

YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT

1947 Galileo Court , Suite 103; Davis, CA 95618

**Diesel Fired Emergency Internal Combustion Engine
Emission Evaluation and Statement of Basis Addendum**

ENGINEER: Kyle Rohlfing ATC # C-11-33
SIC Code # 9223

COMPANY NAME: California Medical Facility UTM E 589.3 km
UTM N 4242.5 km

ENGINE LOCATION: The engine will be located at 1600 California Drive in Vacaville. The engine will not be located within 1,000 feet of a K-12 school and is not subject to the requirements of H&S 42301.6.

PROPOSAL: The applicant is proposing to install a diesel fired emergency internal combustion (IC) engine.

PROCESS: The engine is used to power an emergency generator

FLOW DIAGRAM: None required.

EQUIPMENT: 1207 BHP diesel fired Mitsubishi IC engine, Model No. S12A2-Y2PTAW-2, Serial No. TBD, Model Year 2010, EPA Certified Tier II Engine

CONTROL EQUIPMENT: Aftercooler and turbocharger

APPLICATION DATA:

<u>Operating Schedule</u>	<u>Units</u>	<u>Formula Symbol</u>	<u>Reference</u>
Max. Daily Operation =	24 hours/day	Td	Applicant
Max. 1st Quarter Operation =	200 hours/quarter	T1	Applicant
Max. 2nd Quarter Operation =	200 hours/quarter	T2	Applicant
Max. 3rd Quarter Operation =	200 hours/quarter	T3	Applicant
Max. 4th Quarter Operation =	200 hours/quarter	T4	Applicant
Max. Yearly Operation =	200 hours/year	Ty	Applicant

<u>Engine Data</u>	<u>Units</u>	<u>Formula Symbol</u>	<u>Reference</u>
Maximum BHP Rating =	1207 BHP	HP	Manufacturer's Data
Exhaust Volume =	7,344 ACFM	EV	Manufacturer's Data
Exhaust Temperature =	1,343 Degrees Rankine (F+460)	ET	Manufacturer's Data
Hourly Fuel Consumption =	61.4 Gallons	FT	Manufacturer's Data

ASSUMPTIONS:

	<u>Units</u>	<u>Formula Symbol</u>	<u>Reference</u>
Sulfur Content of Fuel =	0.0015 %	SC	CARB Certified Diesel
Standard Temperature =	528 Degrees Rankine (F+460)	ST	STAPPA-ALAPCO, Pg. 1-7 (5/30/91)
Moisture Content =	10 %	PM	STAPPA-ALAPCO, Pg. 1-7 (5/30/91)
BTU Content =	19,300 BTU/lb	BC	AP-42, Table 3.4-1(a) (10/96)
Density =	7.1 lb/gallon	DE	AP-42, Table 3.4-1(a) (10/96)

<u>Diesel Particulate Control</u>	<u>Units</u>	<u>Formula Symbol</u>	<u>Reference</u>
Particulate Controls =	No		Applicant
Baseline Reduction =	0 %	CE	Manufacturer's Data

EMISSION FACTORS:

	<u>Units</u>	<u>Formula Symbol</u>	<u>Reference</u>
VOC =	0.11 g/bhp-hr	EFvoc	Manufacturer's Data
CO =	0.57 g/bhp-hr	EFco	Manufacturer's Data
NOx =	4.14 g/bhp-hr	EFnox	Manufacturer's Data
SOx =	0.0055 g/bhp-hr	EFsox	AP-42, Table 3.4-1 (10/96) *
TSP/PM10 =	0.10 g/bhp-hr	EFpm	Manufacturer's Data**

* Only the emission factor listed in Table 3.4-1 is used since it assumes all fuel bound sulfur is converted to SOx.

** All particulate matter is assumed to be less than 1 micrometer aerodynamic diameter (AP-42, Section 3.3).

CALCULATIONS:

1. Determine the Permitted Diesel Fuel Limits:

Daily Diesel Limit = Td * FT =	1,474 gallons
1st Quarter Diesel Limit = T1 * FT =	12,280 gallons
2nd Quarter Diesel Limit = T2 * FT =	12,280 gallons
3rd Quarter Diesel Limit = T3 * FT =	12,280 gallons

$$\begin{aligned} \text{4th Quarter Diesel Limit} &= T4 * FT = 12,280 \text{ gallons} \\ \text{Yearly Diesel Limit} &= Ty * FT = 12,280 \text{ gallons} \end{aligned}$$

2. Determine Dry Standard Cubic Feet of Exhaust:

$$\text{DSCFM Exhaust} = EV * ST/ET * (100\% - PM) = 2,598.6 \text{ dscfm}$$

**Formula
Symbol
SCFM**

3. Determine Yearly MMBtu combusted in Engine for Toxics:

$$\text{Yearly MMBtu} = Ty * FT * DE * BC * (1 \text{ MMBtu}/1,000,000 \text{ Btu}) = 1,682.7 \text{ MMBtu/year}$$

EMISSION CALCULATIONS:

1. Determine VOC Emissions:

$$\begin{aligned} \text{Max Daily VOC Emissions} &= Td * HP * EFvoc * (1 \text{ lb}/453.6 \text{ g}) = 6.8 \text{ lb/day} \\ \text{1st Quarter VOC Emissions} &= T1 * HP * EFvoc * (1 \text{ lb}/453.6 \text{ g}) = 56 \text{ lb/quarter} \\ \text{2nd Quarter VOC Emissions} &= T2 * HP * EFvoc * (1 \text{ lb}/453.6 \text{ g}) = 56 \text{ lb/quarter} \\ \text{3rd Quarter VOC Emissions} &= T3 * HP * EFvoc * (1 \text{ lb}/453.6 \text{ g}) = 56 \text{ lb/quarter} \\ \text{4th Quarter VOC Emissions} &= T4 * HP * EFvoc * (1 \text{ lb}/453.6 \text{ g}) = 56 \text{ lb/quarter} \\ \text{Max Yearly VOC Emissions} &= Ty * HP * EFvoc * (1 \text{ lb}/453.6 \text{ g}) * (1 \text{ ton}/2,000 \text{ lb}) = 0.03 \text{ tons/year} \end{aligned}$$

2. Determine CO Emissions:

$$\begin{aligned} \text{Max. Daily CO Emissions} &= Td * HP * EFco * (1 \text{ lb}/453.6 \text{ g}) = 36.2 \text{ lb/day} \\ \text{1st Quarter CO Emissions} &= T1 * HP * EFco * (1 \text{ lb}/453.6 \text{ g}) = 302 \text{ lb/quarter} \\ \text{2nd Quarter CO Emissions} &= T2 * HP * EFco * (1 \text{ lb}/453.6 \text{ g}) = 302 \text{ lb/quarter} \\ \text{3rd Quarter CO Emissions} &= T3 * HP * EFco * (1 \text{ lb}/453.6 \text{ g}) = 302 \text{ lb/quarter} \\ \text{4th Quarter CO Emissions} &= T4 * HP * EFco * (1 \text{ lb}/453.6 \text{ g}) = 302 \text{ lb/quarter} \\ \text{Max. Yearly CO Emissions} &= Ty * HP * EFco * (1 \text{ lb}/453.6 \text{ g}) * (1 \text{ ton}/2,000 \text{ lb}) = 0.15 \text{ tons/year} \end{aligned}$$

3. Determine NOx Emissions:

$$\begin{aligned} \text{Max. Hourly NOx Emissions} &= HP * EFnox * (1 \text{ lb}/453.6 \text{ g}) = 11.01 \text{ lb/hour} \\ \text{Max. Daily NOx Emissions} &= Td * HP * EFnox * (1 \text{ lb}/453.6 \text{ g}) = 264.2 \text{ lb/day} \\ \text{1st Quarter NOx Emissions} &= T1 * HP * EFnox * (1 \text{ lb}/453.6 \text{ g}) = 2,201 \text{ lb/quarter} \\ \text{2nd Quarter NOx Emissions} &= T2 * HP * EFnox * (1 \text{ lb}/453.6 \text{ g}) = 2,201 \text{ lb/quarter} \\ \text{3rd Quarter NOx Emissions} &= T3 * HP * EFnox * (1 \text{ lb}/453.6 \text{ g}) = 2,201 \text{ lb/quarter} \\ \text{4th Quarter NOx Emissions} &= T4 * HP * EFnox * (1 \text{ lb}/453.6 \text{ g}) = 2,201 \text{ lb/quarter} \\ \text{Max. Yearly NOx Emissions} &= Ty * HP * EFnox * (1 \text{ lb}/453.6 \text{ g}) * (1 \text{ ton}/2,000 \text{ lb}) = 1.10 \text{ tons/year} \end{aligned}$$

4. Determine SOx Emissions:

$$\begin{aligned} \text{Max. Hourly SOx Emissions} &= HP * EFsox * (1 \text{ lb}/453.6 \text{ g}) = 0.01 \text{ lb/hour} \\ \text{Max. Daily SOx Emissions} &= Td * HP * EFsox * (1 \text{ lb}/453.6 \text{ g}) = 0.4 \text{ lb/day} \\ \text{1st Quarter SOx Emissions} &= T1 * HP * EFsox * (1 \text{ lb}/453.6 \text{ g}) = 3 \text{ lb/quarter} \\ \text{2nd Quarter SOx Emissions} &= T2 * HP * EFsox * (1 \text{ lb}/453.6 \text{ g}) = 3 \text{ lb/quarter} \\ \text{3rd Quarter SOx Emissions} &= T3 * HP * EFsox * (1 \text{ lb}/453.6 \text{ g}) = 3 \text{ lb/quarter} \\ \text{4th Quarter SOx Emissions} &= T4 * HP * EFsox * (1 \text{ lb}/453.6 \text{ g}) = 3 \text{ lb/quarter} \\ \text{Max. Yearly SOx Emissions} &= Ty * HP * EFsox * (1 \text{ lb}/453.6 \text{ g}) * (1 \text{ ton}/2,000 \text{ lb}) = 0.00 \text{ tons/year} \end{aligned}$$

5. Determine TSP/PM10 Emissions:

$$\begin{aligned} \text{Max. Hourly TSP/PM10 Ems.} &= HP * EFpm * (1 \text{ lb}/453.6 \text{ g}) * (100\% - CE) = 0.26 \text{ lb/hour} \\ \text{Max. Daily TSP/PM10 Ems.} &= Td * HP * EFpm * (1 \text{ lb}/453.6 \text{ g}) * (100\% - CE) = 6.2 \text{ lb/day} \\ \text{1st Quarter TSP/PM10 Ems.} &= T1 * HP * EFpm * (1 \text{ lb}/453.6 \text{ g}) * (100\% - CE) = 52 \text{ lb/quarter} \\ \text{2nd Quarter TSP/PM10 Ems.} &= T2 * HP * EFpm * (1 \text{ lb}/453.6 \text{ g}) * (100\% - CE) = 52 \text{ lb/quarter} \\ \text{3rd Quarter TSP/PM10 Ems.} &= T3 * HP * EFpm * (1 \text{ lb}/453.6 \text{ g}) * (100\% - CE) = 52 \text{ lb/quarter} \\ \text{4th Quarter TSP/PM10 Ems.} &= T4 * HP * EFpm * (1 \text{ lb}/453.6 \text{ g}) * (100\% - CE) = 52 \text{ lb/quarter} \\ \text{Yearly TSP/PM10 Ems.} &= Ty * HP * EFpm * (1 \text{ lb}/453.6 \text{ g}) * (1 \text{ ton}/2,000 \text{ lb}) * (100\% - CE) = 0.03 \text{ tons/year} \end{aligned}$$

6. Determine Particulate Matter Emission Concentration:

$$\text{PM Conc.} = [\text{PM lb/hr}] * (7,000 \text{ grains/lb}) * (1 \text{ hr}/60 \text{ min}) * (1/\text{SCFM}) = 0.01 \text{ gr/dscf}$$

7. Determine SOx Emission Concentration:

$$\text{SOx \%} = [\text{SOx lb/hr}] * (385 \text{ scf/lb-mole}) * (\text{lb-mole}/64 \text{ lb}) * (1 \text{ hr}/60 \text{ min}) * (1/\text{SCFM}) * 100\% = 0.0001 \%$$

8. Determine Particulate Matter Emission Rate:

$$\text{PM Emission Rate} = Ty * HP * EFpm * (1 \text{ year}/8,760 \text{ hrs}) * (1 \text{ hr}/3,600 \text{ sec}) * (100\% - CE) = 0.0007 \text{ grams/sec}$$

**Formula
Symbol
ER**

RULE & REGULATION COMPLIANCE EVALUATION:

District Rule 2.3-Ringelmann

The version of the rule used in this evaluation is the rule adopted on October 1, 1971, and is part of the California State Implementation Plan (SIP). The source is currently in compliance with the requirements of the rule.

- 1. Requirement:** 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 (1) hour which is:
- a. As dark or darker in shade as that designated as No. 2 on the Ringelmann Chart as published by the United States Bureau of Mines; or
 - b. Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection a. of this condition. [District Rule 2.3]

Streamlined Demonstration: The requirements of the rule can be streamlined by a Rule 3.4, New Source Review condition

Permit condition: The Permit Holder shall not discharge into the atmosphere any air contaminant for a period or periods aggregating more than 3 minutes in any one hour which is:

- a. As dark or darker in shade than No. 1 on the Ringelmann Chart; or
- b. Greater than 20% opacity. [District Rule 3.4/C-11-33]

District Rule 2.5-Nuisance

The operation is expected to comply with the rule requirement of no discharge which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or the public. A condition will not be placed on the ATC, but will be added to the PTO upon implementation.

District Rule 2.11-Particulate Matter

This rule was updated 1/13/10, however the rule has not yet been approved as part of the SIP, therefore the previous (SIP-approved) version was evaluated here.

1. Requirement:

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

Subsuming Demonstration: The emissions of particulate matter will be limited to the evaluated rates under Rule 3.4, New Source Review. The Rule 3.4 requirement of 0.01 gr/dscf will subsume the rule 2.11 requirement of 0.1 gr/dscf.

Subsuming Condition: The PM10 emissions from the engine shall not exceed 6.2 lb/day, 52 lb/1st calendar quarter, 52 lb/2nd calendar quarter, 52 lb/3rd calendar quarter, 52 lb/4th calendar quarter, and 0.03 tons/calendar year. [District Rule 3.4/C-11-33]

District Rule 2.12, Section A-Sulfur Compounds

This rule was updated 1/13/10, however the rule has not yet been approved as part of the SIP, therefore the previous (SIP-approved) version was evaluated here.

1. Requirement:

<u>Emission Rate (% SOx as SO2)</u>	<u>Allowable Rate (% SOx as SO2)</u>	<u>Compliance</u>
0.0001	0.2	Yes

Streamlined Demonstration: The above emission rate was calculated using the daily SOx emission limit for Rule 3.4, New Source Review. The Rule 3.4 requirement of 0.0001% will subsume the rule 2.11 requirement of 0.2%.

Streamlined Condition: SOx emissions from the process shall not exceed 0.4 lb/day, 3 lb/1st calendar quarter, 3 lb/2nd calendar quarter, 3 lb/3rd calendar quarter, 3 lb/4th calendar quarter, and negligible tons/year. [District Rules 2.11 and 3.4/C-11-33]

District Rule 2.16 - Fuel Burning or Power Generation

The version of the rule used in this evaluation is the rule adopted on October 1, 1971, and is part of the California State Implementation Plan (SIP). The source is currently in compliance with the requirements of the rule.

1. Requirement:

<u>Pollutant</u>	<u>Allowable</u>	<u>Actual</u>	<u>Compliance</u>
SOx	200 lb/hr	0.01 lb/hr	Yes
NOx	140 lb/hr	11.01 lb/hr	Yes
PM	40 lb/hr	0.26 lb/hr	Yes

Subsuming Demonstration: The emissions of pollutants will be limited to the evaluated rates under Rule 3.4, New Source Review. The Rule 3.4 requirements will subsume the rule 2.16 requirements.

Subsuming Conditions:

The SOx emissions from the engine shall not exceed 0.4 lb/day, 3 lb/1st calendar quarter, 3 lb/2nd calendar quarter, 3 lb/3rd calendar quarter, 3 lb/4th calendar quarter, and negligible tons/calendar year. [District Rule 3.4/C-11-33]

The NOx emissions from the engine shall not exceed 264.2 lb/day, 2,201 lb/1st calendar quarter, 2,201 lb/2nd calendar quarter, 2,201 lb/3rd calendar quarter, 2,201 lb/4th calendar quarter, and 1.10 tons/calendar year. [District Rule 3.4/C-11-33]

The PM10 emissions from the engine shall not exceed 6.2 lb/day, 52 lb/1st calendar quarter, 52 lb/2nd calendar quarter, 52 lb/3rd calendar quarter, 52 lb/4th calendar quarter, and 0.03 tons/calendar year. [District Rule 3.4/C-11-33]

District Rule 2.32-Stationary Internal Combustion Engines

This rule was adopted 10/10/01 and is included in the SIP. As shown below, the source is in compliance with the requirements of the rule. The engine will have limited hours per year for maintenance operations and 200 hours per year for total use, and is therefore exempt from the rule (except Section 503) pursuant to Section 110.3. Section 503 requires that the source maintain a log of the engine's operating hours and that the log be retained for two years. This requirement will be superseded by the recordkeeping requirement of the Airborne Toxic Control Measure (see below).

1. Requirement: An owner or operator claiming an exemption under Sections 110.2 or 110.3 of this Rule shall maintain a log of operating hours for each engine. The log of operating hours shall be retained for two years and be made available to the Air Pollution Control Officer upon request.

Subsuming Demonstration: The record keeping requirement is less restrictive than the record keeping requirements of applicable regulations of the State of California. More stringent record keeping and record retention conditions will be added to the permit and made federally enforceable by the authority of Rule 3.4, New Source Review.

Subsuming Conditions:

The owner or operator is required to maintain a monthly log that lists the following information: emergency hours of operation, maintenance and testing hours of operation, emission testing hours of operation, initial startup hours, and fuel use through fully documented purchase records. [Title 17 CCR Section 93115 and District Rule 3.4/C-11-33]

All required records shall be retained for a minimum of five (5) years and shall be made available for District inspection upon request. [District Rule 3.8, section 302.6(b)/C-11-13]

District Rule 3.4-New Source Review

PROPOSED EMISSION SUMMARY FOR NEW OR MODIFIED PERMIT

	<u>Daily</u>	<u>Yearly</u>	
VOC	6.8 lb	0.03 tons	Use for annual billing
CO	36.2 lb	0.15 tons	Use for annual billing
NOx	264.2 lb	1.10 tons	Use for annual billing
SOx	0.4 lb	0.00 tons	Use for annual billing
PM10	6.2 lb	0.03 tons	Use for annual billing

	<u>Quarterly</u>			
	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
VOC (lb)	56	56	56	56
CO (lb)	302	302	302	302
NOx (lb)	2,201	2,201	2,201	2,201
SOx (lb)	3	3	3	3
PM10 (lb)	52	52	52	52

Previous quarterly potential to emit for modified permit*

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
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

* This is a new emissions unit, therefore the previous potential to emit (PTE) is zero.

Historic potential emissions for modified permit*

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
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

* This is a new emissions unit, therefore the historic PTE is zero.

<u>Pollutant</u>	<u>Trigger</u> (lb/day)	<u>BACT</u> <u>Proposed</u> (lb/day)	<u>Quarterly Increase</u>	<u>BACT Trigger</u>
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VOC	10	7	Yes	No
CO	250	36	Yes	No
NOx	10	264	Yes	Yes
SOx	80	0	Yes	No
PM10	80	6	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)	19,839	19,946	20,142	20,096
CO (lb)	44,306	44,612	44,918	44,918
NOx (lb)	35,187	35,515	35,781	35,781
SOx (lb)	499	507	510	510
PM10 (lb)	4,621	4,658	4,709	4,700

* Per Policy 28, the calculated PTE for all other permitted units not including emergency-use IC engines.

Quarterly permitted emissions for the stationary source including proposed emissions*

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
VOC (lb)	19,839	19,946	20,142	20,096
CO (lb)	44,306	44,612	44,918	44,918
NOx (lb)	35,187	35,515	35,781	35,781
SOx (lb)	499	507	510	510
PM10 (lb)	4,621	4,658	4,709	4,700

* Per Policy 28, since the proposed IC engine is to be used for emergency purposes, the unit's proposed PTE will not be included in the facility's total quarterly PTE calculations.

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>
VOC (lb)	56	56	56	56
CO (lb)	0	0	0	0
NOx (lb)	2,201	2,201	2,201	2,201
SOx (lb)	0	0	0	0
PM10 (lb)	0	0	0	0

* The engine meets the requirements of District Rule 3.4, Section 110 and is exempt from offset requirements.

MAJOR MODIFICATION

Facility Total Potential to Emit*

36.96 TPY VOC
83.53 TPY CO
79.83 TPY NOx
1.10 TPY SOx
9.89 TPY PM10

Major Source Thresholds

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

* See attached quarterly PTE determination

Last five year emission aggregate*

0.79 TPY VOC
2.46 TPY CO
13.14 TPY NOx
0.01 TPY SOx
1.03 TPY PM10

Major Modification Thresholds

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

* See attached 5 year aggregate worksheet

Result: The proposed modification is not a major modification

PUBLIC NOTICE

"Increase in historic potential to emit"

56 lb VOC/quarter
302 lb CO/quarter
2,201 lb NOx/quarter
3 lb SOx/quarter
52 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

1. Requirement:

The VOC emissions from the emergency engine shall not exceed 6.8 lb/day, 56 lb/1st calendar quarter, 56 lb/2nd calendar quarter, 56 lb/3rd calendar quarter, 56 lb/4th calendar quarter, and 0.03 tons/calendar year. [District Rule 3.4/C-11-33]

2. Requirement:

The CO emissions from the emergency engine shall not exceed 36.2 lb/day, 302 lb/1st calendar quarter, 302 lb/2nd calendar quarter, 302 lb/3rd calendar quarter, 302 lb/4th calendar quarter, and 0.15 tons/calendar year. [District Rule 3.4/C-11-33]

3. Requirement:

The NOx emissions from the emergency engine shall not exceed 264.2 lb/day, 2,201 lb/1st calendar quarter, 2,201 lb/2nd calendar quarter, 2,201 lb/3rd calendar quarter, 2,201 lb/4th calendar quarter, and 1.10 tons/calendar year. [District Rule 3.4/C-11-33]

4. Requirement:

The SOx emissions from the emergency engine shall not exceed 0.4 lb/day, 3 lb/1st calendar quarter, 3 lb/2nd calendar quarter, 3 lb/3rd calendar quarter, 3 lb/4th calendar quarter, and negligible tons/calendar year. [District Rule 3.4/C-11-33]

5. Requirement:

The PM10 emissions from the engine shall not exceed 6.2 lb/day, 52 lb/1st calendar quarter, 52 lb/2nd calendar quarter, 52 lb/3rd calendar quarter, 52 lb/4th calendar quarter, and 0.03 tons/calendar year. [District Rule 3.4/C-11-33]

6. Requirement:

The unit's maximum diesel fuel consumption rate shall not exceed 1,474 gallons/day, 12,280 lb/1st calendar quarter, 12,280 gallons/2nd calendar quarter, 12,280 gallons/3rd calendar quarter, 12,280 gallons/4th calendar quarter, and 12,280 gallons/calendar year. [District Rule 3.4/C-11-33]

7. Requirement:

The source is not allowed to operate the engine more than 200 hours per calendar year. [District Rule 3.4, Section 110.2/C-11-33]

8. Requirement:

The source is not allowed to operate the engine for the supplying of power to a serving utility for distribution on the grid. [District Rule 3.4, Section 110.3/C-11-33]

9. Requirement:

Other than for maintenance and testing purposes, the source is limited to operating the engine only for actual interruptions of electrical power by the serving utility. [District Rule 3.4, Section 110.4/C-11-33]

10. Requirement:

The Permit Holder shall not discharge into the atmosphere any air contaminant for a period or periods aggregating more than 3 minutes in any one hour which is:

- a. As dark or darker in shade than No. 1 on the Ringelmann Chart; or
- b. Greater than 20% opacity. [District Rule 3.4/C-11-33]

11. Requirement:

The engine shall only be fueled with CARB certified diesel fuel. [District Rule 3.4/C-11-33]

12. Requirement:

The Permit Holder shall install and maintain a non-resettable hour meter with a minimum display capability of 9,999 hours. [District Rule 3.4/C-11-33]

13. Requirement:

The Permit Holder shall not operate the IC engine more than 50 hours per calendar year for maintenance and testing purposes, and such operation shall be scheduled in cooperation with the District so as to limit air quality impact. [District Rule 3.4, Section 110.1/C-11-33]

14. Requirement:

The owner or operator is required to maintain a monthly log that lists the following information: emergency hours of operation, maintenance and testing hours of operation, emission testing hours of operation, initial startup hours, and fuel use through fully documented purchase records. [Title 17 CCR Section 93115 and District Rule 3.4/C-11-33]

15. Requirement:

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 will end on December 31, 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.

Upon the issuance of this modified Title V Operating Permit, the Permit Holder shall submit an annual compliance certification to the U.S. EPA and the APCO for the periods between August 16, 2010 and December 31, 2011. This annual compliance certification shall certify compliance with the requirements of Title V Operating Permit F-00072-5, and will be due by October 12, 2011. [District Rule 3.4 and District Rule 3.8 §302.14a]

16. Requirement:

A semi-annual monitoring report shall be submitted at least 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 will be due on January 31 of the following calendar year.

Upon the issuance of this modified Title V Operating Permit, the Permit Holder shall submit a semi-annual monitoring report to the U.S. EPA and the APCO for the periods between August 16, 2011 and December 31, 2011. This semi-annual monitoring report shall certify compliance with the requirements of Title V Operating Permit F-00072-5, and will be due by October 12, 2011. [District Rule 3.4 and District Rule 3.8, §302.7b]

District Rule 3.8-Federal Operating Permits

This rule implements the requirements of Title V of the Federal CAA as amended in 1990 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.

The source is in compliance with the requirements of this rule. The source currently has one proposed change for which the District is issuing an ATC, which is being processed according to the District's Enhanced NSR guidelines in District Rule 3.4, Section 404.

In accordance with District Rule 3.8, section 409, a significant permit modification requires that the District provide written notice, proposed permit, and District Analysis to the USEPA, Air Resources Board, all interested parties and agencies, and the source. The proposed permit will have a 30 day public review period and a concurrent 45 day regulatory review period.

Upon implementation of the District ATC into a PTO, the source may submit a written request for District action to amend the Title V operating permit pursuant to District Rule 3.8, section 404.1. Since the District ATC has been processed according to enhanced NSR guidelines, upon written request by the source, the District shall incorporate the changes into the Title V permit as an administrative permit amendment pursuant to District Rule 3.8, section 412.1.

1. Requirement:

All required records shall be retained for a minimum of five (5) years and shall be made available for District inspection upon request. [District Rule 3.8, section 302.6(b)/C-11-33]

2. Requirement:

The Permit Holder shall comply with the following General Provisions of 40 CFR 60, Subpart A:

State Authority	
40 CFR 60.10 (a) and (b)	A state or political subdivision thereof may establish standards at least as stringent as federal regulations and may require a facility to obtain permits.
Circumvention	
40 CFR 60.12	The permit holder must not build or use any equipment that conceals or dilutes an emission that would otherwise constitute a violation of an applicable standard.
Modification	
40 CFR 60.14 (a)	Modifications are physical or operational changes that result in increases in emission rate.
40 CFR 60.14 (b)	Emission rate determination procedures.
40 CFR 60.14 (c)	Stationary source and/or expansion applicability requirements.
40 CFR 60.14 (e)	Exemptions to the definition of modification.
40 CFR 60.14 (f)	Special provisions from another subpart will supercede and conflicting general provision.
40 CFR 60.14 (g)	Compliance must be achieved within 180 days of completion of a modification.
Reconstruction	
40 CFR 60.15 (a)	Any existing facility upon reconstruction becomes and affected facility irrespective of any change in emission rate.
40 CFR 60.15 (b)	Reconstruction is replacement of components such that the fixed capital costs of components is more than 50% of the cost of a new facility, or it is technologically and economically feasible to meet applicable standards of this part.
40 CFR 60.15 (c)	Definition of fixed capitol costs.
40 CFR 60.15 (d)	Notification prior to reconstruction.
40 CFR 60.15 (e)	30 day reconstruction notification review.
40 CFR 60.15 (f)	Reconstruction review guidelines.
40 CFR 60.15 (g)	Reconstruction definition refinement by other subparts.
Priority List	
40 CFR 60.16	List of Major Source Categories

General Notification and Reporting

Requirements

40 CFR 60.19 (a)	Unless otherwise specified in a subpart, "days" means "calendar days."
40 CFR 60.19 (b)	General postmarking requirements.
40 CFR 60.19 (c)	Change of postmarking requirements through mutual agreement.
40 CFR 60.19 (d)	Coordination of State and federal report submission through mutual agreement.
40 CFR 60.19 (e)	Coordination of multiple source report submission through mutual agreement.
40 CFR 60.19 (f)	Postmark and/or reporting frequency adjustment procedures.

3. Requirement:

The Permit Holder shall comply with the following applicable General Provisions of 40 CFR 63, Subpart A:

Prohibited Activities and

Circumvention

40 CFR 63.4 (a)	A source must not operate in violation of the requirements
40 CFR 63.4 (b)	The permit holder must not build or use any equipment that conceals or dilutes an emission that would otherwise constitute a violation of an applicable standard.
40 CFR 63.4 (c)	The permit holder must not divide operations of the same facility or phasing of reconstruction activities to avoid becoming subject to new source requirements.

Preconstruction Review and Notification Requirements

40 CFR 63.5 (a)	Applicability of preconstruction review and notification requirements.
40 CFR 63.5 (b)	Requirements for existing, newly constructed, and reconstructed sources.
40 CFR 63.5 (d)	Requirements for construction or reconstruction applications.
40 CFR 63.5 (e)	Standards for approval or denial of construction or reconstruction applications.
40 CFR 63.5 (f)	Approval may be based on State preconstruction review assuming the procedure is substantially equivalent.

Compliance with Standards and Maintenance Requirements

40 CFR 63.6 (a)	Standards of applicable requirements apply unless the source is granted an extension of compliance or an exemption from compliance.
40 CFR 63.6 (b)	Compliance dates for new and reconstructed sources.
40 CFR 63.6 (c)	Compliance dates for existing sources.
40 CFR 63.6 (e)	Operation and maintenance requirements
40 CFR 63.6 (f)	Compliance with non-opacity emission standards.
40 CFR 63.6 (g)	Procedures for use of an alternative non-opacity emission standard.
40 CFR 63.6 (i)	Applicable requirements concerning an extension of compliance with emission standards.
40 CFR 63.6 (j)	Presidential compliance exemption.

Performance Testing Requirements

40 CFR 63.7 (a)	Requirements for performing tests.
40 CFR 63.7 (b)	Notification of testing.
40 CFR 63.7 (c)	Requirements for test plans.
40 CFR 63.7 (d)	Requirements for testing facilities.
40 CFR 63.7 (e)	Conducting performance tests.
40 CFR 63.7 (f)	Alternative test methods.
40 CFR 63.7 (g)	Performance test data analysis.
40 CFR 63.7 (h)	Waiver of tests.

Monitoring Requirements

40 CFR 63.8 (a)	Applicability of monitoring requirements.
40 CFR 63.8 (b)	Monitoring requirements.

Notification Requirements

40 CFR 63.9 (a)	Applicability and notification requirements and proper notification recipient.
40 CFR 63.9 (b)	Requirements for initial notifications.
40 CFR 63.9 (c)	Request for extension of compliance.
40 CFR 63.9 (d)	Notifications if subject to special compliance requirements.
40 CFR 63.9 (e)	Notifications of performance tests.
40 CFR 63.9 (g)	Additional notifications when using continuous monitoring systems.
40 CFR 63.9 (h)	Compliance notification requirement details.
40 CFR 63.9 (i)	Adjustment to time periods or postmark deadlines.
40 CFR 63.9 (j)	Revision of information previously reported.

Recordkeeping and Reporting Requirements

40 CFR 63.10 (a)	Applicability and notification requirements and proper notification recipient.
40 CFR 63.10 (b)	General recordkeeping requirements.
40 CFR 63.10 (d)	General reporting requirements.
40 CFR 63.10 (e)	Reports.
40 CFR 63.10 (f)	Waiver of recordkeeping or reporting requirements.

State Authority and Delegations

40 CFR 63.12	A state or political subdivision thereof may establish standards at least as stringent as federal
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regulations and may require a facility to obtain permits. All information submitted to the EPA shall also be submitted to the appropriate state agency.

4. Requirement:

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 will end on December 31, 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.

Upon the issuance of this modified Title V Operating Permit, the Permit Holder shall submit an annual compliance certification to the U.S. EPA and the APCO for the periods between August 16, 2010 and September 12, 2011. This annual compliance certification shall certify compliance with the requirements of Title V Operating Permit F-00072-5, and will be due by October 12, 2011. [District Rule 3.4 and District Rule 3.8 §302.14a]

5. Requirement:

A semi-annual monitoring report shall be submitted at least 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, 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 will be due on January 31 of the following calendar year.

Upon the issuance of this modified Title V Operating Permit, the Permit Holder shall submit a semi-annual monitoring report to the U.S. EPA and the APCO for the periods between August 16, 2011 and September 12, 2011. This semi-annual monitoring report shall certify compliance with the requirements of Title V Operating Permit F-00072-5, and will be due by October 12, 2011. [District Rule 3.4 and District Rule 3.8, §302.7b]

District Rule 3.20-Ozone Transport Mitigation

This emissions unit is exempt from Rule 3.4, Sections 302 and 303. Therefore, per Section 110.3 of this rule, this application is exempt from the requirements of this rule.

40 CFR, Part 60, Subpart IIII - New Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines

The engine was constructed after July 11, 2005 and is therefore subject to this NSPS. The engine is certified to comply with the required emissions limits.

The regulation requires compliance with the following:

- The requirement to use diesel fuel that meets the requirements of 40 CFR 80.510(b) is satisfied by the requirement to use CARB certified diesel.
- The requirement to install a non-resettable hour meter is also mandated by the stationary diesel ATCM (see below)
- Per section 60.4211(a), the engine must be operated and maintained according to manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer, and the owner/operator may only change those settings that are permitted by the manufacturer.
- The limitations on maintenance and testing operation listed in section 60.4211(e) are less restrictive than the maintenance and testing operation limitations the District applies.

40 CFR, Part 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

The engine is located at an area source of HAP and is therefore subject to this NESHAP subpart. According to section 63.6590(c) this engine complies with this subpart by meeting the requirements of 40 CFP Part 60, Subpart IIII.

Title 17 CCR Section 93115-Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines

This state regulation requires that any new stationary emergency diesel fired engine installed after January 1, 2005 have a PM emission factor less than or equal to 0.15 g/bhp-hr. As proposed, the engine meets this requirement.

The regulation requires that the engine comply with the following conditions that will be placed on the permit under the authority of Rule 3.4, New Source Review:

- The engine owner or operator will only refuel the engine with California Air Resources Board certified diesel fuel.
- The engine shall not operate more than 50 hours per year for maintenance and testing purposes.
- A non-resettable hour meter shall be installed with a minimum display capability of 9,999 hours.
- The owner or operator is required to maintain a monthly log that lists the following information: emergency hours of operation, maintenance and testing hours of operation, emission testing hours of operation, initial startup hours, and fuel use through fully documented purchase records.
- The log shall be retained for a minimum of 36 months from the date of entry. Log entries made within 24 months of the most recent entry shall be retained on site and made immediately available to the District. Log entries made from 24 to 36 months from the most recent entry shall be made available to District staff within 5 working days from the request.

District Risk Management Plan and Risk Assessment Guidelines (RMPRAG)

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 was installed after March 3, 2004, the risk from diesel particulate will also be quantified.

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	1.57	6.70	Yes
Toluene	4.09E-04	0.69	38,600.00	Yes
Xylenes	2.85E-04	0.48	57,900.00	Yes
Propylene	2.58E-03	4.34	52.00	Yes
1,3-Butadiene	3.91E-05	0.07	1.10	Yes
Formaldehyde	1.18E-03	1.99	33.00	Yes
Acetaldehyde	7.67E-04	1.29	72.00	Yes
Acrolein	9.25E-05	0.16	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	0.14	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 =	120.3 µg/m ³	CR	Screen3
Worksite Emission Concentration, X/Q =	120.3 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 111 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 =	2.701 in a million	ICR	ER*UR*CR*AF
Worksite, ICR =	1.775 in a million	ICW	(46/70)*ER*UR*CW*AF
Maximum, ICR =	2.701 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):	Yes
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.

COMMENTS:

- BACT is triggered for NOx emissions. Per BACT Determination 616-1, the equipment as meets the BACT requirements for this class and category of source.
- The equipment also meets the T-BACT requirements for this class and category of source.
- NSR public notice is not required
- Offsets are not required
- Rule 3.20 mitigation is not required
- Title V public and regulatory notice is required

RECOMMENDATIONS:

Perform the public and regulatory notices

Engineer: *Kyle Pohlman*

Date: 8/4/11

Reviewed by: *Susan K. O'Connell*

Date: 8/5/11

New Source Review

Quarterly Potential To Emit Determination

NSR Version 8/13/97

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

Engineer/Evaluator: Kyle Rohlfing

SIC Code # 9223

Facility Name: California Medical Facility, California State Prison - Solano, and Prison Industry Authority

Date of Initial Quarterly PTE Determination: 09/18/1998

Location: 1600 California Drive and 2100 Peabody Road; Vacaville, CA

Date of Previous Quarterly PTE Determination: 06/20/2011

Date of Current Quarterly PTE Determination: 06/21/2011

CURRENT APPLICATIONS:

ATC's
C-11-33

PTO's

Current Permits:	VOC Emissions				CO Emissions				NOx Emissions				SOx Emissions				PM10 Emissions				
	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (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)		
Prison Industry Authority																					
Coating: Metal Parts	577	598	618	618	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Coating: Metal Parts	1,067	1,063	1,108	1,082	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Combustion Emission Cap	22	23	23	23	344	348	351	351	0.70	409	414	418	418	0.83	2	2	3	3	0.00	0.00	
Enclosed Steel Shot Blasting	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0.00	
Letterpress and Silkscreen Printing	130	130	130	130	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0.00	
Institutional Laundry	130	130	130	130	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0.00	
Coating: Automotive	34	34	34	34	135	135	135	135	0.23	643	643	643	643	1.11	4	4	4	4	0.01	0.01	
Coating: Automotive	2,153	2,153	2,153	2,153	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0.00	
P-53-88(a)	1,619	1,637	1,655	1,655	217	217	217	217	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0.00	
PIA Pre-Project SSPE (lb/year)	5,603	5,619	5,722	5,676	479	483	486	486	1,854	1,852	1,857	1,861	1,861	3,879	6	6	6	6	30	30	
PIA Post-Project SSPE (lb/year)	5,602	5,618	5,721	5,675	479	483	486	486	1,854	1,852	1,857	1,861	1,861	3,879	6	6	6	6	30	30	
No Emergency Equipment																					
PIA Pre-Project PIA Total PTE	5,603	5,619	5,722	5,676	479	483	486	486	1,854	1,852	1,857	1,861	1,861	3,879	6	6	6	6	30	30	
PIA Post-Project PIA Total PTE	5,602	5,618	5,721	5,675	479	483	486	486	1,854	1,852	1,857	1,861	1,861	3,879	6	6	6	6	30	30	
PIA Policy 25 Post-Project PIA Total PTE	5,602	5,618	5,721	5,675	479	483	486	486	1,854	1,852	1,857	1,861	1,861	3,879	6	6	6	6	30	30	
California State Prison - Solano																					
Coating: Wood Products	1,040	1,040	1,040	1,040	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0.00	
Woodworking	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0.00	
Woodworking	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0.00	
Coating: Metal Parts	819	819	819	819	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0.00	
CSP Pre-Project SSPE (lb/year)	1,859	1,859	1,859	1,859	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0.00	
CSP Post-Project SSPE (lb/year)	1,859	1,859	1,859	1,859	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0.00	
Emergency IC Engine (960 BHP)	103	103	103	103	847	847	847	847	2.93	5,854	5,854	5,854	5,854	2.93	2	2	2	2	0.00	0.00	
Emergency IC Engine (940 BHP)	409	409	409	409	938	938	938	938	0.47	4,315	4,315	4,315	4,315	2.16	2	2	2	2	0.00	0.00	
Emergency IC Engine (960 BHP)	103	103	103	103	847	847	847	847	2.93	5,854	5,854	5,854	5,854	2.93	2	2	2	2	0.00	0.00	
Emergency IC Engine (940 BHP)	409	409	409	409	938	938	938	938	0.47	4,315	4,315	4,315	4,315	2.16	2	2	2	2	0.00	0.00	
Emergency IC Engine (750 BHP)	356	356	356	356	816	816	816	816	0.41	3,752	3,752	3,752	3,752	1.88	2	2	2	2	0.00	0.00	
Emergency IC Engine (415 BHP)	19	19	19	19	83	83	83	83	0.04	805	805	805	805	0.40	34	34	34	34	0.00	0.00	
Emergency IC Engine (165 BHP)	83	83	83	83	65	65	65	65	0.03	271	271	271	271	0.14	0	0	0	0	0.00	0.00	
CSP Pre-Project PIA Total PTE	3,342	3,342	3,342	3,342	4,534.07	4,534.07	4,534.07	4,534.07	2.27	25,165.90	25,165.90	25,165.90	25,165.90	12.58	45.44	45.44	45.44	45.44	0.01	0.01	
CSP Post-Project PIA Total PTE	3,342	3,342	3,342	3,342	4,534.07	4,534.07	4,534.07	4,534.07	2.27	25,165.90	25,165.90	25,165.90	25,165.90	12.58	45.44	45.44	45.44	45.44	0.01	0.01	
CSP Policy 25 Post-Project PIA Total PTE	1,859	1,859	1,859	1,859	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	
California Medical Facility																					
Coating: Metal Parts & Wood Products	4,069	4,069	4,069	4,069	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0.00	
Non-Retail GDF	55	55	55	55	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0.00	
Woodworking	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0.00	
IC Engine Co-Generation	6,571	6,644	6,717	6,717	20,802	21,033	21,265	21,265	38.29	20,505	20,733	20,961	20,961	38.73	310	314	317	317	0.59	0.59	
Boiler (44.8 MMbtu/hr)	532	538	544	544	7,510	7,510	7,510	7,510	12.70	4,306	4,336	4,336	4,336	6.86	58	59	59	59	0.12	0.12	
Boiler (44.8 MMbtu/hr)	532	538	544	544	7,510	7,510	7,510	7,510	12.70	4,306	4,336	4,336	4,336	6.86	58	59	59	59	0.12	0.12	
Boiler (39.5 MMbtu/hr)	469	474	480	480	5,669	5,722	5,776	5,776	11.25	3,797	3,823	3,849	3,849	6.04	51	52	52	52	0.10	0.10	

Boiler (12.6 MMBtu/hr)	P-12-00		150	151	153	153	0.30	2,336	2,354	2,371	2,371	3,85	1,221	1,230	1,238	1,238	1,93	16	17	17	17	17	17	207	209	211	211	0.42
	CMF Pre-Project SSPE (lb/year)	CMF Post-Project SSPE (lb/year)	12,378	12,469	12,562	12,562	48,060	43,827	44,129	44,432	44,432	159,580	34,135	34,135	34,458	34,720	34,720	120,840	483	501	504	504	504	3,102	3,132	3,132	3,159	12,440
Emergency IC Engine (429 BHP)	P-131-95	9	9	9	9	0.00	18	18	18	18	0.01	99	100	100	100	100	0.05	2	2	2	2	2	0.00	9	9	9	9	0.00
Emergency IC Engine (469 BHP)	P-132-95	18	18	18	18	0.01	40	40	40	40	0.02	189	191	193	183	183	0.10	3	3	3	3	3	0.00	9	9	9	9	0.01
Emergency IC Engine (375 BHP)	P-203-95	15	15	15	15	0.01	36	36	36	36	0.02	165	165	165	165	165	0.08	5	5	5	5	5	0.00	10	10	10	10	0.01
Emergency IC Engine (2847 BHP)	P-7-98(a)	163	163	163	163	0.06	439	439	439	439	0.22	6,854	6,854	6,854	6,854	6,854	3.43	230	230	230	230	230	0.12	129	129	129	129	0.06
Emergency IC Engine (1102 BHP)	P-19-08	58	58	58	58	0.03	30	30	30	30	0.13	262	262	262	262	262	0.13	0	0	0	0	0	0.00	5	5	5	5	0.02
Emergency IC Engine (1207 BHP)	P-45-11	56	56	56	56	0.03	302	302	302	302	0.15	2,201	2,201	2,201	2,201	2,201	1.10	3	3	3	3	3	0.00	52	52	52	52	0.03
CMF Pre-Project PIA Total PTE		12,641	12,732	12,825	12,825	24.18	44,390	44,682	44,985	44,985	80.19	41,704	42,030	42,294	42,294	42,294	64.21	733	741	744	744	744	1.08	3,264	3,294	3,321	3,321	6.32
CMF Post-Project PIA Total PTE		12,688	12,769	12,862	12,862	24.19	44,692	44,984	45,287	45,287	80.34	43,906	44,232	44,496	44,496	44,496	65.31	738	744	747	747	747	1.08	3,316	3,346	3,373	3,373	6.35
CMF Policy 25 Post-Project PIA Total PTE		12,378	12,469	12,562	12,562	24.03	43,827	44,129	44,432	44,432	79.79	34,135	34,458	34,720	34,720	34,720	60.42	493	501	504	504	504	0.96	3,102	3,132	3,159	3,159	6.22

Current Permits:	VOC Emissions				CO Emissions				NOx Emissions				SOx Emissions				PM10 Emissions									
	QTR 1	QTR 2	QTR 3	QTR 4	Annual	QTR 1	QTR 2	QTR 3	QTR 4	Annual	QTR 1	QTR 2	QTR 3	QTR 4	Annual	QTR 1	QTR 2	QTR 3	QTR 4	Annual	QTR 1	QTR 2	QTR 3	QTR 4	Annual	
FACILITY Pre-Project SSPE (lb/year)	19,840	19,947	20,143	20,096	72,120	44,306	44,612	44,918	44,918	161,434	35,187	35,515	35,781	35,781	124,719	499	507	510	510	1,950	4,621	4,658	4,709	4,700	17,915	
FACILITY Post-Project SSPE (lb/year)	19,839	19,946	20,142	20,096	72,120	44,306	44,612	44,918	44,918	161,434	35,187	35,515	35,781	35,781	124,719	499	507	510	510	1,950	4,621	4,658	4,709	4,700	17,915	
Emergency Equipment Post-Project PTE (lb/year)	1,803	1,803	1,803	1,803	1,803	5,399	5,399	5,399	5,399	5,399	5,626	5,626	5,626	5,626	5,626	34,942	34,942	34,942	34,942	34,942	34,942	289	289	289	289	1,889
FACILITY Pre-Project Total PTE	21,586	21,683	21,869	21,843	36.93	49,403	49,709	50,016	50,016	83.38	67,922	68,253	68,521	68,521	78.73	785	793	796	796	1.10	6,393	6,430	6,481	6,472	9.87	
FACILITY Post-Project Total PTE	21,642	21,749	21,945	21,899	36.96	49,705	50,011	50,317	50,317	83.53	70,124	70,455	70,723	70,723	79.83	788	796	799	799	1.10	6,445	6,482	6,533	6,524	9.89	
FACILITY Policy 25 Post-Project Total PTE	19,839	19,946	20,142	20,096	36.06	44,306	44,612	44,918	44,918	80.72	35,187	35,515	35,781	35,781	62.36	499	507	510	510	0.97	4,621	4,658	4,709	4,700	8.96	

Facility Quarterly Potential to Emit

VOC	Yearly			
	Quarter #1	Quarter #2	Quarter #3	Quarter #4
VOC	19,839	19,946	20,142	20,096
CO	44,306	44,612	44,918	44,918
NOx	35,187	35,515	35,781	35,781
SOx	499	507	510	510
PM10	4,621	4,658	4,709	4,700
Yearly	72,120	72,120	124,719	36.96

OFFSET THRESHOLDS

(lb/yr)	(lb/yr)
7,500	20,000
49,500	20,000
7,500	20,000
13,650	20,000
13,650	20,000

PTE Comparison to NSR Triggers

Quarter #1	Quarter #2	Quarter #3	Quarter #4
Above	Above	Above	Above
Below	Below	Below	Below
Above	Above	Above	Above
Below	Below	Below	Below
Below	Below	Below	Below

Post-project Stationary Source Potential to Emit (SSPE)

VOC	Yearly
VOC	72,120
NOx	124,719

MITIGATION THRESHOLDS

(lb/year)
20,000
20,000

SSPE Comparison to Rule 3.20 Triggers

Annual
Above
Above

COMMENTS: This quarterly PTE evaluation was updated for the California Medical Facility ATC application C-11-33 (Emergency Internal Combustion Engine).

Engineer: *Jayle Pohlking*
 Reviewed by: *Diana K. G. [Signature]*

Date: *7/27/11*
 Date: *8/1/11*

YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT
1947 Galileo Ct., Suite #103, Davis, Ca 95616

**New Source Review
Last Five Year Activity**

Evaluator: Kyle Rohlfing

SIC Code # 9223

Facility Name: CMF, CSP, and PIA

Date of Initial Determination: 03/21/2003

Date of Previous Determination: 06/20/2011

Date of Current Determination: 06/21/2011

Location: 1600 California Drive and 2100 Peabody Road; Vacaville, CA

Facility	Process	Issued Permits	Date PTO Issued	ATC	Date ATC Issued	VOC (tpy)	CO (tpy)	NOx (tpy)	SOx (tpy)	PM10 (tpy)
CSP	Coating: Automotive	P-53-88	-	-	-	2.88	0.00	0.00	0.00	0.06
PIA	Metal Grinding	P-48-97	11/05/1997	C-97-47	06/05/1997	0.00	0.00	0.00	0.00	0.06
CMF	Non-Retail GDF	P-42-90(a)	12/22/1997	C-97-112	11/17/1997	0.05	0.00	0.00	0.00	0.00
PIA	Institutional Laundry	P-55-97	12/22/1997	A-54-97	12/22/1997	0.06	0.23	1.11	0.01	0.13
PIA	Coating: Metal Parts	P-41-88(a)	10/06/1999	C-99-80	07/28/1999	0.68	0.34	1.60	0.01	1.05
CMF	Boiler (44.8 MMBtu/hr) ^a	P-9-00	05/26/2000	C-99-102	01/26/2000	0.00	0.00	0.00	0.00	0.00
CMF	Boiler (44.8 MMBtu/hr) ^a	P-10-00	05/26/2000	C-99-103	01/26/2000	0.00	0.00	0.00	0.00	0.00
CMF	Boiler (39.5 MMBtu/hr) ^a	P-11-00	05/26/2000	C-99-104	01/26/2000	0.00	0.00	0.00	0.00	0.00
CMF	Boiler (12.6 MMBtu/hr) ^b	P-12-00	05/26/2000	C-99-105	01/26/2000	0.00	0.00	0.00	0.00	0.00
CMF	IC Engine Co-Generation	P-130-95(a)	03/27/2003	C-03-46	03/25/2003	0.00	10.33	0.00	0.00	0.04
CMF	Emergency IC Engine	P-7-98(a)	04/24/2003	C-03-21	03/07/2003	0.01	0.06	2.68	0.11	0.01
CSP	Emergency IC Engine	P-64-04	09/28/2004	C-02-360	05/20/2003	0.01	0.04	0.40	0.02	0.01
PIA	Coating: Metal Parts ^c	P-41-88(a1)	11/12/2004	C-02-142	09/29/2003	0.00	0.36	0.00	0.00	0.00
PIA	Coating: Metal Parts ^c	P-22-04	03/26/2004	C-03-75	09/29/2003	-	-	-	-	-
CMF	Non-Retail GDF	P-42-90(a1)	09/09/2005	C-05-35	06/08/2005	0.02	0.00	0.00	0.00	0.00
PIA	Metal Grinding ^d	P-48-97(a)	-	C-05-93	CANCELED	-	-	-	-	-
PIA	Letterpress and Silkscreen	P-77-92(a)	-	C-06-64	05/21/2007	0.00	0.00	0.00	0.00	0.00
CMF	Emergency IC Engine	P-70-07	-	C-07-124	11/02/2007	0.03	0.13	1.09	0.00	0.02
PIA	Mcoating: Metal Parts	-	-	C-07-176	08/05/2008	0.00	0.00	0.00	0.00	0.00
CSP	Emergency IC Engine	-	-	C-08-258	01/07/2010	0.03	0.14	0.00	0.01	0.00
CMF	Non-Retail GDF	P-42-90(a2)	01/07/2010	C-09-53	03/24/2009	0.00	0.00	0.00	0.00	0.00
CMF	Non-Retail GDF	P-42-90(a3)	06/03/2010	C-09-159	02/01/2010	0.04	0.00	0.00	0.00	0.00
PIA	Coating: Automotive	P-53-88(a)	12/20/2010	C-10-30	10/29/2010	0.00	0.00	0.00	0.00	0.22
PIA	Letterpress and Silkscreen	P-77-92(a1)	-	C-10-123	07/08/2011	0.00	0.00	0.00	0.00	0.00
CSP	Emergency IC Engine	P-27-95(a)	-	C-11-13	PENDING	0.05	0.42	2.93	0.00	0.17
CSP	Emergency IC Engine	P-28-95(a)	-	C-11-14	PENDING	0.20	0.47	2.16	0.00	0.15
CSP	Emergency IC Engine	P-29-95(a)	-	C-11-15	PENDING	0.05	0.42	2.93	0.00	0.17
CSP	Emergency IC Engine	P-30-95(a)	-	C-11-16	PENDING	0.20	0.47	2.16	0.00	0.15
CSP	Emergency IC Engine	P-31-95(a)	-	C-11-17	PENDING	0.18	0.41	1.88	0.00	0.13
CMF	Emergency IC Engine	P-45-11	-	C-11-33	PENDING	0.03	0.15	1.10	0.00	0.03
TOTAL						0.79	2.46	13.14	0.01	1.03

^a Split of P-8-72(a) into C-99-102, C-99-103, and C-99-104 with no emission aggregate.

^b PTO P-89-89 replaced with equipment authorized by C-99-105 with no emission aggregate.

^c Split of P-41-88(a) into C-02-142 and C-03-75. Because C-02-142 and C-03-75 are part of a cap, the emission aggregate represented under C-02-142.

^d ATC C-05-93 and PTO P-48-97 canceled on 3/8/2006; operation deemed exempt from air quality permitting.

COMMENTS:

These permits are sorted by the ATC issuance dates. 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. Since ATC applications C-11-33 was received on April 1, 2011, the applicable 5-year period ranges from April 2006 to April 2011.

Engineer:

Kyle Rohlfing

Date:

7/27/11

Reviewed by:

Susan K. O'Neil

Date:

8/1/11

BACT DETERMINATION 616-1

Emissions Unit: Diesel fired emergency internal combustion (IC) engine
Rating: 1207 BHP
Industry Type: Emergency power generation

Facility Name: California Medical Facility
Mailing Address: P.O. Box 2000
Vacaville, CA 95696-2000

Contact Name: Vimal Singh, Warden (A)
Telephone: (707) 448-6841

Engineer: Kyle Rohlfing
Date: July 21, 2011

Application #: C-11-33

I. Proposal: The applicant is proposing to install a 1207 BHP diesel fired IC engine to power an electric generator when electrical power from the utility grid is interrupted.

II. Applicability: The proposed emissions for the new engine are shown below.

	VOC	CO	NO _x (as NO ₂)	SO _x (as SO ₂)	PM ₁₀
Proposed Emissions	6.8 lb/day	36.2 lb/day	264.2 lb/day	0.4 lb/day	6.2 lb/day
Rule 3.4, Section 301.1 Triggers	10.0 lb/day	250.0 lb/day	10.0 lb/day	80.0 lb/day	80.0 lb/day

The engine is a new emissions unit and results in an increase in quarterly potential to emit for all pollutants. As shown above, BACT is not triggered for VOC, CO, SO_x, and PM₁₀ because the proposed emissions do not exceed the trigger levels specified by Rule 3.4, Section 301.1. BACT is triggered for NO_x emissions because the proposed emissions exceed the trigger levels specified by Rule 3.4, Section 301.1 and the application results in a quarterly increase in potential to emit.

III. BACT for NO_x: Per a District Memorandum¹ (dated June 13, 2008), after June 30, 2008 any new emergency diesel-fired engine with a rating greater than 750 BHP, must meet the NO_x standards of EPA Tier II engines (effective in 2006). The applicant has provided a copy of the engine manufacturer's guarantee showing that the engine meets the Tier II standard of 4.8 g/bhp-hr for NO_x + HC. Therefore, BACT is satisfied for NO_x.

¹ BACT for Emergency Diesel Internal Combustion Engines, Engineering Section Policies and Procedures Manual.

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

C-11-33: California Medical Facility

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = POINT
EMISSION RATE (G/S) = 1.00000
STACK HEIGHT (M) = 3.7186
STK INSIDE DIAM (M) = 0.5090
STK EXIT VELOCITY (M/S) = 17.0325
STK GAS EXIT TEMP (K) = 745.9278
AMBIENT AIR TEMP (K) = 293.1500
RECEPTOR HEIGHT (M) = 0.0000
URBAN/RURAL OPTION = RURAL
BUILDING HEIGHT (M) = 0.0000
MIN HORIZ BLDG DIM (M) = 0.0000
MAX HORIZ BLDG DIM (M) = 0.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = 6.567 M**4/S**3; MOM. FLUX = 7.385 M**4/S**2.

*** FULL METEOROLOGY ***

*** SCREEN AUTOMATED DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	0.000	1	1.0	1.0	320.0	91.61	1.55	1.51	NO
100.	118.3	4	20.0	20.0	6400.0	7.45	8.25	4.74	NO
200.	88.97	4	15.0	15.0	4800.0	9.21	15.65	8.66	NO
300.	69.79	4	8.0	8.0	2560.0	14.70	22.83	12.49	NO
400.	55.23	4	8.0	8.0	2560.0	14.70	29.62	15.59	NO
500.	48.97	4	5.0	5.0	1600.0	21.30	36.49	18.97	NO
600.	42.68	4	4.5	4.5	1440.0	23.25	43.08	21.93	NO
700.	37.84	4	4.0	4.0	1280.0	25.69	49.59	24.84	NO
800.	34.09	4	3.5	3.5	1120.0	28.83	56.03	27.73	NO
900.	31.03	4	3.0	3.0	960.0	33.01	62.45	30.63	NO
1000.	28.40	4	3.0	3.0	960.0	33.01	68.64	33.17	NO
1100.	26.27	4	2.5	2.5	800.0	38.87	74.99	35.57	NO
1200.	24.47	4	2.5	2.5	800.0	38.87	81.06	37.46	NO
1300.	22.81	4	2.5	2.5	800.0	38.87	87.10	39.31	NO
1400.	23.31	5	1.0	1.0	1000.0	59.39	71.02	31.11	NO
1500.	23.83	5	1.0	1.0	1000.0	59.39	75.39	32.14	NO
1600.	24.48	6	1.5	1.5	1000.0	44.07	53.26	22.04	NO
1700.	25.35	6	1.0	1.0	1000.0	49.91	56.50	23.56	NO
1800.	26.26	6	1.0	1.0	1000.0	49.91	59.35	24.16	NO
1900.	27.06	6	1.0	1.0	1000.0	49.91	62.20	24.75	NO
2000.	27.75	6	1.0	1.0	1000.0	49.91	65.03	25.34	NO
2100.	28.09	6	1.0	1.0	1000.0	49.91	67.85	25.84	NO
2200.	28.36	6	1.0	1.0	1000.0	49.91	70.67	26.33	NO
2300.	28.57	6	1.0	1.0	1000.0	49.91	73.47	26.81	NO
2400.	28.72	6	1.0	1.0	1000.0	49.91	76.27	27.29	NO

C1133.OUT									
2500.	28.81	6	1.0	1.0	10000.0	49.91	79.06	27.76	NO
2600.	28.86	6	1.0	1.0	10000.0	49.91	81.84	28.23	NO
2700.	28.87	6	1.0	1.0	10000.0	49.91	84.61	28.69	NO
2800.	28.84	6	1.0	1.0	10000.0	49.91	87.37	29.14	NO
2900.	28.77	6	1.0	1.0	10000.0	49.91	90.12	29.59	NO
3000.	28.68	6	1.0	1.0	10000.0	49.91	92.87	30.03	NO
3500.	27.48	6	1.0	1.0	10000.0	49.91	106.47	31.84	NO
4000.	26.16	6	1.0	1.0	10000.0	49.91	119.90	33.54	NO
4500.	24.81	6	1.0	1.0	10000.0	49.91	133.16	35.14	NO
5000.	23.50	6	1.0	1.0	10000.0	49.91	146.27	36.67	NO
5500.	22.25	6	1.0	1.0	10000.0	49.91	159.24	38.12	NO
6000.	21.08	6	1.0	1.0	10000.0	49.91	172.09	39.50	NO
6500.	19.98	6	1.0	1.0	10000.0	49.91	184.81	40.84	NO
7000.	18.97	6	1.0	1.0	10000.0	49.91	197.43	42.12	NO
7500.	18.01	6	1.0	1.0	10000.0	49.91	209.95	43.23	NO
8000.	17.13	6	1.0	1.0	10000.0	49.91	222.38	44.29	NO
8500.	16.32	6	1.0	1.0	10000.0	49.91	234.71	45.32	NO
9000.	15.57	6	1.0	1.0	10000.0	49.91	246.96	46.32	NO
9500.	14.88	6	1.0	1.0	10000.0	49.91	259.13	47.29	NO
10000.	14.24	6	1.0	1.0	10000.0	49.91	271.22	48.23	NO
15000.	9.814	6	1.0	1.0	10000.0	49.91	388.65	56.45	NO
20000.	7.421	6	1.0	1.0	10000.0	49.91	501.12	61.72	NO
25000.	5.934	6	1.0	1.0	10000.0	49.91	609.89	66.19	NO
30000.	4.924	6	1.0	1.0	10000.0	49.91	715.71	70.09	NO
40000.	3.678	6	1.0	1.0	10000.0	49.91	920.32	75.65	NO
50000.	2.924	6	1.0	1.0	10000.0	49.91	1117.50	80.28	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:
 111. 120.3 4 20.0 20.0 6400.0 7.45 9.16 5.23 NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

 *** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	120.3	111.	0.