

YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT

1947 Galileo Court, Suite 103; Davis, CA 95618

Emission Evaluation and Statement of Basis

		<u>ATC #</u>	<u>C-13-72</u>
ENGINEER:	Eugene Rubin	<u>SIC Code #</u>	<u>8221</u>
FACILITY NAME:	University of California, Davis	<u>UTM E</u>	<u>608.8</u> km
		<u>UTM N</u>	<u>4266.2</u> km

LOCATION: The equipment is located at 1106 Extension Center Drive in Davis, (UC Davis Plant Reproductive Biology Facility), CAAN 4787, Zone #G123. The equipment is not located within 1,000 feet of a K-12 school and is not subject to the requirements of H&S 42301.6.

PROPOSAL: The facility is proposing a significant Title V permit modification for the modification of P-28-03, by replacing the boiler with a low NOx 3.9 MMBtu/hr burner. The boiler name plate will not change. Even though the facility is installing a low NOx burner they are proposing to take higher limits in order to avoid the requirement for initial source testing. Therefore at this time the control equipment will not list the low NOx burner.

The facility is currently operating under Title V Operating Permit F-00454-21, effective September 25, 2012. This evaluation will serve as both the District emission evaluation and the Title V Statement of Basis. This evaluation reflects only the requirements pertaining to C-13-72. Emission units that are not affected by this proposal were evaluated in the original Statement of Basis or the subsequent iterations and will not be reviewed in this evaluation.

The changes to the Title V permit will include changes evaluated under ATC C-13-42, C-13-72, and C-13-76

PROCESS: Boiler: Space Heating

FLOW DIAGRAM: See File

IDENTIFICATION: P-28-03(a) (reserved)

EQUIPMENT: One (1) 3.9 MM Btu/hr Parker Boiler, Model No. T-3900, Serial No. 59371

CONTROL EQUIPMENT: None

APPLICATION DATA:

Boiler Heat Input Rating =	<u>Units</u> 3.9 MMBtu/hr	<u>Formula Symbol</u> BR	<u>Reference</u> Applicant
<u>Max. Operational Schedule</u>			
Daily =	24 hours	<u>Formula Symbol</u> HD	<u>Reference</u> Applicant
1st Quarter =	55 days	Q1	Applicant
2nd Quarter =	28 days	Q2	Applicant
3rd Quarter =	28 days	Q3	Applicant
4th Quarter =	56 days	Q4	Applicant
Yearly =	166 days	DY	Applicant

ASSUMPTIONS:

VOC Molecular Weight =	<u>Units</u> 16.0 lb/mole	<u>Formula Symbol</u> MWvoc	<u>Reference</u> District
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CO Molecular Weight =	28.0 lb/mole	MWco	District
NO2 Molecular Weight =	46.0 lb/mole	MWno2	STAPPA/ALAPCO, Pg. 12-30 (5/30/91)
SO2 Molecular Weight =	64.0 lb/mole	MWso2	STAPPA/ALAPCO, Pg. 12-30 (5/30/91)
Flue Gas to Fuel Ratio =	0.618 moles/lb @ 3% O2	N	STAPPA/ALAPCO, Pg. 12-30 (5/30/91)
Higher Heating Value =	23,440 Btu/lb	HV	STAPPA/ALAPCO, Pg. 12-30 (5/30/91)
Fuel Btu Content =	1,000 Btu/scf	HH	District
F-Factor =	8,710 scf/MMBtu	FF	District
Standard Molar Volume =	385 scf/mole	MV	District

EMISSION FACTORS:

	<u>Units</u>	<u>Formula Symbol</u>	<u>Reference</u>
VOC	5.50 lb/MMScf	EFvoc	AP 42 Table 1.4-2; (7/98)
CO	84.00 lb/MMScf	Efco	AP 42 Table 1.4-2; (7/98)
NOx	100.00 lb/MMScf	Efnox	AP 42 Table 1.4-2; (7/98)
SOx	0.60 lb/MMScf	Efsox	AP 42 Table 1.4-2; (7/98) ¹
TSP/PM10	7.60 lb/MMScf	Efpm	AP 42 Table 1.4-2; (7/98) ²

1) Assumes a 100% conversion of the sulfur in natural gas to SO2.

2) Assumes all particulate matter is less than 10 micrometer aerodynamic diameter.

CALCULATIONS:

1. Determine Maximum Fuel Consumption:

	<u>Units</u>	<u>Formula Symbol</u>	<u>Reference</u>
Daily Throughput =	0.094 million cubic feet	Td	BR * HD/ HH
1st Quarter Throughput =	5.110 million cubic feet	T1	BR * HD * Q1 / HH
2nd Quarter Throughput =	2.580 million cubic feet	T2	BR * HD * Q2 / HH
3rd Quarter Throughput =	2.610 million cubic feet	T3	BR * HD * Q3 / HH
4th Quarter Throughput =	5.220 million cubic feet	T4	BR* HD * Q4 / HH
Yearly Throughput =	15.520 million cubic feet	Ty	BR* HD * DY / HH

EMISSION CALCULATIONS:

1. Determine VOC Emissions:

Max Daily VOC Emissions = Td * EFvoc =	0.5 lb/day
1st Quarter VOC Emissions = T1 * EFvoc =	28 lb/quarter
2nd Quarter VOC Emissions = T2 * EFvoc =	14 lb/quarter
3rd Quarter VOC Emissions = T3 * EFvoc =	14 lb/quarter
4th Quarter VOC Emissions = T4 * EFvoc =	29 lb/quarter
Max Yearly VOC Emissions = (Ty * EFvoc)*(1 ton/2,000 lb) =	0.04 tons/year

2. Determine CO Emissions:

Max. Daily CO Emissions = Td * EFco =	7.9 lb/day
1st Quarter CO Emissions = T1 * EFco =	429 lb/quarter
2nd Quarter CO Emissions = T2 * EFco =	217 lb/quarter
3rd Quarter CO Emissions = T3 * EFco =	219 lb/quarter
4th Quarter CO Emissions = T4 * EFco =	438 lb/quarter
Max. Yearly CO Emissions = (Ty * EFco)*(1 ton/2,000 lb) =	0.65 tons/year

3. Determine NOx Emissions:

Max. hourly NOx Emissions = Td * EFnox * (1/HD) =	0.4 lb/hour
Max. Daily NOx Emissions = Td * EFnox =	9.4 lb/day
1st Quarter NOx Emissions = T1 * EFnox =	511 lb/quarter
2nd Quarter NOx Emissions = T2 * EFnox =	258 lb/quarter
3rd Quarter NOx Emissions = T3 * EFnox =	261 lb/quarter
4th Quarter NOx Emissions = T4 * EFnox =	522 lb/quarter
Max. Yearly NOx Emissions = (Ty * EFnox)*(1 ton/2,000 lb) =	0.78 tons/year

4. Determine SOx Emissions:

Max. hourly SOx Emissions = $T_d * EF_{sox} * (1/HD) =$	0.002 lb/hour
Max. Daily SOx Emissions = $T_d * EF_{sox} =$	0.1 lb/day
1st Quarter SOx Emissions = $T_1 * EF_{sox} =$	3 lb/quarter
2nd Quarter SOx Emissions = $T_2 * EF_{sox} =$	2 lb/quarter
3rd Quarter SOx Emissions = $T_3 * EF_{sox} =$	2 lb/quarter
4th Quarter SOx Emissions = $T_4 * EF_{sox} =$	3 lb/quarter
Max. Yearly SOx Emissions = $(T_y * EF_{sox}) * (1 \text{ ton}/2,000 \text{ lb}) =$	0.00 tons/year

5. Determine TSP/PM10 Emissions:

Max. Daily PM10 Emissions = $T_d * EF_{pm} * (1/HD) =$	0.030 lb/hour
Max. Daily PM10 Emissions = $T_d * EF_{pm} =$	0.7 lb/day
1st Quarter PM10 Emissions = $T_1 * EF_{pm} =$	39 lb/quarter
2nd Quarter PM10 Emissions = $T_2 * EF_{pm} =$	20 lb/quarter
3rd Quarter PM10 Emissions = $T_3 * EF_{pm} =$	20 lb/quarter
4th Quarter PM10 Emissions = $T_4 * EF_{pm} =$	40 lb/quarter
Max. Yearly PM10 Emissions = $(T_y * EF_{pm}) * (1 \text{ ton}/2,000 \text{ lb}) =$	0.06 tons/year

6. Determine Sulfur Emissions Concentration:

$$SO_x \% = [SO_x, \text{lb/hr}] * MV / MW_{so2} / BR / FF * 100\% = 0.00004 \%$$

7. Determine Particulate Matter Emissions Concentration:

$$PM \text{ Conc.} = [TSP, \text{lbs/hr}] / BR / FF * (7,000 \text{ grains/lb}) = 0.006 \text{ gr/dscf}$$

RULE & REGULATION COMPLIANCE EVALUATION:

District Rule 2.3-Ringelmann

This rule specifies the allowable opacity limit for all sources operating in the District.

Compliance Status: The rule applies to any visible emissions at the stationary source. The version of the rule used in this evaluation is the rule adopted on January 13, 2010 and included in the current California State Implementation Plan (SIP). The source is currently in compliance with the requirements of the rule.

Requirement: A person shall not discharge into the atmosphere from any single source of emission whatsoever, any air contaminant, other than uncombined water vapor, for a period or periods aggregating more than three (3) minutes in any one hour which is:

- As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or
- Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection 301.2 a. of this rule.

Permit Condition: The permit holder shall not discharge into the atmosphere from any single source of emission whatsoever, any air contaminant for a period or periods aggregating more than three (3) minutes in any one hour which is:

- As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart; or
- Greater than 20% opacity. [District Rule 2.3 and 3.4]

District Rule 2.5-Nuisance

This rule requires that sources are not a public nuisance.

Compliance Status: The rule applies to all emission units at the stationary source. The source is currently in compliance with the requirements of the rule.

Permit Condition: The Permit Holder shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such persons or the public or which cause to have a natural tendency to cause injury or damage to business or property.

A condition will not be placed on the ATC, but will be added to the PTO upon implementation.

[The permit condition is federally enforceable because it derives from District Rule 2.5 - Nuisance which is currently part of the SIP. The District is taking steps to remove District Rule 2.5 from the SIP. Once the U.S. Environmental Protection Agency (EPA) has taken final action to remove District Rule 2.5 from the SIP, this permit condition will become State-enforceable only.]

District Rule 2.11 - Particulate Matter

This rule specifies the allowable particulate matter (PM) emission rate at standard conditions. For the purpose of this evaluation, the PM emissions are considered to be 100% PM10 (PM with an aerodynamic diameter of 10 microns or less).

Compliance Status: The boiler is subject to this rule. The version of the rule used in this evaluation is the rule adopted on January 13, 2010 and included in the current SIP. The proposed boiler is currently in compliance with the requirements of the rule.

Requirement: Except as otherwise permitted by law, no person shall release or discharge into the atmosphere, from any source, particulate matter in excess of 0.1 grains per cubic foot of exhaust volume as calculated standard conditions. [SIP approved version of District Rule 2.11]

As shown above in Emission Calculations #7, the PM concentration is expected to be in compliance with this requirement.

<u>Emission Rate (gr/dscf)</u>	<u>Allowable Rate (gr/dscf)</u>	<u>Compliance</u>
0.01	0.1	Yes

Permit Condition: The permit holder shall not release or discharge into the atmosphere, from any single source operation, dust fumes or total suspended particulate matter emissions in excess of 0.1 grain per cubic foot of gas at dry standard conditions. [District Rule 2.3 and District Rule 3.4]

District Rule 2.12 Specific Contaminants

This rule specifies the allowable sulfur dioxide and particulate matter combustion contaminant emission rates at standard conditions. For the purposes of this evaluation, the sulfur oxide (SOx) emissions are considered to be 100% SO2.

Compliance Status: The boiler is subject to this rule. The rule applies to any source operation which emits, or may emit sulfur gaseous emissions and particulate matter combustion contaminants. The version of the rule used in this evaluation is the rule adopted on January 13, 2010 and included in the current SIP. The proposed boiler is currently in compliance with the requirements of the rule.

Requirement: A person shall not discharge into the atmosphere from any single source of emission whatsoever, any one or more of the following contaminants, in any state or combination thereof, in excess of the following concentrations at the point of discharge:

- A. Sulfur compounds calculated as sulfur dioxide (SO2) 0.2%, by volume at standard conditions.
- B. Particulate Matter Combustion Contaminants: 0.1 grains per cubic foot of gas calculated to 12 percent of carbon dioxide (CO2) at standard conditions.

As shown above in Emission Calculations #6, the sulfur concentration (in percent) is expected to be in compliance with the requirement. Compliance with the particulate limit is demonstrated in Calculation #7 (See 2.11).

<u>Emission Rate (% SOx as SO2)</u>	<u>Allowable Rate (% SOx as SO2)</u>	<u>Compliance</u>
0.00004	0.2	Yes

Permit Condition: SOx emissions shall not exceed 0.1 lb/day, 3 lb/1st, 2 lb/2nd, 2 lb/3rd, and 2 lb/4th calendar quarter, and negligible tons/year. [District Rule 3.4/C-13-72]

District Rule 2.16 - Fuel Burning or Power Generation

This rule specifies the allowable sulfur dioxide, nitrogen oxides calculated as nitrogen dioxide, and combustion particulate limits for

non-mobile fuel burning equipment for a heat or power generating unit in the District.

Compliance Status: The boiler is subject to this rule. The version of the rule used in this evaluation is the rule adopted on October 1, 1971 and included in the current SIP. The proposed boiler is currently in compliance with the requirements of the rule.

Requirement: A person shall not build, expand, or operate any non-mobile fuel burning equipment for a heat or power generator unit unless the discharge into the atmosphere of contaminants will not and does not exceed any one or more of the following rates:

1. 200 pounds per hour of sulfur compounds, calculated as SO₂;
2. 140 pounds per hour of nitrogen oxides, calculated as nitrogen dioxide (NO₂);
3. 40 pounds per hour of combustion particulate derived from the fuel. [SIP approved version of District Rule 2.16]

<u>Pollutant</u>	<u>Allowable</u>		<u>Actual</u>		<u>Compliance</u>
SOx	200	lb/hr	0.0	lb/hr	Yes
NOx	140	lb/hr	0.4	lb/hr	Yes
PM	40	lb/hr	0.0	lb/hr	Yes

Subsuming Demonstration: The requirements of the SIP can be subsumed by the Authority of District Rule 3.4, New Source Review. P-54-00(a) is also subject to the federally applicable SO_x emission limit of negligible lbs/day, NO_x emission limit of 2.6 lbs/day and particulate emission limit of 0.5 lbs/day (established by Rule 3.4, Section 409.2).

Permit Condition: SO_x emissions shall not exceed 0.1 lb/day, 3 lb/1st, 2 lb/2nd, 2 lb/3rd, and 3 lb/4th calendar quarter, and 0.01 tons/year. [District Rule 3.4/C-13-72]

Permit Condition: NO_x emissions shall not exceed 9.4 lb/day, 511 lb/1st calendar quarter, 258 lb/2nd calendar quarter, 261 3rd calendar quarter, 522 lb/4th calendar quarter, and 0.78 tons/year. [District Rule 3.4/C-13-72]

Permit Condition: PM₁₀ emissions shall not exceed 0.7 lb/day, 39 lb/1st calendar quarter, 20 lb/2nd calendar quarter, 20 lb/3rd calendar quarter, 40 lb/4th calendar quarter and 0.06 tons/year. [District Rule 3.4/C-13-72]

District Rule 2.27 - Industrial, Institutional, & Commercial Boilers, Steam Generators and Process Heaters

This rule limits emissions of nitrogen oxides (Nox) and carbon monoxide (CO) from industrial, institutional, and commercial boilers, steam generators, and process heaters.

Compliance Status: The version of the rule used in this evaluation is the rule adopted on August 14, 1996 and included in the current SIP. The rule applies to units with rated heat inputs of greater than or equal to 5 million Btu per hour. The proposed boiler has a heat input rating below 5 million Btu per hour and is therefore not subject to the requirements of the rule.

Permit Condition: Equipment Description: 3.9 MMBtu/hr AERCO International natural gas fired boiler, Model Number T-3900, Serial No. 59397 [District Rule 3.4/C-13-72]

District Rule 3.1-General Permit Requirements

The purpose of this rule is to provide an orderly procedure for the review of new sources of air pollution and of the modification and operation of existing sources through the issuance of permits.

Compliance Status: The source has satisfied the provisions of General Permit Requirements. The rule applies to all emission units at the stationary source. The version of the rule used in this evaluation was adopted on February 23, 1994 and is part of the current SIP. The General Permit Requirements are shown below.

Permit Condition: No person shall build, erect, alter, or replace any facility, article, machine, equipment, or other contrivance, the use of which may cause the issuance of air contaminants, or the use of which may eliminate or reduce or control the issuance of air contaminants, without first obtaining an authorization to construct from the Air Pollution Control Officer as specified in Section 401 of District Rule 3.1. [District Rule 3.1, §301.1]

Permit Condition: No person shall operate any facility, article, machine, equipment, or other contrivance, for which an authorization to construct is required by District Rules and Regulations without first obtaining a written permit from the Air Pollution Control Officer. [District Rule 3.1, §302.1]

Permit Condition: No person shall operate any facility, article, machine, equipment, or other contrivance, the use of which may cause the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants, without obtaining a permit from the Air Pollution Control Officer or the Hearing Board. [District Rule 3.1, §302.2]

Permit Condition: (Title V permit only) To assure compliance with all applicable regulations, the Air Pollution Control Officer may impose written conditions on any authorization to construct or permit to operate. The Air Pollution Control Officer may, after 30-day notice to the permittee, add or amend written conditions on any permit upon annual renewal to ensure compliance with and enforceability of any applicable rule or regulation. Additional provisions, as required by Title V of the Federal Clean Air Act, for the reopening of permits are specified in Rule 3.8, FEDERAL OPERATING PERMITS. Commencing work or operation under such a revised permits shall be deemed acceptance of all of the conditions so specified. [District Rule 3.1, §402]

Permit Condition: The owner or operator of any facility, article, machine, equipment, or other contrivance for which a permit to operate is in effect shall notify the District office whenever a breakdown, malfunction, or operational upset condition exists which would tend to increase emissions of air pollutants or whenever any operating condition contrary to any provision of the permit to operate exists. Such notice shall be given to the District no later than four hours after occurrence during regular workday hours or no later than two hours of the District workday following an occurrence not during regular District workday hours. The notice shall provide the District information as to causes and corrective action being taken, with a schedule for return to required operating conditions. [District Rule 3.1, §405.3]

District Rule 3.4-New Source Review

This rule applies to all new stationary sources and emissions units and all modifications to existing stationary sources and emissions units which are subject to Rule 3.1, General Permit Requirements, and which, after construction or modification, emit or may emit any affected pollutants. This rule shall not apply to prescribed burning of forest, agriculture or range land, road construction or any other non-point source common to timber harvesting or agricultural practices. The purpose of this rule is to provide for the review of new and modified stationary air pollution sources and to provide mechanisms, including emission offsets, by which authorities to construct to such sources may be granted without interfering with the attainment or maintenance of ambient air quality standards.

Compliance Status: The source has satisfied the provisions of New Source Review. The New Source Review requirements will be imposed on the Authority to Construct (ATC) issued to the source. The version of the rule used in this evaluation was adopted on August 13, 1997 and is part of the current SIP.

PROPOSED EMISSION SUMMARY FOR NEW OR MODIFIED PERMIT

	<u>Daily</u>	<u>Yearly</u>	
VOC	0.5 lb	0.04 tons	Use for annual billing
CO	7.9 lb	0.65 tons	Use for annual billing
NOx	9.4 lb	0.78 tons	Use for annual billing
SOx	0.1 lb	0.00 tons	Use for annual billing
PM10	0.7 lb	0.06 tons	Use for annual billing

	<u>Quarterly</u>			
	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
VOC (lb)	28	14	14	29
CO (lb)	429	217	219	438
NOx (lb)	511	258	261	522
SOx (lb)	3	2	2	3
PM10 (lb)	39	20	20	40

	<u>Previous quarterly potential to emit for modified permit*</u>			
	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
VOC (lb)	124	63	64	127
CO (lb)	466	236	238	477
NOx (lb)	511	258	261	522
SOx (lb)	3	1	1	3
PM10 (lb)	32	16	16	33

* From PTO P-28-03

Historic potential emissions for modified permit*

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
VOC (lb)	124	63	64	127
CO (lb)	466	236	238	477
NOx (lb)	511	258	261	522
SOx (lb)	2	1	1	2
PM10 (lb)	21	11	11	22

* The boiler was fully offset for VOC, CO, and NOx. Therefore the historic potential emissions for VOC, CO, and NOx are equal to the previous potential to emit.

* Because SOx and PM10 emissions were not offset the historic potential emissions will be evaluated based on throughput.

The highest throughput for this permit in the past 5 years was 8.8787 mmcf of natural gas in 2012 which was 69% of permitted throughput. Because the historic emissions are not over 80% in any one year out of the last five, the historic potential is based on the past 2 years usage (or 2 consecutive years out of the past 5 if the last 2 are not representative).

The throughput for 2011 was 8.1524 mmcf and for 2012 was 8.8787 mmcf. The average of these 2 years is 67% of the permitted throughput, therefore, the historic potential to emit for SOx and PM10 is equal to 67% of the previous potential to emit.

<u>Pollutant</u>	<u>Trigger</u> (lb/day)	<u>BACT</u>	<u>Quarterly Increase</u>	<u>BACT</u>
		<u>Proposed</u> (lb/day)		
VOC	10	1	No	No
CO	250	8	No	No
NOx	10	9	No	No
SOx	80	0	Yes	No
PM10	80	1	Yes	No

OFFSETS

Quarterly permitted emissions for other permits at the stationary source*

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
VOC (lb)	13,191	13,304	13,416	13,421
CO (lb)	207,267	209,400	211,575	211,626
NOx (lb)	50,646	51,048	51,463	51,498
SOx (lb)	7,545	7,553	7,561	7,561
PM10 (lb)	11,748	11,839	11,933	11,940

* See attached quarterly potential to emit determination

Quarterly permitted emissions for the stationary source including proposed emissions

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
VOC (lb)	13,219	13,318	13,430	13,450
CO (lb)	207,696	209,617	211,794	212,064
NOx (lb)	51,157	51,306	51,724	52,020
SOx (lb)	7,548	7,555	7,563	7,564
PM10 (lb)	11,787	11,859	11,953	11,980

Offset triggers

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
VOC (lb)	7,500	7,500	7,500	7,500
CO (lb)	49,500	49,500	49,500	49,500
NOx (lb)	7,500	7,500	7,500	7,500
SOx (lb)	13,650	13,650	13,650	13,650
PM10 (lb)	13,650	13,650	13,650	13,650

Quantity of offsets required

<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
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VOC (lb)	0	0	0	0
CO (lb)	0	0	0	0
NOx (lb)	0	0	0	0
SOx (lb)	0	0	0	0
PM10 (lb)	0	0	0	0

MAJOR MODIFICATION

Facility Total Potential to Emit*

28.97 TPY VOC
424.42 TPY CO
156.05 TPY NOx
7.74 TPY SOx
22.74 TPY PM10**

Major Source Thresholds

25 TPY VOC
100 TPY CO
25 TPY NOx
100 TPY SOx
100 TPY PM10

* See QTPE sheet.

** As of December 14, 2009 the District is required to evaluate emissions of PM2.5 under Appendix S to 40 CFR 51. Under Appendix S, the major source threshold for PM2.5 is 100 tpy, the same as the major source threshold for PM10. Since PM2.5 is a subset of PM10, and this facility is not a major source for PM10, it is not a major source for PM2.5 either.

Last five year emission aggregate

5.55 TPY VOC
7.90 TPY CO
16.51 TPY NOx
0.54 TPY SOx
8.91 TPY PM10

Major Modification Thresholds

25 TPY VOC
100 TPY CO
25 TPY NOx
40 TPY SOx
25 TPY PM10

Result: The proposed modification is not a major modification

PUBLIC NOTICE

"Increase in historic potential to emit"

-49 lb VOC/quarter
-19 lb CO/quarter
0 lb NOx/quarter
1 lb SOx/quarter
18 lb PM10/quarter

Exemption level for notification

7,500 lb VOC/quarter
49,500 lb CO/quarter
7,500 lb NOx/quarter
13,650 lb SOx/quarter
13,650 lb PM10/quarter

Result: Public notice is not required

Permit Condition: VOC emissions shall not exceed 0.5 lb/day, 28 lb/1st calendar quarter, 14 lb/2nd calendar quarter, 14 lb/3rd calendar quarter, and 29 lb/4th calendar quarter, and 0.04 tons/year. [District Rule 3.4/C-13-72]

Permit Condition: CO emissions shall not exceed 7.9 lb/day, 429 lb/1st calendar quarter, 217 lb/2nd calendar quarter, 219 lb/3rd calendar quarter, 438 lb/4th calendar quarter and 0.65 tons/year. [District Rule 3.4/C-13-72]

Permit Condition: NOx emissions shall not exceed 9.4 lb/day, 511 lb/1st calendar quarter, 258 lb/2nd calendar quarter, 261 3rd calendar quarter, 522 lb/4th calendar quarter, and 0.78 tons/year. [District Rule 3.4/C-13-72]

Permit Condition: SOx emissions shall not exceed 0.1 lb/day, 3 lb/1st calendar quarter, 2 lb/2nd calendar quarter, 2 lb/3rd calendar quarter, and 3 lb/4th calendar quarter, and negligible tons/year. [District Rule 3.4/C-13-72]

Permit Condition: PM10 emissions shall not exceed 0.7 lb/day, 30 lb/1st calendar quarter, 20 lb/2nd calendar quarter, 20 lb/3rd calendar quarter, 40 lb/4th calendar quarter and 0.06 tons/year. [District Rule 3.4/C-13-72]

Permit Condition: The maximum amount of natural gas consumption shall not exceed 0.094 million cubic feet/day, 5.110 million cubic feet/1st calendar quarter, 2.580 million cubic feet/2nd calendar quarter, 2.610 million cubic feet/3rd calendar quarter, 5.220 million cubic feet/4th calendar quarter, and 15.520 million cubic feet/year. [District Rule 3.4/C-13-72]

Permit Condition: The boiler(s) shall be fired only on Public Utility Commission (PUC) grade pipeline natural gas. [District Rule 3.4/C-13-72]

Permit Condition: A non-resettable, totalizing gaseous fuel flow meter shall be installed and utilized to measure the quantity (in cubic feet) of natural gas combusted by the boiler(s). [District Rule 3.4/C-13-72]

Permit Condition: For the boiler operating under P-28-03(a) the Permit Holder shall monitor and record the cumulative quarterly and annual natural gas fuel usage (in cubic feet) for the boiler. The records shall be updated quarterly and made available to the District upon request. Historic annual data for the five (5) previous calendar years shall be kept and made available to the District upon request. [District Rule 3.4 and 3.8/C-13-72]

District Rule 3.8-Federal Operating Permits

This rule implements the requirements of Title V of the Federal Clean Air Act as amended in 1990 (CAA) for permits to operate. Title V provides for the establishment of operating permit programs for sources which emit regulated air pollutants, including attainment and non-attainment pollutants.

Compliance Status: The Rule was originally adopted on January 26, 1994. The most recent revision dated April 11, 2001 and is part of the current SIP. The source is currently in compliance with the requirements of the rule.

Per Section 102, this rule applies to all major sources, acid rain units subject to Title IV of the Federal Clean Air Act (CAA), solid waste incinerators, and any other sources specifically designated by the rule of US EPA.

The facility is a federal major source due to potential to emit over 25 tons VOC per year, 100 tons CO per year, and 25 tons NOx per year. The facility has an existing Title V Permit. Revisions to the Title V permit will be processed immediately following the approval of this application. The proposed revisions to the Title V permit will concurrently undergo a 30-day public comment period and a 45-day EPA comment period. Enhanced NSR has been requested by the applicant, as allowed by District Rule 3.4. The requirements of this ATC will be incorporated into the Title V permit upon written request from the applicant after all noticing has been done and the project is completed.

The facility's Title V Permit will be issued with all applicable operating, monitoring, and recordkeeping requirements. Per Section 302.6, the source will be required to maintain all required records for a period of five (5) years.

Title V General Requirements - Permit Conditions

The following conditions will not be placed on the ATC or PTO. These requirements will be included in the Title V Operating Permit only.

Permit Condition -Right of Entry:

The permit shall require that the source allow the entry of the District, ARB, or U.S. EPA officials for the purpose of inspection and sampling, including:

- a. Inspection of the stationary source, including equipment, work practices, operations, and emissions-related activity;
- b. Inspection and duplication of records required by the permit to operate; and
- c. Source sampling or other monitoring activities. [District Rule 3.8, §302.10]

Permit Condition -Compliance with Permit Conditions:

The Permit Holder shall comply with all Title V permit conditions. [District Rule 3.8, §302.11a]

The permit does not convey property rights or exclusive privilege of any sort. [District Rule 3.8, §302.11b]

Non-compliance with any permit condition is grounds for permit termination, revocation and reissuance, modification, enforcement action, or denial of permit renewal. [District Rule 3.8, §302.11c]

The Permit Holder shall not use the "need to halt or reduce a permitted activity in order to maintain compliance" as a defense for non-compliance with any permit condition. [District Rule 3.8, §302.11d]

A pending permit action or notification of anticipated non-compliance does not stay any permit condition. [District Rule 3.8, §302.11e]

Within a reasonable time period, the Permit Holder shall furnish any information requested by the APCO, in writing, for the purpose of determining:

- a. Compliance with the permit; or
- b. Whether or not cause exists for a permit or enforcement action. [District Rule 3.8, §302.11f]

Permit Condition -Emergency Provisions:

Within two weeks of an emergency event, the owner or operator shall submit to the District a properly signed contemporaneous log or other relevant evidence demonstrating that:

- a. An emergency occurred;
- b. The Permit Holder can identify the cause(s) of the emergency;
- c. The facility was being properly operated at the time of the emergency;
- d. All steps were taken to minimize the emissions resulting from the emergency; and
- e. Within two working days of the emergency event, the Permit Holder provided the District with a description of the emergency and any mitigating or corrective actions taken; and

In any enforcement proceeding, the Permit Holder has the burden of proof for establishing that an emergency occurred. [District Rule 3.8, §302.12]

Permit Condition -Severability:

If any provision, clause, sentence, paragraph, section or part of these conditions for any reason is judged to be unconstitutional or invalid, such judgment shall not affect or invalidate the remainder of these conditions. [District Rule 3.8, §302.13]

Compliance Certification:

Requirement: Section 302.14(a) of Rule 3.8 requires "the responsible official shall submit a compliance certification to the U.S. EPA and the APCO every twelve (12) months unless required more frequently by an applicable requirement. All compliance reports and other documents required to be submitted to the District by the responsible official shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete."

Streamlining Demonstration: As shown in the following permit conditions, the standard annual compliance certification reporting language of Rule 3.8 (Federal Operating Permits), will be streamlined under the provisions of Rule 3.4 to include specific reporting and submittal dates:

Permit Condition -Compliance Certification:

The Responsible Official shall submit a compliance certification to the U.S. EPA and the APCO every twelve (12) months unless required more frequently by an applicable requirement. The twelve (12) month period will begin on January 1 and end on December 31, and will be due by January 31 for the previous reporting year, unless otherwise approved in writing by the District. All compliance reports and other documents required to be submitted to the District by the responsible official shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

The compliance certification shall identify the basis for each permit term or condition (e.g., specify the emissions limitation, standard, or work practice) and a means of monitoring compliance with the term or condition consistent with Sections 302.5, 302.6, and 302.7 of Rule 3.8. [District Rule 3.8, §302.14b]

The compliance certification shall include a statement of the compliance status, whether compliance was continuous or intermittent, and method(s) used to determine compliance for the current time period and over the entire reporting period. [District Rule 3.8, §302.14c]

The compliance certification shall include any additional inspection, monitoring, or entry requirement that may be promulgated pursuant to Sections 114(a) and 504(b) of the Federal Clean Air Act. [District Rule 3.8, §302.14c]

Permit Condition -Permit Life:

The Title V permit shall expire five years from the date of issuance. Title V permit expiration terminates the stationary source's right to operate unless a timely and complete Title V permit application for renewal has been submitted. [District Rule 3.8, §302.15]

Permit Condition -Payment of Fees:

An owner or operator shall pay the appropriate Title V permit fees on schedule. If fees are not paid on schedule, the permit is forfeited. Operation without a permit subjects the source to potential enforcement action by the District and the U.S. EPA pursuant to Section 502(a) of the CAA. [District Rule 3.8, §302.16]

Permit Condition -Permit Revision Exemption:

No permit revision shall be required under any approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for in the permit. [District Rule 3.8, §302.22]

Permit Condition -Application Requirements:

An owner or operator shall submit a standard District application for renewal of the Title V permit, no earlier than 18 months and no later than six months before the expiration date of the current permit to operate. [District Rule 3.8, §402.2]

An owner or operator shall submit a standard District application for each emissions unit affected by a proposed permit revision that qualifies as a significant Title V permit modification. The application shall be submitted after obtaining any required preconstruction permits. Upon request by the APCO, the owner or operator shall submit copies of the latest preconstruction permit for each affected emissions unit. The emissions unit(s) shall not commence operation until the APCO approves the permit revision. [District Rule 3.8, §402.3]

An owner or operator shall submit a standard District application for each emissions unit affected by the proposed permit revision that qualifies as a minor permit modification. The application shall be submitted after obtaining any required preconstruction permits. The emissions unit(s) shall not commence operation until the APCO approves the permit revision. In the application, the owner or operator shall include the following:

- a. A description of the proposed permit revision, any change in emissions, and additional applicable federal requirements that will apply;
- b. Proposed permit terms and conditions; and
- c. A certification by a responsible official that the permit revision meets criteria for use of minor permit modification procedures and a request that such procedures be used. [District Rule 3.8, §402.4]

Permit Condition -Permit Reopening for Cause:

Circumstances that are cause for reopening and revision of a permit include, but are not limited to, the following:

- a. The need to correct a material mistake or inaccurate statement;
- b. The need to revise or revoke a permit to operate to assure compliance with applicable federal requirements;
- c. The need to incorporate any new, revised, or additional applicable federal requirements, if the remaining authorized life of the permit is 3 years or greater, no later than 18 months after the promulgation of such requirement (where less than 3 years remain in the authorized life of the permit, the APCO shall incorporate the requirements into the permit to operate upon renewal); or
- d. Additional requirements promulgated pursuant to Title IV as they become applicable to any acid rain unit governed by the permit. [District Rule 3.8, §413.1]

Permit Condition -Recordkeeping:

The permit holder shall record maintenance of all monitoring and support information required by any applicable federal requirement, including:

- a. Date, place, and time of sampling;
- b. Operating conditions at the time of sampling;
- c. Date, place, and method of analysis; and
- d. Results of the analysis. [District Rule 3.8, §302.6a]

The permit holder shall retain records of all required monitoring data and support information for a period of at least five years from the date of sample collection, measurement, report, or application. [District Rule 3.8 §302.6b]

Permit Condition -Reporting Requirements:

Any deviation from permit requirements, including that attributable to upset conditions (as defined in the permit), shall be promptly reported to the APCO. For the purpose of this condition prompt means as soon as reasonably possible, but no later than 10 days after detection.[District Rule 3.8, §302.7a]

A semi-annual monitoring report shall be submitted at least once every six (6) consecutive calendar months and shall identify any deviation from permit requirements, including that previously reported to the APCO pursuant to Section 302.7(a) of Rule 3.8. Unless otherwise approved in writing by the District, the following shall apply:

- a. The first six (6) month monitoring period will begin on January 1 and end on June 30, and the report will be due by July 31 of the reporting year; and
- b. The second six (6) month period will begin on July 1 and end on December 31, and the report will be due on January 31 of the following calendar year.

All reports of deviation from permit requirements shall include the probable cause of the deviation and any preventive or corrective action taken. [District Rule 3.8, §302.7c]

Each monitoring report shall be accompanied by a written statement from the responsible official that certifies the truth, accuracy, and completeness of the report. [District Rule 3.8, §302.7e]

District Rule 3.20-Ozone Transport Mitigation

As documented above, the facility total potential to emit is above 10 tons per year for VOC or NOx, and therefore the post-project Stationary Source Potential to Emit (SSPE) will be calculated.

Annual permitted emissions for the stationary source including proposed emissions

VOC (lb)	57,940	lbs
NOx (lb)	312,100	lbs

Annual permitted emissions for equipment which is exempt from Rule 3.4*

VOC (lb)	5,720	lbs
NOx (lb)	137,620	lbs

* See attached quarterly potential to emit determination

Post -project Stationary Source Potential to Emit (SSPE)

VOC (lb)	52,220	lbs
NOx (lb)	174,480	lbs

Because the post-project SSPE is greater than 10 tons (20,000) lbs per year for VOC or NOx, per section 301.1, calculations shall be performed to determine the quantity of mitigation required, if any.

Pre -project Stationary Source Potential to Emit (SSPE)

VOC (lb)	52,520	lbs
NOx (lb)	174,480	lbs

Quantity of offsets required by Rule 3.4

VOC (lb)	0	lbs
NOx (lb)	0	lbs

Quantity of Mitigation required by Rule 3.20*

VOC (lb)	0	lbs
NOx (lb)	0	lbs

District Risk Management Plan and Risk Assessment Guidelines (RMPRAG)

Because this project is concurrent with C-13-42, and C-13-75 the combined risk will be evaluated. As required by the District's RMPRAG Policy, the project's health risk will be reviewed. The review will evaluate the Hazardous Air Pollutant (HAP) emissions, and because the engine being permitted under C-13-42 will be installed after March 3, 2004, the risk from diesel particulate will also be quantified.

C-13-42: Emergency IC engine

1. HAP Emissions - Excluding Diesel Particulate:

Pollutants	Emission Factor * (lb/MMBtu)	Emissions (lb/year)	Screening Level (lb/year)	Less Than Screening
Benzene	9.33E-04	0.39	6.70	Yes
Toluene	4.09E-04	0.17	38,600.00	Yes
Xylenes	2.85E-04	0.12	57,900.00	Yes
Propylene	2.58E-03	1.09	52.00	Yes
1,3-Butadiene	3.91E-05	0.02	1.10	Yes
Formaldehyde	1.18E-03	0.50	33.00	Yes
Acetaldehyde	7.67E-04	0.32	72.00	Yes
Acrolein	9.25E-05	0.04	3.90	Yes
Benz[a]anthracene	1.68E-06	0.00	0.04	Yes
Benzo[b]fluoranthene	9.91E-08	0.00	0.04	Yes
Benzo[a]pyrene	1.55E-07	0.00	0.04	Yes
Dibenz[a,h]anthracene	5.83E-07	0.00	0.04	Yes
Indeno[1,2,3-cd]pyrene	3.57E-07	0.00	0.04	Yes
Naphthalene	8.48E-05	0.04	270.00	Yes

* Based on AP-42, Table 3.3-2 (10/96).

Since the emissions from the above HAPs are below the screening levels, no further toxic review is required of them.

2. Diesel Particulate Cancer Risk Calculation:

Dispersion Data	Units	Formula Symbol	Reference
Residential Emission Concentration, X/Q =	582.3 µg/m ³	CR	Screen3
Worksite Emission Concentration, X/Q =	582.3 µg/m ³	CW	Screen3

* Conservatively, the District will use the unit's maximum dispersion concentration to evaluate both the residential and worksite receptor risks. As documented, the maximum concentration occurs at 43 meters from the source.

Individual Cancer Risk (ICR)	Units	Formula Symbol	Reference
Diesel Particulate Unit Risk Factor =	3E-04 (unit-less)	UR	OEHHA
Dispersion Annualizing Factor *=	0.10 (unit-less)	AF	District
Residential, ICR =	0.000 in a million	ICR	ER*UR*CR*AF
Worksite, ICR =	0.000 in a million	ICW	(46/70)*ER*UR*CW*AF
Maximum, ICR =	0.000 in a million	Max Risk	Max (ICR, ICW)

* The Screen3 dispersion concentration for both the residential and the worksite receptors are annualized by a factor of 0.10.

3. Evaluation of Best Available Control Technology for Toxic Air Contaminants* (T-BACT):

Is T-BACT Required (Max Risk > 1 in a million):	No
Has T-BACT been proposed for the project:	yes
Based on the T-BACT proposal and the maximum ICR value calculated, the project is:	Approvable

* Effective March 3, 2004, the District determined that T-BACT for a diesel fired emergency engine is either: 1) the engine manufacturer's PM10 emission certification equal to or less than 0.15 gr/hp-hr; or 2) the use of a particulate control device (e.g. Diesel Particulate Filter (DPF), etc.) to reduce an engine's particulate matter exhaust emissions to or less than 0.15 g/bhp-hr

As proposed the project meets the requirements of the District's RMPRAG Policy, therefore no further toxics review is required.

C-13-72: 3.9 MMBTU/hr boiler

Natural Gas Combustion	Emission Factor* lb/MMScf	Yearly Emissions (lb/year)	Yearly Emissions (g/s)	Screening Level (lb/year)	Less Than Screening
Arsenic	2.0E-04	0.0031	4.46E-08	0.024	Yes
Benz[a]anthracene	1.8E-06	0.0000	4.02E-10	0.04	Yes
Benzene	2.1E-03	0.0326	4.69E-07	6.70	Yes
Benzo[a]pyrene	1.2E-06	0.0000	2.68E-10	0.04	Yes

Benzo[b]fluoranthene	1.8E-06	0.0000	4.02E-10	0.04	Yes
Benzo[k]fluoranthene	1.8E-06	0.0000	4.02E-10	0.04	Yes
Dibenz[a,h]anthracene	1.2E-06	0.0000	2.68E-10	0.04	Yes
Beryllium	1.2E-05	0.0002	2.68E-09	0.015	Yes
Cadmium	1.1E-03	0.0171	2.46E-07	0.046	Yes
Copper	8.5E-04	0.0132	1.90E-07	463.0	Yes
Dichlorobenzene	1.2E-03	0.0186	2.68E-07	68.0	Yes
Formaldehyde	7.5E-02	1.1640	1.67E-05	33.0	Yes
Lead	5.0E-04	0.0078	1.12E-07	29.00	Yes
Manganese	3.8E-04	0.0059	8.48E-08	77.0	Yes
Mercury	2.6E-04	0.0040	5.80E-08	57.9	Yes
n-Hexane	1.8E+00	27.9360	4.02E-04	83,000	Yes
Naphthalene	6.1E-04	0.0095	1.36E-07	270.0	Yes
Nickel	2.1E-03	0.0326	4.69E-07	0.73	Yes
Selenium	2.4E-05	0.0004	5.36E-09	96.5	Yes
Toluene	3.4E-03	0.0528	7.59E-07	38,600	Yes
Zinc	2.9E-02	0.4501	6.47E-06	6,760	Yes

* AP-42, Section 1.4 (7/98)

Since the emissions from the above HAPs are below the screening levels, no further toxic review is required of them.

C-13-75: 180 MMBTU/hr boiler modification

- This modification does not result in an increase in natural gas or diesel throughput, therefore, it is expected that there is no increase in HAP emissions. No further toxics review is required.

Combined project

Compounds	C-13-42 lb/year	C-13-72 lb/year	Total (lb/year)	Screening Level (lb/year)	Less Than Screening
1,3-Butadiene	0.0200	0.0000	0.0200	1.10	Yes
Acetaldehyde	0.3200	0.0000	0.3200	72	Yes
Acrolein	0.0390	0.0000	0.0390	3.9	Yes
Arsenic	0.0000	0.0031	0.0031	0.024	Yes
Benz[a]anthracene	0.0000	0.0000	0.0000	0.04	Yes
Benzene	0.3900	0.0326	0.4226	6.70	Yes
Benzo[a]pyrene	0.0000	0.0000	0.0000	0.04	Yes
Benzo[b]fluoranthene	0.0000	0.0000	0.0000	0.04	Yes
Benzo[k]fluoranthene	0.0000	0.0000	0.0000	0.04	Yes
Dibenz[a,h]anthracene	0.0000	0.0000	0.0000	0.04	Yes
Beryllium	0.0000	0.0002	0.0002	0.015	Yes
Cadmium	0.0000	0.0171	0.0171	0.046	Yes
Copper	0.0000	0.0132	0.0132	463.0	Yes
Dichlorobenzene	0.0000	0.0186	0.0186	68.0	Yes
Formaldehyde	0.5000	1.1640	1.6640	33.0	Yes
Lead	0.0000	0.0078	0.0078	29.00	Yes
Manganese	0.0000	0.0059	0.0059	77.0	Yes
Mercury	0.0000	0.0040	0.0040	57.9	Yes
n-Hexane	0.0000	27.9360	27.9360	83,000	Yes
Naphthalene	0.0400	0.0095	0.0495	270.0	Yes
Nickel	0.0000	0.0326	0.0326	0.73	Yes
Propylene	1.0900	0.0000	1.0900	52.00	Yes
Selenium	0.0000	0.0004	0.0004	96.5	Yes
Toluene	0.1700	0.0528	0.2228	38,600	Yes
Xylenes	0.1200	0.0000	0.1200	57,900	Yes
Zinc	0.0000	0.4501	0.4501	6,760	Yes

The combined projects do not require further toxics review.

COMMENTS:

BACT and TBACT are not triggered. This is not considered a major modification.

Copies of the ATC, Title V Statement of Basis Addendum/Evaluation, and proposed Title V permit changes will be mailed to the California Air Resources Board (ARB) and the United States Environmental Protection Agency (US EPA) Region IX.

RECOMMENDATIONS:

Perform the required public and regulatory notice.

Engineer:  _____

Date: 8/27/13

Reviewed by:  _____

Date: 8/29/2013

generic.xls 12/14/2004 pah

New Source Review

Quarterly Potential To Emit Determination

NSR Version 8/19/03

Evaluation to be used on existing permits to obtain their quarterly PTE.

Engineer: Eugene Rublin

Facility Name: University of California, Davis (UCD)

Location: Main UCD Campus

CURRENT APPLICATIONS:

ATC'S

C-13-42, C-13-72, C-13-75

SIC Code # 8221

Date of Initial Quarterly PTE Determination: 04/13/1998

Date of Previous Quarterly PTE Determination: 08/08/2013

Date of Current Quarterly PTE Determination: 08/21/2013

PTO'S

Process Description	Current Permits	VOC Emissions				CO Emissions				NOx Emissions				SOx Emissions				PM10 Emissions								
		QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)					
Gasoline Storage & Dispensing	P-1-81(a3)	475	475	475	475	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Cooling Towers	P-101-02	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Boiler, NG Fired	P-101-03	5	5	5	5	29	29	29	29	0.06	0.11	0.06	0.06	0.06	0.11	0.06	0.06	0.06	0.06	0.06	0.11	0.06	0.06	0.06	0.06	0.11
Landfill Gas Collection & SVE	P-14-08	6,089	6,157	6,225	6,225	602	612	622	622	1.82	1.83	1.82	1.82	1.83	1.82	1.82	1.82	1.82	1.82	1.83	1.82	1.82	1.82	1.82	1.83	
Boiler (2.1 MMBtu/hr)	P-16-06	25	25	28	28	90	91	92	92	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	
Wastewater Treatment Plant (WWTP)	P-22-00(e)	78	78	78	78	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Boiler, NG Fired	P-26-03	124	63	64	127	488	238	238	477	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	
Boilers (10)	C-13-72	28	14	14	29	429	217	219	438	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	
Gasoline Storage & Dispensing	P-3-00	43	44	44	44	684	672	678	679	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	
Boilers, NG Fired	P-42-78(a3)	220	220	220	220	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	
Boiler - Steam Generation	P-44-11	11	6	6	11	99	49	49	99	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15		
Boiler - Steam Generation	P-44-98	33	34	34	34	147	148	148	148	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	
Boiler - Steam Generation	P-45-06	14	15	15	15	62	63	63	63	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	
Boiler - Steam Generation	P-47-68	39	39	40	40	170	172	174	174	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	
Boiler - Steam Generation	P-48-96	13	13	13	13	55	55	55	55	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	
Boiler	P-5-00	12	12	12	12	69	69	69	69	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	
Boiler - Natural Gas for Steam	P-52-00	24	24	24	24	150	152	154	154	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	
Boiler	P-54-00(e)	38	36	36	38	297	290	293	293	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	
Woodworking (Silo)	P-54-90(e)	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Boilers - Natural Gas	P-54-90	17	13	13	13	69	69	70	71	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	
Boilers - Natural Gas	P-55-00	23	24	24	24	101	102	103	103	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	
Boiler - Steam Generation	P-62-98	76	76	79	79	248	251	254	254	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
Boiler - Steam Generation	P-63-06(e)	19	19	19	19	1,015	1,027	1,038	1,038	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	
Boiler - Steam Generation	P-64-03(e)	27	27	28	28	218	221	223	223	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	
Boiler, NG Fired	P-65-03	28	29	29	29	433	439	443	443	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	
Boiler #2	P-67-00(e)	81	82	83	83	8,292	8,394	8,478	8,478	18.60	18.60	18.60	18.60	18.60	18.60	18.60	18.60	18.60	18.60	18.60	18.60	18.60	18.60	18.60	18.60	
Inchinator Vat, Lab.	P-81-89(e)	34	34	34	34	84	84	84	84	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	
Boiler (180 MMBtu/hr)	P-83-06	1,687	1,686	1,704	1,704	1,517	1,533	1,549	1,549	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	
Boiler (180 MMBtu/hr)	C-13-75	1,687	1,686	1,704	1,704	1,517	1,533	1,549	1,549	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07	
Gasoline Storage & Dispensing	P-84-03(a1)	3	3	3	3	6,790	8,473	8,585	8,585	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	
Boiler #1	P-89-00	154	156	158	158	6,790	8,473	8,585	8,585	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	16.88	
Boiler, NG Fired	P-90-00	538	563	567	567	81,719	82,613	83,506	83,506	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	
Boiler #2	P-90-02	11	12	12	12	199	202	204	204	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	
Boiler, NG Fired	P-91-00	558	563	567	567	81,719	82,613	83,506	83,506	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	183.74	
Woodworking (Physical Plant)	P-91-02	11	12	12	12	199	202	204	204	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	
Boiler #3	P-95-80(a1)	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Boiler #3	P-96-00	1,077	1,089	1,101	1,101	20,285	20,418	20,551	20,551	28.40	28.40	28.40	28.40	28.40	28.40	28.40	28.40	28.40	28.40	28.40	28.40	28.40	28.40	28.40	28.40	
Paint Booth	P-96-00(a1)	1,715	1,715	1,715	1,715	3,337	3,337	3,337	3,337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Woodworking (ert building)	C-13-84	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Pre-project SSPE (dry year)																										
Pre-project SSPE (dry year)																										
Pre-project Policy 28 PTE		13,315	13,387	13,480	13,548	207,733	208,098	211,813	212,103	404.11	404.11	404.11	404.11	404.11	404.11	404.11	404.11	404.11	404.11	404.11	404.11	404.11	404.11	404.11	404.11	
Post-project Policy 28 PTE		13,218	13,316	13,418	13,490	207,896	208,917	211,794	212,064	404.05	404.05	404.05	404.05	404.05	404.05	404.05	404.05	404.05	404.05	404.05	404.05	404.05	404.05	404.05	404.05	
P-1-00		2	2	2	2	163	163	163	163	0.08</																

Emergency IC Engine (277 BHP) Emergency IC Engine (750 BHP) Emergency IC Engine (200 BHP) Emergency IC Engine (289 BHP) Emergency IC Engine (415 BHP) Emergency IC Engine (150 BHP) Emergency IC Engine (244 BHP) Emergency IC Engine (740 BHP) Emergency IC Engine (550 BHP) Emergency IC Engine (655 BHP) Emergency IC Engine (158 BHP) Emergency IC Engine (463 BHP) Emergency IC Engine (365 BHP) Emergency IC Engine (1,214 BHP) Emergency IC Engine (314 BHP)	VOC Emissions				CO Emissions				NOx Emissions				SOx Emissions				PM10 Emissions								
	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)					
	130	139	139	139	0.07	370	370	370	370	1,717	1,717	1,717	1,717	1,717	0.86	22	22	22	22	0.01	122	122	122	122	0.06
	22	22	22	22	0.01	201	201	201	201	586	586	586	586	586	0.29	18	18	18	18	0.01	28	28	28	28	0.01
	146	146	146	146	0.07	387	387	387	387	1,798	1,798	1,798	1,798	1,798	0.90	23	23	23	23	0.01	128	128	128	128	0.06
	145	145	145	145	0.07	386	386	386	386	1,792	1,792	1,792	1,792	1,792	0.90	23	23	23	23	0.01	127	127	127	127	0.06
	209	209	209	209	0.10	554	554	554	554	2,573	2,573	2,573	2,573	2,573	1.29	34	34	34	34	0.02	183	183	183	183	0.09
	15	15	15	15	0.01	177	177	177	177	772	772	772	772	772	0.39	12	12	12	12	0.01	66	66	66	66	0.03
	123	123	123	123	0.06	326	326	326	326	1,513	1,513	1,513	1,513	1,513	0.76	20	20	20	20	0.01	107	107	107	107	0.05
	108	108	108	108	0.05	283	283	283	283	1,352	1,352	1,352	1,352	1,352	0.63	17	17	17	17	0.01	92	92	92	92	0.04
	64	64	64	64	0.02	183	183	183	183	604	604	604	604	604	0.30	1	1	1	1	0.00	34	34	34	34	0.02
	32	32	32	32	0.02	411	411	411	411	1,004	1,004	1,004	1,004	1,004	0.50	1	1	1	1	0.00	23	23	23	23	0.01
	81	81	81	81	0.04	211	211	211	211	604	604	604	604	604	0.30	1	1	1	1	0.00	34	34	34	34	0.02
	7	7	7	7	0.00	91	91	91	91	820	820	820	820	820	0.41	2	2	2	2	0.00	0	0	0	0	0.00
	16	16	16	16	0.01	92	92	92	92	195	195	195	195	195	0.10	0	0	0	0	0.00	10	10	10	10	0.00
	15	15	15	15	0.01	119	119	119	119	563	563	563	563	563	0.28	1	1	1	1	0.00	16	16	16	16	0.01
	48	48	48	48	0.02	401	401	401	401	2,146	2,146	2,146	2,146	2,146	1.07	3	3	3	3	0.00	32	32	32	32	0.01
	19	19	19	19	0.01	381	381	381	381	208	208	208	208	208	0.10	1	1	1	1	0.00	0	0	0	0	0.00
Rule 3.2 Exempt Units Total PTE (lb/year)					5,720					17,480															

SUMMARY	VOC Emissions				CO Emissions				NOx Emissions				SOx Emissions				PM10 Emissions							
	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)				
Pre-project SSPE (lb/year)	13,315	13,387	13,450	13,548	52,220	207,793	208,698	211,813	212,103	824,407	51,157	51,306	51,724	52,020	206,207	7,548	7,554	7,562	7,564	30,188	10,628	10,707	10,731	17,81
Post-project Policy 28 PTE	13,310	13,318	13,400	13,450	52,478	207,086	208,617	211,794	212,064	824,561	51,157	51,306	51,724	52,020	206,207	7,548	7,554	7,562	7,564	30,188	10,628	10,707	10,731	17,81
Post-project Policy 28 PTE	18,888	19,085	19,197	19,217	76,387	247,884	248,815	251,791	252,061	983,947	198,759	198,907	199,225	199,621	797,512	12,854	12,862	12,869	12,870	51,774	18,923	18,994	19,089	27,74
FACILITY TOTAL PTE																								

Facility Policy 28 Post-Project Potential to Emit

	Quarter #1-4				Yearly
	Quarter #1 (lb)	Quarter #2 (lb)	Quarter #3 (lb)	Quarter #4 (lb)	
VOC	13,219	13,318	13,400	13,460	52,220
CO	207,698	208,617	212,064	212,064	824,407
NOx	51,157	51,306	51,724	52,020	206,207
SOx	7,548	7,555	7,564	7,564	30,188
PM10	11,787	11,839	11,960	12,028	47,614

Post-Project Stationary Source Potential to Emit (SSPE)

	Yearly	
	Yearly (lb/year)	Yearly (tons)
VOC	52,220	174,480
NOx	20,000	60,000

OFFSET THRESHOLDS

	(lb/yr)
VOC	7,500
NOx	49,500
SOx	7,650
PM10	13,650

MITIGATION THRESHOLDS

	(lb/year)
VOC	20,000
NOx	20,000

PTC Comparison to NSR Triggers

	Quarter #1	Quarter #2	Quarter #3	Quarter #4	Annual
VOC	Above	Above	Above	Above	Above
NOx	Above	Above	Above	Above	Above
SOx	Below	Below	Below	Below	Below
PM10	Below	Below	Below	Below	Below

SSPE Comparison to Rule 3.20 Triggers

	Annual
VOC	Above
NOx	Above

COMMENTS: The following Changes were made to this PTE worksheet from the last update (12/20/2012):
 (1) Emissions were added for C-13-42, C-13-72, C-13-75

Engineer: ER
 Reviewed by: *F. Hernandez*

Date: 8/22/13
 Date: 8/26/2013

YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT

1947 Galileo Court, Suite 103, Davis, CA 95618

**New Source Review
Last Five Year Activity**

Evaluator: Eugene Rubin

SIC Code #

8221

Facility Name: UC Davis

Date of Initial Five Year Determination:

5/22/1998

Location: UC Davis Main Campus

Date of Previous Five Year Determination:

5/31/2013

Date of Current Five Year Determination:

8/8/2013

List of Activities: C-13-84

Equipment	Issued Permits	Date PTO issued	ATC	Date ATC Issued	VOC (tpy)	CO (tpy)	NOx (tpy)	SOx (tpy)	PM10 (tpy)
Boilers	P-67-00(a)	4/8/2009	C-08-61	1/8/2009	0.06	0.88	1.05	0.01	0.08
GDF	P-84-93(a1)	4/8/2009	C-08-97	1/8/2009	0.00	0.00	0.00	0.00	0.00
Emergency ICE	P-2-09	4/2/2010	C-08-110	1/8/2009	0.00	0.02	0.06	0.00	0.00
Emergency ICE	P-3-09	6/18/2009	C-08-193	1/8/2009	0.17	0.34	0.07	0.01	0.01
Emergency ICE	P-4-09	4/2/2010	C-08-232(rev)	1/8/2009	0.01	0.07	0.22	0.00	0.01
Emergency ICE	P-16-09	4/2/2010	C-08-254	5/1/2009	0.03	0.17	0.88	0.00	0.01
Emergency ICE	P-17-09	3/17/2010	C-09-16	5/1/2009	0.00	0.02	0.18	0.00	0.00
GDF	P-42-76(a2)	4/1/2010	C-09-57	3/5/2009	0.44	0.00	0.00	0.00	0.00
Emergency ICE	P-66-09	5/24/2010	C-09-127	9/18/2009	0.00	0.04	0.08	0.00	0.00
Emergency ICE	P-67-09	5/24/2010	C-09-128	9/18/2009	0.00	0.05	0.10	0.00	0.00
Emergency ICE	P-68-09	5/24/2010	C-09-129	9/18/2009	0.01	0.07	0.24	0.00	0.01
Emergency ICE	P-54-09	4/2/2010	C-09-139	9/18/2009	0.01	0.08	0.82	0.00	0.01
Emergency ICE	P-69-09	9/9/2010	C-09-161	9/18/2009	0.02	0.06	0.84	0.00	0.01
Boilers	P-63-06(a)	9/24/2010	C-09-210	6/3/2010	0.16	0.50	0.51	0.00	0.04
Emergency ICE	P-42-10	4/20/2011	C-10-17	9/8/2010	0.00	0.03	0.18	0.00	0.00
Emergency ICE	P-43-10	6/1/2011	C-10-38	9/8/2010	0.00	0.02	0.00	0.00	0.00
Emergency ICE	P-44-10	4/20/2011	C-10-45	9/8/2010	0.04	0.18	0.87	0.00	0.03
Emergency ICE	P-7-11	8/2/2011	C-10-105	3/25/2011	0.01	0.08	0.35	0.00	0.01
Boiler	P-54-00(a)	8/9/2011	C-10-93	3/25/2011	0.07	0.58	0.48	0.01	0.10
Boiler	P-44-11	1/9/2012	C-11-62	8/23/2011	0.02	0.15	0.07	0.00	0.02
GDF	P-1-81(a3)	5/1/2012	C-11-80	3/5/2012	0.95	0.00	0.00	0.00	0.00
Emergency ICE	P-72-11	9/27/2012	C-11-89	3/5/2012	0.03	0.31	1.08	0.00	0.03
Emergency ICE	(P-39-12)	-	C-12-89	12/10/2012	0.02	0.11	0.30	0.00	0.02
Emergency ICE	(P-51-12)	-	C-12-125	2/26/2013	0.04	0.06	0.41	0.00	0.00
Emergency ICE	(P-52-12)	-	C-12-126	2/26/2013	0.00	0.05	0.10	0.00	0.00
Emergency ICE	(P-55-12)	-	C-12-129	2/26/2013	0.01	0.05	0.28	0.00	0.01
Emergency ICE	(P-56-12)	-	C-12-130	2/26/2013	0.01	0.06	0.22	0.00	0.01
Emergency ICE	(P-4-13)	-	C-13-06	4/10/2013	0.02	0.20	1.07	0.00	0.02
Emergency ICE	(P-28-13)	-	C-13-42	proposed	0.00	0.00	0.07	0.00	0.00
Boiler	(P-28-03(a))	-	C-13-72	proposed	0.04	0.65	0.78	0.00	0.06
Boiler	(P-83-06(a))	-	C-13-75	proposed	3.38	3.07	5.20	0.51	5.96
Woodworking	(P-44-13)	-	C-13-84	8/8/2013	0.00	0.00	0.00	0.00	2.46
TOTAL					5.55	7.90	16.51	0.54	8.91

COMMENTS: These permits are sorted by date the ATC was issued. According to Rule 3.4 Section 221, a major modification is calculated based on all creditable increases and decreases from the source over the period of five consecutive years before the application, including the calendar year of the most recent application. Therefore the applicable years are August 2008 through August 2013.

The following changes were made to this worksheet from the last update (12/20/2012):

(1) Only active PTOs and ATC C-13-42, C-13-72, and C-13-75

Engineer:

 Typed Initials
ER

Date:

8/21/2013

Reviewed by:



Date:

8/26/2013