier	0.040	AC-8	48ESNA2404030	4133C02722
575	Cloud Lab	Furnace	International Comfort Products	0.130	DX-3	PGF090H1599	L003588658
575	Cloud Lab	Furnace	International Comfort Products	0.080	DX-4	CPCM36H080F	Q073211717
584	Facility Maintenance	Furnace	York	0.080		DANZ048N0652NXA	1A1672314
584	Facility Maintenance	Furnace	Carrier	0.060		48GSN03606051CU	2504611958
584	Facility Maintenance	Heater	Unknown	0.125		Unknown	Unknown
584	Facility Maintenance	Heater	Unknown	0.125		Unknown	Unknown
595	Central Garage	Heater	Modine	0.150		PDP150AE0130	39010917091212-6519
595	Central Garage	Heater	Aerothermes	0.100		3E369D	A98G000434

UCSB Non-Permitted Equipment Inventory
Residential Natural Gas Water Heaters and Wall Heaters

Bldg Name	Quantity	Rated Heat Input (MMBtu/hr)	
		Per Unit	Total
Residential Water Heaters			
West Campus	20	0.036	0.72
Storke Campus	300	0.034	10.20
Storke II 42	42	0.034	1.43
Santa Ynez	200	0.036	7.20
El Dorado	3	0.035	0.11
Westgate	2	0.034	0.07
Residential Wall Heaters			
Storke 1 Wall Heaters	300	0.035	10.50
Storke 2 FAU	42	0.050	2.10
West Campus Wall Heaters	250	0.035	8.75
Santa Ynez FAU	200	0.050	10.00
sum		51.07	

Heat input total (mmbtu/hr)	uncontrolled emission factors (lb/MMBtu)					
	NOx	ROC	CO	SOx	PM	GHG
51.071	0.092	0.0054	0.039	0.0137	0.0075	117

Note* Assuming operation 24hr per day, 365 days per year
emission factors are AP42 uncontrolled factors for boilers rated between .075-.4 MMBtu/hr

short term emissions (lb/day)					
NOx	ROC	CO	SOx	PM	GHG
112.76	6.62	47.80	16.79	9.19	143407.37

Long Term Emissions (TPY)					
NOx	ROC	CO	SOx	PM	GHG
20.58	1.21	8.72	3.06	1.68	26171.84

UCSB Non-Permitted Equipment Inventory

Natural Gas Kilns

Bldg Number	Bldg Name	Quantity	Heat Input (MMBtu/hr)
516	Recreation Center	1	0.63
516	Recreation Center	1	0.31
534	Arts	1	0.24
534	Arts	1	0.24
		Total	1.420

Heat input total (mmbtu/hr)	uncontrolled emission factors (lb/MMBtu) ¹					
	NOx	ROC	CO	SOX	PM	GHG
1.420	0.092	0.0054	0.039	0.0137	0.0075	117

short term emissions (lb/day)					
Nox	ROC	CO	Sox	PM	GHG
3.14	0.18	1.33	0.47	0.26	3987.36

Long Term Emissions (TPY)					
Nox	ROC	CO	Sox	PM	GHG
0.57	0.03	0.24	0.09	0.05	727.69

¹ Emissions are based on AP42 uncontrolled EF's for small boiler units rated between 0.075 - 0.40 MMBtu/hr

UCSB Non-Permitted Equipment Inventory

Generators

Bldg Number	Bldg Name	Fuel	Year	kW	HP	Make	Model	Serial Number
527	Santa Rosa Residence Hall	Diesel	TBD	20	27	John Deere	4024TF270	PE4024T094358
528	South Hall	Natural Gas	2009	75	120	Olympian	G80F3	OLY00000ENDG01591
531	Music Bldg	Natural Gas	TBD	15	20	Onan	15JC-4R/6413R	268012780
533	Robertson Gym	Natural Gas	TBD	25	34	Onan	25EC-4R8/854F	98B594476
538	Campbell Hall	Diesel	TBD	20	27	Caterpillar	C2.2	F1A01782
542	Ortega Dining Commons	Diesel	2024	30	40	Generac	ZD030T	3015495910
543	University House	Natural Gas	1968	15	20	Onan	15JC4R/7404R	768045617
546	Woodhouse	Natural Gas	2014	25	34	Olympian	G25LTA2	GXAO2878
547	Anacapa Residence Hall	Diesel	TBD	20	27	Generac	70874	TBD
548	Santa Cruz Residence Hall	Diesel	TBD	20	27	Generac	70874	TBD
560	Phelps Hall	Diesel	2012	30	40	Caterpillar	D30-10	CAT00000JBGE01499
563	Ellison Hall	Natural Gas	TBD	45	60	Onan	45EM-4R/2765A	127C995327
573	Buchanan Hall	Natural Gas	TBD	12.5	17	Onan	12RJC-4R8/6552R	117C995333
579	South Sewer Pump	Natural Gas/Propane	TBD	75	120	Olympian	G80F3	OLY0000ANGD00680
587	San Rafael Residence Hall	Diesel	2012	30	40	Generac	1475090100	2116631
589	Storke Tower	Diesel	2012	30	40	Caterpillar	D30-10	CAT00000AGBE01507
591	Kerr Hall	Natural Gas	TBD	30	40	Pincor	RFW30SBA	1014
948	Isla Vista Theater	Diesel	TBD	TBD	TBD	Onan	TBD	TBD
6990	Devereux Lift Station	Diesel	2015	37	49.7	Caterpillar	XQ30	E6X01467
				sum	782.7			

HP total for Diesel fired Engines	² Emission Factors (g/bhp-hr)					
	NOx	ROC	CO	SOX	PM	GHG
317.700	14.1	1.12	3	0.183	1	557

HP total for Natural Gas fired Engines	² Emission Factors (g/bhp-hr)					
	NOx	ROC	CO	SOX	PM	GHG
465.000	10.52	1.71	17.72	0.0028	0.045	557

Long Term Emissions (TPY)					
Nox	ROC	CO	Sox	PM	GHG
2.47	0.20	0.53	0.03	0.18	97.53

Long Term Emissions (TPY)					
Nox	ROC	CO	Sox	PM	GHG
2.70	0.44	4.54	0.00	0.01	142.75

Total Long Term Emissions (TPY)					
Nox	ROC	CO	Sox	PM	GHG
5.16	0.63	5.07	0.03	0.19	240.28

Notes

¹ Engine HP estimated using generator rating and estimated efficiency

² Emission Factors for Diesel Engines are from AP42 Table 3.3-1 and 3.3-2 default factors

³ Estimated natural gas emission factors based on BSFC for naturally aspirating spark ignition engines of 10,500 BTU/bhp-hr and AP42 factors for uncontrolled 4 stroke rich burn natural gas-fired reciprocating engines. (AP 42 - 3.2).

GHG emissions based on mass balance and calculations from section 5.3 in PT170 PTO 13725

Assuming operation of 500 hrs per :

UCSB Non-Permitted Equipment Inventory

Small Boilers and Hot Water Heaters

Bldg Number	Building Name	Equipment Description	Use Description	Manufacturer	Rated Heat Input (MMBtu/hr)	Model	Serial Number
542	Ortega Dining Commons	Convection Oven-Top Unit	Kitchen-Production	Blodgett Ovens	0.060	DFG-200	102011YH003T
542	Ortega Dining Commons	Convection Oven-Bottom	Kitchen-Production	Blodgett Ovens	0.060	DFG-200	102011YH004B
542	Ortega Dining Commons	Convection Oven-Top Unit	Kitchen-Production	Blodgett Ovens	0.060	DFG-200	090110RA001T
542	Ortega Dining Commons	Convection Oven-Bottom	Kitchen-Production	Blodgett Ovens	0.060	DFG-200	090110RA002B
542	Ortega Dining Commons	Oven- Six Burner-Steam	Kitchen-Production	US Range Co	0.040	C836-6	7.051
542	Ortega Dining Commons	Oven-Top Deck	Kitchen-Production	Blodgett Ovens	0.037	961	052507AB070T
542	Ortega Dining Commons	Oven-Middle Deck	Kitchen-Production	Blodgett Ovens	0.037	961	052507AB071M
542	Ortega Dining Commons	Oven-Bottom Deck	Kitchen-Production	Blodgett Ovens	0.037	961	052507AB072B
542	Ortega Dining Commons	Baxter Rotating Bakery Oven	Kitchen-Bakery	Baxter	0.300	OV500G2	24-2003652
549	DLG-Dining Commons	Rotating Rack Oven	Kitchen-Bakery	Baxter	0.300	OV21062	24-1024327
549	DLG-Dining Commons	Pizza Oven - Top	Pizza Area	Montague	0.160	25P-2	B4-D-52733
549	DLG-Dining Commons	Pizza Oven - Bottom	Pizza Area	Montague	0.160	25P-2	B4-D-52733
549	DLG-Dining Commons	Convection Oven-Middle	Kitchen-Production	Montague	0.115	2-115	
549	DLG-Dining Commons	Convection Oven-Right (next	Kitchen-Production	Montague	0.115	2-115	
549	DLG-Dining Commons	Convection Oven-Left (next	Kitchen-Production	Montague	0.115	2-115	
562	Carrillo Dining Commons	Convection Oven-Bottom	Kitchen-Catering	Montague	0.063	HX2-63A	D-57033A
562	Carrillo Dining Commons	Convection Oven-Top Unit	Kitchen-Catering	Montague	0.063	HX2-63A	D-57033A
562	Carrillo Dining Commons	Cooktop/Oven-4 Burner	Kitchen-Catering	Montague	0.180	M36-5A	D-57033C
562	Carrillo Dining Commons	Oven-Rack Type	Kitchen-Bakery	Baxter	0.290	OV210GNZB	24-100-8959
562	Carrillo Dining Commons	Convection Oven-Bottom	Kitchen-Bakery	Blodgett Ovens	0.060	DFG-200-L-S	061201EA024B
562	Carrillo Dining Commons	Convection Oven-Top Unit	Kitchen-Bakery	Blodgett Ovens	0.060	DFG-200-L-S	101800EA039T
562	Carrillo Dining Commons	Griddle/Oven	Kitchen-Euro	Jade	0.140	JTRH-3HT-36	250701-N
562	Carrillo Dining Commons	Cooktop/Oven-6 Burner	Kitchen-Euro	Jade	0.245	JTRH-6-36	250701-L
562	Carrillo Dining Commons	Cooktop/Oven-4 Burner	Kitchen-Mongolian Grill	Jade	0.175	JTRH-4-36	250701-T
562	Carrillo Dining Commons	Exhaust Hood-Pizza Oven	Kitchen-Pizza	Gaylord	0.200	SGBDL-0-WS-33	GI-0501-1226002
562	Carrillo Dining Commons	Convection Oven-Top Unit	Kitchen-Production	Blodgett Ovens	0.060	DFG-200-L-S	101900EA040T
562	Carrillo Dining Commons	Convection Oven-Bottom	Kitchen-Production	Blodgett Ovens	0.060	DFG-200-L-S	061201EA025B
562	Carrillo Dining Commons	Combi Oven (Bottom)	Kitchen-Production	Cleveland	0.068	OGS-6.20	11042300001121
562	Carrillo Dining Commons	Combi Oven - Top	Kitchen-Production	Cleveland	0.068	OGS-6.20	1105230000368
562	Carrillo Dining Commons	Griddle/Oven	Kitchen-American	Jade	0.175	JTRH-36GT-36C	0000019143QV
860	Portola Dining Commons	Convection Oven/Range Top	Kitchen-Production	US Range Co	0.040		
860	Portola Dining Commons	Convection Oven	Kitchen-Production	Montague	0.160		
860	Portola Dining Commons	Convection Oven	Kitchen-Production	Montague	0.160		
860	Portola Dining Commons	DOUBLE CONVECTION OVEN	Kitchen-Production	Blodgett Ovens	0.060	090110RA002B	DFG 200
860	Portola Dining Commons	Convection Oven/Range Top	Kitchen-Production	US Range Co	0.080		
860	Portola Dining Commons	Convection Oven-Bottom	Kitchen-Production	Blodgett Ovens	0.060	DFG-200	090110RA002B
860	Portola Dining Commons	Convection Oven-Top	Kitchen-Production	Blodgett Ovens	0.060	DFG-200	090110RA001T
860	Portola Dining Commons	DOUBLE CONVECTION OVEN	Kitchen-Production	Blodgett Ovens	0.060	090110RA001T	DFG 200
860	Portola Dining Commons	Oven-Deck 3	Kitchen-Bakery	Garland	0.040		
860	Portola Dining Commons	Oven-Triple Stack Deck	Kitchen-Bakery	Southbend	0.156		
860	Portola Dining Commons	Oven-Deck 1	Kitchen-Bakery	Garland	0.040		
860	Portola Dining Commons	Oven-Deck 2	Kitchen-Bakery	Garland	0.040		
1861	New Portola Dining	Combi Oven	Kitchen	Cleveland	0.076	OGS 6.20	
1861	New Portola Dining	Combi Oven	Kitchen	Cleveland	0.076	OGS 6.20	
1861	New Portola Dining	Combi Oven	Kitchen	Cleveland	0.076	OGS 6.20	
1861	New Portola Dining	Combi Oven	Kitchen	Cleveland	0.076	OGS 6.20	
1861	New Portola Dining	Combi Oven	Kitchen	Cleveland	0.076	OGS 6.20	
1861	New Portola Dining	Combi Oven	Kitchen	Cleveland	0.076	OGS 6.20	
1861	New Portola Dining	Combi Oven	Kitchen	Cleveland	0.076	OGS 6.20	
1861	New Portola Dining	Cooktop/Oven-4 Burner	Kitchen	Jade	0.175	JTRH-4-36	
1861	New Portola Dining	Stone Hearth Oven	Kitchen	Woodstone	0.123	WS-MS-7	
1861	New Portola Dining	Full Size Convection Oven	Kitchen	Jade	0.110	JCO-240b	
1861	New Portola Dining	Heavy Duty Range	Kitchen	Jade	0.175	MRH-4	
1861	New Portola Dining	Heavy Duty Range	Kitchen	Jade	0.175	MRH-4	
1861	New Portola Dining	Tandoor Oven	Kitchen	Woodstone	0.040	WS-GFT-31	
Total					5.847		

Total Heat Input (MMBtu/hr) 5.847

Emission Factors (lb/MMBtu)					
NOx	ROC	CO	SOx	PM	GHG
0.09	0.01	0.04	0.01	0.01	117.00

short term emissions (lb/day)					
NOx	ROC	CO	SOx	PM	GHG
12.91	0.76	5.47	1.92	1.05	16418.10

Long Term Emissions (TPY)					
NOx	ROC	CO	Sox	PM	GHG
2.36	0.14	1.00	0.35	0.19	2996.30

EF based on AP42 emission factor estimates for furnaces with heat input < 0.3 MMBtu/hr
assuming operation 24hrs per day 365 hrs per year

UCSB Laboratory Solvent Emissions (APCD Rule 202.U)

DEV ID	Building	Building Name	Pollutant	Annual PTE (Tons/Yr)	Quarterly PTE (Tons/Qtr)
9201	408	NA	Reactive Organic Gas	0.0071	0.0018
9204	504	Bio Science Instruction Facility	Reactive Organic Gas	0.0424	0.0106
9205	539	Bio Science Annex	Reactive Organic Gas	0.0071	0.0018
9206	544	Nobel Hall	Reactive Organic Gas	0.0706	0.0177
9207	551	Psychology	Reactive Organic Gas	0.0021	0.0005
9208	555	Marine Science	Reactive Organic Gas	0.0989	0.0247
9209	560	Phelps Hall	Reactive Organic Gas	0.0028	0.0007
9210	569	Surge I	Reactive Organic Gas	0.0014	0.0003
9211	571	Biological Sciences II	Reactive Organic Gas	0.3815	0.0954
9212	588	Student Health	Reactive Organic Gas	0.0007	0.0002
9214	503	Engineering II	Reactive Organic Gas	0.1700	0.0425
9216	526	Geology	Reactive Organic Gas	0.0014	0.0003
9217	534	Arts	Reactive Organic Gas	0.0007	0.0002
9219	556	Engineering I	Reactive Organic Gas	0.0041	0.0010
9220	575	Cloud Laboratory	Reactive Organic Gas	0.0021	0.0005
9221	557	Chemistry	Reactive Organic Gas	0.3608	0.0902
9222	570	Surge II	Reactive Organic Gas	0.0021	0.0005
9224	565	Environmental Health & Safety	Reactive Organic Gas	0.0243	0.0061
9225	598	Chemical Bulk Storage	Reactive Organic Gas	0.0035	0.0009
9226	572	Broida Hall	Reactive Organic Gas	0.0104	0.0026
9227	546	Woodhouse	Reactive Organic Gas	0.0083	0.0021
9900	225	Engineering Science Building	Reactive Organic Gas	0.0193	0.0048
9901	235	Life Science Building	Reactive Organic Gas	0.1766	0.0442
9902	266	Elings (CNSI)	Reactive Organic Gas	0.0256	0.0064
9904	515	Humanities and Social Services	Reactive Organic Gas	0.0021	0.0005
9905	520	Marine Science Building	Reactive Organic Gas	0.1060	0.0265
9906	521	Bren School of Environmental Science and Management	Reactive Organic Gas	0.0111	0.0028
9907	563	Ellison	Reactive Organic Gas	0.0007	0.0002
9908	615	MRL	Reactive Organic Gas	0.0520	0.0130
9909	657	PSB North	Reactive Organic Gas	0.4232	0.1058
9910	672	PSB South	Reactive Organic Gas	0.0007	0.0002
Total				2.0191	0.5048

Attachment 10.13. Draft Comments

- 10.13.1 This permit is subject to a public notice and a 45-day EPA review period. Draft comments will be included here in the final permit.

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