



DEC 07 2010

Gerardo C. Rios, Chief  
Permits Office  
Air Division  
U.S. EPA - Region IX  
75 Hawthorne St.  
San Francisco, CA 94105

**Re: Notice of Preliminary Decision - ATC / Certificate of Conformity  
Facility # C-799  
Project # C-1102958**

Dear Mr. Rios:

Enclosed for your review is the District's engineering evaluation of an application for Authority to Construct for Madera Power, LLC 11427 Firebaugh Blvd, Firebaugh, CA, CA, which has been issued a Title V permit. Madera Power, LLC is requesting that a Certificate of Conformity, with the procedural requirements of 40 CFR Part 70, be issued with this project. The applicant proposes to install two plastic collection boxes and a biomass screen powered by a 465 hp diesel-fired IC engine.

Enclosed is the engineering evaluation of this application and proposed Authority to Construct # C-799-6-2 with Certificate of Conformity. After demonstrating compliance with the Authority to Construct, the conditions will be incorporated into the facility's Title V permit through an administrative amendment.

Please submit your written comments on this project within the 45-day comment period that begins on the date you receive this letter. If you have any questions, please contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900.

Thank you for your cooperation in this matter.

Sincerely,

David Warner  
Director of Permit Services

Enclosures

c: Stanley Tom, Permit Services

**Seyed Sadredin**  
Executive Director/Air Pollution Control Officer

**Northern Region**  
4800 Enterprise Way  
Modesto, CA 95356-8718  
Tel: (209) 557-6400 FAX: (209) 557-6475

**Central Region (Main Office)**  
1990 E. Gettysburg Avenue  
Fresno, CA 93726-0244  
Tel: (559) 230-6000 FAX: (559) 230-6061

**Southern Region**  
34946 Flyover Court  
Bakersfield, CA 93308-9725  
Tel: 661-392-5500 FAX: 661-392-5585



DEC 07 2010

Mike Tollstrup, Chief  
Project Assessment Branch  
Air Resources Board  
P O Box 2815  
Sacramento, CA 95812-2815

Re: **Notice of Preliminary Decision - ATC / Certificate of Conformity**  
**Facility # C-799**  
**Project # C-1102958**

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of an application for Authority to Construct for Madera Power, LLC 11427 Firebaugh Blvd, Firebaugh, CA, CA. The applicant proposes to install two plastic collection boxes and a biomass screen powered by a 465 hp diesel-fired IC engine.

The public notice will be published approximately three days from the date of this letter. Please submit your written comments within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900.

Thank you for your cooperation in this matter.

Sincerely,

David Warner  
Director of Permit Services

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DEC 07 2010

Mr. Mark De Castro  
Madera Power, LLC  
P.O. Box 305  
Firebaugh, CA 93622

**Re: Notice of Preliminary Decision - ATC / Certificate of Conformity  
Facility # C-799  
Project # C-1102958**

Dear Mr. De Castro:

Enclosed for your review and comment is the District's analysis of an application for Authority to Construct for Madera Power, LLC 11427 Firebaugh Blvd, Firebaugh, CA, CA. The applicant proposes to install two plastic collection boxes and a biomass screen powered by a 465 hp diesel-fired IC engine.

After addressing all comments made during the 30-day public notice and the 45-day EPA comment periods, the Authority to Construct will be issued to the facility with a Certificate of Conformity. Prior to operating with modifications authorized by the Authority to Construct, the facility must submit an application to modify the Title V permit as an administrative amendment, in accordance with District Rule 2520, Section 11.5.

The public notice will be published approximately three days from the date of this letter. Please submit your written comments within the 30-day public comment period which begins on the date of publication of the public notice.

If you have any questions, please contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900.

Thank you for your cooperation in this matter.

Sincerely,

David Warner  
Director of Permit Services

Enclosures

c: Stanley Tom, Permit Services

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Fresno Bee

**NOTICE OF PRELIMINARY DECISION  
FOR THE PROPOSED ISSUANCE OF  
AUTHORITY TO CONSTRUCT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Air Pollution Control District solicits public comment on the proposed issuance of Authority To Construct to Madera Power, LLC for its power generation facility 11427 Firebaugh Blvd, Firebaugh, CA, California. The applicant proposes to install two plastic collection boxes and a biomass screen powered by a 465 hp diesel-fired IC engine.

The analysis of the regulatory basis for these proposed actions, Project #C-1102958, is available for public inspection at [http://www.valleyair.org/notices/public\\_notices\\_idx.htm](http://www.valleyair.org/notices/public_notices_idx.htm) and the District office at the address below. Written comments on the proposed initial permit must be submitted within 30 days of the publication date of this notice to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 1990 E. GETTYSBURG AVE, FRESNO, CA 93726-0244.**

**San Joaquin Valley Air Pollution Control District**  
**Authority to Construct Application Review**  
Wood Waste Fuel Screening Operation

Facility Name:	Madera Power, LLC	Date:	October 5, 2010
Mailing Address:	P.O. Box 305 Firebaugh, CA 93622	Engineer:	Stanley Tom
Contact Person:	Mark De Castro	Lead Engineer:	Joven Refuerzo
Telephone:	(559) 659-4791		
FAX:	(559) 659-4793		
Application No:	C-799-6-2		
Project No:	C-1102958		
Deemed Complete:	September 9, 2010		

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**I. PROPOSAL**

Madera Power, LLC has requested an Authority to Construct (ATC) to modify the existing screening/grinding system at the facility. The applicant proposes to install two pickup hoods with blowers feeding two plastic collection boxes, one manual picking station, and one Doppstadt rotating drum screen powered by a 465 bhp Daimler Chrysler Tier 3 transportable diesel-fired IC engine. This equipment will remove plastics, rocks, gravel, and metals from the wood waste material prior to being used as fuel.

In order to avoid offsetting requirements, Madera Power LLC is proposing to add these new units to the existing Specific Limiting Condition (SLC). Therefore the following condition will be placed on the ATC in this project:

- Annual emissions from the boiler/generator listed under permit C-799-3, the screening operation listed under permit C-799-6, the grinding operation listed under permit C-799-7 and the transportable IC engine listed under permit C-799-8 calculated on a twelve consecutive month rolling basis, shall not exceed any of the following: 417,600 lb-NO<sub>x</sub>/year, 54,000 lb-SO<sub>x</sub>/year, 83,520 lb-PM<sub>10</sub>/year, 501,120 lb-CO/year, or 200,448 lb-VOC/year. [District Rule 2201]

Also, the applicant has proposed to limit the operation of the new diesel-fired IC engine powering the rotary drum screen to 22,303 gallons per year so as to not exceed the zero equivalency threshold of 230 metric tons-CO<sub>2e</sub>/year (See Appendix F) per District Policy APR 2015; therefore, the following condition will be placed on permit unit '6:

- The maximum amount of fuel used in the engine shall not exceed 22,303 gallons per year when operating at facility C-799 (this limit is to enforce the zero equivalency threshold for greenhouse gas emissions). [District Rule 2201 and California Environmental Quality Act]

Madera Power, LLC received their Title V Permit on July 10, 1998. This modification can be classified as a Title V significant modification pursuant to Rule 2520, Section 3.20, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. Madera Power, LLC must apply to administratively amend their Title V Operating Permit to include the requirements of the ATC issued with this project.

## **II. Applicable Rules**

Rule 2201 New and Modified Stationary Source Review Rule (12/18/08)  
Rule 2520 Federally Mandated Operating Permits (6/21/01)  
Rule 4001 New Source Performance Standards (4/14/99)  
Rule 4002 National Emissions Standards for Hazardous Air Pollutants (5/20/04)  
Rule 4101 Visible Emissions (2/17/2005)  
Rule 4102 Nuisance (12/17/1992)  
Rule 4201 Particulate Matter Concentration (12/17/1992)  
Rule 4202 Particulate Matter Emission Rate (12/17/1992)  
Rule 4701 Internal Combustion Engines (8/21/2003)  
Rule 4702 Internal Combustion Engines – Phase 2 (1/18/2007)  
Rule 4801 Sulfur Compounds (12/17/1992)  
California Health & Safety Code 41700  
40 CFR Part 63, Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants: Stationary Reciprocating Internal Combustion Engines)  
40 CFR Part 89 (Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines)  
Title 13 California Code of Regulations (CCR), Section 2423 – Exhaust Emission Standards and Test Procedures, Off-Road Compression-Ignition Engines and Equipment  
Title 17 CCR, Section 93116 - Airborne Toxic Control Measure (ATCM) for Portable Engines rated at 50 horsepower and greater  
California Health & Safety Code 42310.6 (School Notice)  
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

## **II. Project location**

The facility is located at 11427 Firebaugh Blvd. near Firebaugh, CA. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

### III. Process Description

Madera Power LLC operates a power generating facility at this location. Agricultural waste products, saw mill residues, forest residues, orchard and vineyard prunings, etc. are used as fuel for the existing fluidized bed boiler. The boiler generates steam that is used to power the steam turbine. The steam turbine drives the electric generator to generate electricity. The electricity generated by this facility is released on the power grid for use by the general public.

The wood waste fuel screening equipment proposed to be installed in this project sort out material that is not combustible such as plastics, rocks, and metals as well as sort out wood fuel that is too large.

The transportable IC engine is used to power the screening operation.

### V. Equipment Listing

#### Pre-Project Equipment Description:

**C-799-6-1:** WOOD WASTE FUEL SCREENING AND HANDLING OPERATION WITH WET SUPPRESSION SYSTEM

#### Proposed Modification:

**C-799-6-2:** MODIFICATION OF WOOD WASTE FUEL SCREENING AND HANDLING OPERATION WITH WET SUPPRESSION SYSTEM: INSTALL TWO PICKUP HOODS WITH BLOWERS FEEDING TWO PLASTIC COLLECTION BOXES, ONE MANUAL PICKING STATION, AND ONE DOPPSTADT ROTATING DRUM SCREEN POWERED BY A 465 BHP DAIMLER CHRYSLER TIER 3 TRANSPORTABLE DIESEL-FIRED IC ENGINE

#### Post Project Equipment Description:

**C-799-6-2:** WOOD WASTE FUEL SCREENING AND HANDLING OPERATION WITH WET SUPPRESSION SYSTEM CONSISTING OF FEED HOPPER, TAKE AWAY CONVEYOR, DESTONER, ROCKS CONVEYOR, SEPARATOR CONVEYOR, DISCHARGE CONVEYOR, TWO PICKUP HOODS FEEDING TWO PLASTIC COLLECTION BOXES, ONE MANUAL PICKING STATION, AND ONE DOPPSTADT ROTATING DRUM SCREEN POWERED BY A 465 BHP DAIMLER CHRYSLER TIER 3 TRANSPORTABLE DIESEL-FIRED IC ENGINE

#### Existing Equipment

1. Feed Hopper with water sprays
2. Feed Conveyor 40 hp, 60" wide x 30' long belt conveyor with water sprays

3. Take-Away Conveyor 20 hp, 48" wide x 62' long belt conveyor with water sprays
4. General Kinematics De-Stoner 25 hp
5. Blower #1 25 hp 11,000 cfm
6. Blower #2 25 hp 11,000 cfm
7. Separator Conveyor 40 hp 40" wide x 47' long with water sprays
8. Discharge Conveyor 25 hp 40" wide x 64' long with water sprays
9. Stacker Conveyor 30 hp 36" wide x 92' long with water sprays
10. Rocks Conveyor 15 hp 32" wide x 60' long
11. Magnet #1 (on Discharge Conveyor) 5 hp
12. Magnet #2 (on Rocks Conveyor) 5 hp
13. Air Compressor 10 hp
14. Water Booster Pump for water sprays 20 hp

#### New Equipment

15. Two Pick-up Hoods
16. Blower #3 25 hp 24,000 cfm
17. Blower #4 25 hp 24,000 cfm
18. Two Plastic Collection Boxes
19. Manual Picking Station
20. Rotating Drum Screen Doppstadt Model SM-720 with ARB Statewide Portable Equipment Registration No. 142933 Expiration Date 03/31/2011

#### **VI. Emission Control Technology Evaluation**

At the wood waste fuel screening operation, a water sprinkler system will be installed to spray at all transfer points on the unit to control the fugitive dust emissions.

The engine is equipped with:

- Turbocharger
- Intercooler/aftercooler
- Injection timing retard (or equivalent per District Policy SSP-1805, dated 8/14/1996)
- Positive Crankcase Ventilation (PCV) or 90% efficient control device
- This engine is required to be, and is UL certified
- Catalytic particulate filter
- Very Low (0.0015%) sulfur diesel

The emission control devices/technologies and their effect on diesel engine emissions detailed below are from *Non-catalytic NO<sub>x</sub> Control of Stationary Diesel Engines*, by Don Koeberlein, CARB.

The turbocharger reduces the NO<sub>x</sub> emission rate from the engine by approximately 10% by increasing the efficiency and promoting more complete burning of the fuel.

The intercooler/aftercooler functions in conjunction with the turbocharger to reduce the inlet air temperature. By reducing the inlet air temperature, the peak combustion

temperature is lowered, which reduces the formation of thermal NO<sub>x</sub>. NO<sub>x</sub> emissions are reduced by approximately 15% with this control technology.

The PCV system reduces crankcase VOC and PM<sub>10</sub> emissions by at least 90% over an uncontrolled crankcase vent.

The use of very low-sulfur diesel fuel (0.0015% by weight sulfur maximum) reduces SO<sub>x</sub> emissions by over 99% from standard diesel fuel.

## VII. General Calculations

### A. Assumptions

1. Particulate matter (PM) will be emitted from the transfer, conveying and screening of the process material.
2. PM emissions will be minimal due to the maintained moisture content with the use of a wet suppression system to maintain visible emissions to ≤ 20% opacity (per applicant).
3. Wet suppression efficiency is 65% control (AP-42 Section 11.19.2 (8/04))
4. Maximum daily throughput = 800 tons/day (per applicant)
5. Maximum annual throughput = 120,000 tons/year (per applicant)

Daily Operating schedule: 24 hr/day (per applicant)

Annual Operating schedule: 22,303 gallons/year (per applicant)

Density of diesel fuel: 7.1 lb/gal

EPA F-factor (adjusted to 60 °F): 9,051 dscf/MMBtu

Fuel heating value: 137,000 Btu/gal

BHP to Btu/hr conversion: 2,542.5 Btu/bhp-hr

Thermal efficiency of engine: commonly ≈ 35%

PM<sub>10</sub> fraction of diesel exhaust: 0.96 (CARB, 1988)

The engine has certified NO<sub>x</sub> + VOC emissions of 3.9 g/bhp-hr. It will be assumed the NO<sub>x</sub> + VOC emission factor is split 95% NO<sub>x</sub> and 5% VOC (per the District's Carl Moyer program).

### B. Emission Factors

#### Biomass fuel transfer (front-end loader)

The emission factor for "Conveyor Transfer Point (controlled)" from AP-42, Table 11.19.2-2 (8/04) will be conservatively used to represent the emissions from front-end loader fuel transfer point to the feed hopper and from screen to finish pile.

$$EF = 4.6 \times 10^{-5} \frac{\text{lb} \cdot \text{PM}_{10}}{\text{ton}}$$

**Biomass fuel transfer (conveyor)**

The emission factor for “Conveyor Transfer Point (controlled)” from AP-42, Table 11.19.2-2 (8/04) will be conservatively used to represent the emissions from the conveyor fuel transfer points with a wet suppression system.

$$EF = 4.6 \times 10^{-5} \frac{\text{lb} \cdot \text{PM}_{10}}{\text{ton}}$$

**Biomass fuel screening**

The emission factor for “Screening (controlled)” from AP-42, Table 11.19.2-2 (8/04) will be conservatively used to represent the emissions from the screening operation.

$$EF = 7.4 \times 10^{-4} \frac{\text{lb} \cdot \text{PM}_{10}}{\text{ton}}$$

Pre-project

<b>Emission Points</b>	<b>Emission Factors (lb/ton)</b>
Feed Receiving Hopper	<b>0.000046</b>
Hopper to Take-Away Conveyor	<b>0.000046</b>
Take-Away Conveyor to De-Stoner	<b>0.000046</b>
De-Stoner to Separator Conveyor	<b>0.000046</b>
Separator	<b>0.00074</b>
Separator Conveyor to Discharge Conveyor	<b>0.000046</b>
Discharge Conveyor to Stacker Conveyor	<b>0.000046</b>
Stacker Conveyor to Storage or Other Pile	<b>0.000046</b>
<b>Total</b>	<b>0.001062</b>

Post-project

The worse case moisture content of the material processed at the plastic collection boxes and rotary drum screen is 15% therefore, controlled emission factors will be used.

Emission Points	Emission Factors (lb/ton)
Feed Receiving Hopper	0.000046
Hopper to Take-Away Conveyor	0.000046
Take-Away Conveyor to De-Stoner	0.000046
De-Stoner to Separator Conveyor	0.000046
Separator	0.00074
Separator Conveyor to Discharge Conveyor	0.000046
Plastic Collection Box	0.00074
Plastic Collection Box	0.00074
Rotary Drum Screen	0.00074
Discharge Conveyor to Stacker Conveyor	0.000046
Stacker Conveyor to Storage or Other Pile	0.000046
<b>Total</b>	<b>0.003282</b>

Rocks from the rocks conveyor are estimated to be minimal and at a moisture level high enough that emissions will be considered negligible.

### Diesel-fired IC Engine

	g/hp-hr	Source
NO <sub>x</sub>	2.76	ARB/EPA Certification
SO <sub>x</sub>	0.0051	Mass Balance Equation Below
PM <sub>10</sub>	0.11	ARB/EPA Certification
CO	1.04	ARB/EPA Certification
VOC	0.15	ARB/EPA Certification

$$0.0015 \% S \times \frac{7.1 \text{ lb} \cdot \text{fuel}}{\text{gallon}} \times \frac{2 \text{ lb} \cdot \text{SO}_2}{1 \text{ lb} \cdot \text{S}} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ hp input}}{0.35 \text{ hp out}} \times \frac{2,542.5 \text{ Btu}}{\text{hp} \cdot \text{hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = 0.0051 \frac{\text{g} \cdot \text{SO}_x}{\text{hp} \cdot \text{hr}}$$

### C. Calculations

#### 1. Pre-Project Potential to Emit (PE1)

##### Wood Waste Fuel Screening and Handling

$$\text{PM}_{10} = (\text{Emission Factor}) \times (\text{Throughput})$$

$$\begin{aligned} \text{PM}_{10} \text{ Emissions} &= (0.001062 \text{ lb/ton}) \times (800 \text{ tons/day}) = \mathbf{0.3 \text{ lb/day}} \\ &= (0.001062 \text{ lb/ton}) \times (120,000 \text{ tons/year}) = \mathbf{127 \text{ lb/year}} \end{aligned}$$

## 2. Post Project PE (PE2)

### Wood Waste Fuel Screening and Handling

$$PM_{10} = (\text{Emission Factor}) \times (\text{Throughput})$$

*New units (each plastic collection box or rotary drum screen)*

$$\begin{aligned} PM_{10} \text{ Emissions} &= (0.00074 \text{ lb/ton}) \times (800 \text{ tons/day}) = \mathbf{0.6 \text{ lb/day}} \\ &= (0.00074 \text{ lb/ton}) \times (120,000 \text{ tons/year}) = \mathbf{89 \text{ lb/year}} \end{aligned}$$

*All units*

$$\begin{aligned} PM_{10} \text{ Emissions} &= (0.003282 \text{ lb/ton}) \times (800 \text{ tons/day}) = \mathbf{2.6 \text{ lb/day}} \\ &= (0.003282 \text{ lb/ton}) \times (120,000 \text{ tons/year}) = \mathbf{394 \text{ lb/year}} \end{aligned}$$

### Diesel-fired IC Engine

Daily Post-Project Emissions					
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Conversion (g/lb)	PE2 Total (lb/day)
NO <sub>x</sub>	2.76	465	24	453.6	67.9
SO <sub>x</sub>	0.0051	465	24	453.6	0.1
PM <sub>10</sub>	0.11	465	24	453.6	2.7
CO	1.04	465	24	453.6	25.6
VOC	0.15	465	24	453.6	3.7

Annual Post-Project Emissions							
Pollutant	Emissions Factor (g/bhp-hr)	Annual Fuel Use (gal/yr)	Conversion (Btu/hp-hr)	Conversion (Btu/gal)	Conversion (hp out/hp in)	Conversion (g/lb)	PE2 Total (lb/yr)
NO <sub>x</sub>	2.76	22,303	2542.5	137,000	0.35	453.6	2,559
SO <sub>x</sub>	0.0051	22,303	2542.5	137,000	0.35	453.6	5
PM <sub>10</sub>	0.11	22,303	2542.5	137,000	0.35	453.6	102
CO	1.04	22,303	2542.5	137,000	0.35	453.6	964
VOC	0.15	22,303	2542.5	137,000	0.35	453.6	139

Total

Daily Post-Project Emissions	
Pollutant	PE2 Total (lb/day)
NO <sub>x</sub>	67.9
SO <sub>x</sub>	0.1
PM <sub>10</sub>	5.3
CO	25.6
VOC	3.7

Annual Post-Project Emissions	
Pollutant	PE2 Total (lb/year)
NO <sub>x</sub>	2,559
SO <sub>x</sub>	5
PM <sub>10</sub>	496
CO	964
VOC	139

**3. Pre-Project Stationary Source Potential to Emit (SSPE1)**

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Pre-Project Stationary Source Potential to Emit [SSPE1] (lb/year)					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
C-799-2-3	0	0	130	0	0
C-799-1-7	417,600	54,000	83,520	501,120	200,448
C-799-3-15					
C-799-6-1					
C-799-7-1					
C-799-8-1	0	0	0	0	0
C-799-4-2					
Pre-Project SSPE (SSPE1)	417,600	54,000	83,650	501,120	200,448

#### 4. Post Project Stationary Source Potential to Emit (SSPE2)

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

<b>Post-Project Stationary Source Potential to Emit [SSPE2] (lb/year)</b>					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
C-799-2-3	0	0	130	0	0
C-799-1-7	417,600	54,000	83,520	501,120	200,448
C-799-3-15					
C-799-6-2					
C-799-7-1					
C-799-8-1	0	0	0	0	0
C-799-4-2					
Post-Project SSPE (SSPE2)	417,600	54,000	83,650	501,120	200,448

#### 5. Major Source Determination

Pursuant to Section 3.24 of District Rule 2201, a Major Source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values. However, Section 3.24.2 states, "for the purposes of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site."

<b>Major Source Determination (lb/year)</b>					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
Post-Project SSPE (SSPE2)	417,600	54,000	83,650	501,120	200,448
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	Yes	No	No	Yes	Yes

#### 6. Baseline Emissions (BE)

The BE calculation (in lbs/year) is performed pollutant-by-pollutant for each unit within the project, to calculate the QNEC and if applicable, to determine the amount of offsets required.

Pursuant to Section 3.7 of District Rule 2201, BE = Pre-project Potential to Emit for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.22 of District Rule 2201.

Offset calculations will be required for all of the units within the SLC; therefore, Baseline Emissions will be calculated for all units within the SLC.

#### C-799-6 and '7

As shown in Section VII.C.5 above, the facility is not a Major Source for PM10. Therefore, Baseline Emissions (BE) are equal to the Pre-Project Potential to Emit (PE1) for the biomass screening and handling operation.

The plastic collection boxes, rotary drum screen, and diesel-fired IC engine are new emissions units, BE = PE1 = 0 for all pollutants.

#### C-799-3

All emissions from this facility have been offset by burning creditable agricultural wastes, as indicated by conditions 15 through 23 on current permit C-799-3-13. The facility is required to quantify the total amount of stack emissions and offset with creditable biomass from open burning on an ongoing annual basis. Therefore, all units at this facility qualify as fully-offset emissions units and BE = PE1 for this project.

#### C-799-8

Pursuant to Rule 2201, Section 3.12, a Clean Emissions Unit is defined as an emissions unit that is "equipped with an emissions control technology with a minimum control efficiency of at least 95% or is equipped with emission control technology that meets the requirements for achieved-in-practice BACT as accepted by the APCO during the five years immediately prior to the submission of the complete application.

The engine meets achieved-in-practice BACT in BACT Guideline 3.2.11 for all pollutants. Therefore, BE = PE1.

## 7. SB 288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 as *"any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."*

As discussed in Section VII.C.5 above, the facility is not a Major Source for PM<sub>10</sub>; therefore, the project does not constitute a SB 288 Major Modification for PM<sub>10</sub>.

As discussed in Section VII.C.5 above, the facility is an existing Major Source for NO<sub>x</sub> and VOC; however, the project by itself would need to be a significant increase in order to trigger a SB 288 Major Modification. The emissions unit within this project does not have a total potential to emit which is greater than SB 288 Major Modification thresholds (see table below). Therefore, the project cannot be a significant increase and the project does not constitute a SB 288 Major Modification.

<b>SB 288 Major Modification Thresholds (Existing Major Source)</b>			
Pollutant	Project PE (lb/year)	Threshold (lb/year)	SB 288 Major Modification?
NO <sub>x</sub>	2,559	50,000	No
VOC	139	50,000	No

## 8. Federal Major Modification

District Rule 2201, Section 3.17 states that Federal Major Modifications are the same as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA. SB 288 Major Modifications are not federal major modifications if they meet the criteria of the "Less-Than-Significant Emissions Increase" exclusion.

A Less-Than-Significant Emissions Increase exclusion is for an emissions increase for the project, or a Net Emissions Increase for the project (as defined in 40 CFR 51.165 (a)(2)(ii)(B) through (D), and (F)), that is not significant for a given regulated NSR pollutant, and therefore is not a federal major modification for that pollutant.

- To determine the post-project projected actual emissions from existing units, the provisions of 40 CFR 51.165 (a)(1)(xxviii) shall be used.
- To determine the pre-project baseline actual emissions, the provisions of 40 CFR 51.165 (a)(1)(xxxv)(A) through (D) shall be used.
- If the project is determined not to be a federal major modification pursuant to the provisions of 40 CFR 51.165 (a)(2)(ii)(B), but there is a reasonable possibility that the project may result in a significant emissions increase, the

owner or operator shall comply with all of the provisions of 40 CFR 51.165 (a)(6) and (a)(7).

- Emissions increases calculated pursuant to this section are significant if they exceed the significance thresholds specified in the table below.

<b>Significant Threshold (lb/year)</b>	
Pollutant	Threshold (lb/year)
NO <sub>x</sub>	0
VOC	0

The Net Emissions Increases (NEI) for purposes of determination of a “Less-Than-Significant Emissions Increase” exclusion will be calculated below to determine if this project qualifies for such an exclusion.

Net Emission Increase for New Units (NEI<sub>N</sub>)

Per 40 CFR 51.165 (a)(2)(ii)(D) for new emissions units in this project,

$$NEI_N = PE2_N - BAE$$

$$BAE = 0 \text{ for the new units therefore } NEI_N = PE2_N$$

$$NEI_N (NO_x) = 2,559 \text{ lb/year}$$

$$NEI_N (VOC) = 139 \text{ lb/year}$$

$$NEI (NO_x) = 2,559 \text{ lb/year}$$

$$NEI (VOC) = 139 \text{ lb/year}$$

The NEI for this project will be greater than the federal Major Modification threshold of 0 lb/year for NO<sub>x</sub> and VOC. Therefore, this project does not qualify for a “Less-Than-Significant Emissions Increase” exclusion and is thus determined to be a Federal Major Modification.

**9. Quarterly Net Emissions Change (QNEC)**

The QNEC is calculated solely to establish emissions that are used to complete the District’s PAS emissions profile screen.

$$QNEC = PE2 - PE1, \text{ where:}$$

$$QNEC = \text{Quarterly Net Emissions Change for each emissions unit, lb/qtr}$$

$$PE2 = \text{Post-Project Potential to Emit for each emissions unit, lb/qtr}$$

$$PE1 = \text{Pre-Project Potential to Emit for each emissions unit, lb/qtr}$$

The units in this project are covered under a SLC which is accounted for in the emissions profile for permit unit ‘3. Therefore, the QNEC = 0 for this permit unit.

## VIII. Compliance

### Rule 2201 New and Modified Stationary Source Review Rule

#### A. Best Available Control Technology (BACT)

##### 1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following\*:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in a Major Modification.

\*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

##### a. New emissions units – PE > 2 lb/day

The applicant is proposing to install two plastic collection boxes and a rotary drum screen with a PE2 less than 2 lb/day for PM<sub>10</sub>. BACT is not triggered since the PE2 is less than 2 lb/day.

$$PE2 = 0.00074 \text{ lb-PM}_{10}/\text{ton} \times 800 \text{ tons/day} = 0.6 \text{ lb-PM}_{10}/\text{day}$$

As seen in Section VII.C.2 of this evaluation, the applicant is proposing to install a diesel-fired IC engine with a PE2 greater than 2 lb/day for NO<sub>x</sub>, PM<sub>10</sub>, CO and VOC. BACT is triggered for NO<sub>x</sub>, PM<sub>10</sub>, CO, and VOC since the PE2 is greater than 2 lb/day.

##### b. Relocation of emissions units – PE > 2 lb/day

As discussed in Section I above, there are no emissions units being relocated from one stationary source to another; therefore BACT is not triggered.

##### c. Modification of emissions units – AIPE > 2 lb/day

As discussed in Section I above, there are no modified emissions units associated with this project; therefore BACT is not triggered.

#### **d. Major Modification**

As discussed in Section VII.C.7 above, this project does constitute a Federal Major Modification for NO<sub>x</sub> and VOC; therefore BACT is triggered.

### **2. BACT Guideline**

BACT determination Guideline 6.4.5, applies to Biomass – Fuel Receiving, Handling, and Storage (See Attachment B).

BACT determination Guideline 3.2.11, applies to Transportable Compression – Ignited IC Engines (Non-Agricultural, Non-Electric Generation) (See Attachment B).

### **3. Top-Down BACT Analysis**

Per Permit Services Policies and Procedures for BACT, a Top-Down BACT analysis shall be performed as a part of the application review for each application subject to the BACT requirements pursuant to the District's NSR Rule.

Pursuant to the attached Top-Down BACT Analysis (Attachment B), BACT has been satisfied with the following:

#### Screening

PM<sub>10</sub>: Use of a wet suppression system on all emission units, transfer points, and raw material stockpiles to maintain an adequate moisture to prevent visible emissions in excess of 20%

#### Diesel-fired IC Engine

NO<sub>x</sub>, PM<sub>10</sub>, CO, and VOC: TIER 3 EPA Certified Non-Road Transportable Engine

## **B. Offsets**

### **1. Offset Applicability**

Pursuant to Section 4.5.3, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the Post Project Stationary Source Potential to Emit (SSPE2) equals to or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The following table compares the post-project facility-wide annual emissions in order to determine if offsets will be required for this project.

Offset Determination (lb/year)					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
Post Project SSPE (SSPE2)	417,600	54,000	83,650	501,120	200,448
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	No	Yes	Yes	Yes

## 2. Quantity of Offsets Required

As seen above, the facility is an existing Major Source for NO<sub>x</sub>, CO and VOC and the SSPE2 is greater than the offset thresholds for NO<sub>x</sub>, PM10, CO and VOC; therefore offset calculations will be required for this project.

Per Sections 4.7.1 and 4.7.3, the quantity of offsets in pounds per year for NO<sub>x</sub>, PM10, CO and VOC is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

Offsets Required (lb/year) =  $(\sum[PE2 - BE]_{SLC} + ICCE) \times DOR$ , for all new or modified emissions units in the project,

Where,

PE2 = Post Project Potential to Emit, (lb/year)

BE = Baseline Emissions, (lb/year)

ICCE = Increase in Cargo Carrier Emissions, (lb/year)

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = Pre-project Potential to Emit for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, Located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE)

As calculated in Section VII.C.6 above, the Baseline Emissions (BE) of the SLC are equal to the Pre-Project Potential to Emit (PE1). Therefore:

NO<sub>x</sub>: Offsets Required (lb/yr) =  $[PE2 - BE]_{SLC} = [417,600 - 417,600] = 0$

PM10: Offsets Required (lb/yr) =  $[PE2 - BE]_{SLC} = [83,650 - 83,650] = 0$

CO: Offsets Required (lb/yr) =  $[PE2 - BE]_{SLC} = [501,120 - 501,120] = 0$

VOC: Offsets Required (lb/yr) =  $[PE2 - BE]_{SLC} = [200,448 - 200,448] = 0$

**C. Public Notification**

**1. Applicability**

Public noticing is required for:

- a. Any new Major Source, which is a new facility that is also a Major Source,
- b. Major Modifications,
- c. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- d. Any project which results in the offset thresholds being surpassed, and/or
- e. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

**a. New Major Source**

New Major Sources are new facilities, which are also Major Sources. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes.

**b. Major Modification**

As demonstrated in VII.C.7, this project does constitute a Major Modification; therefore, public noticing for Major Modification purposes is required.

**c. PE > 100 lb/day**

The PE2 for this new unit is compared to the daily PE Public Notice thresholds in the following table:

<b>PE &gt; 100 lb/day Public Notice Thresholds (Diesel IC Engine)</b>			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
NO <sub>x</sub>	67.9	100 lb/day	No
SO <sub>x</sub>	0.1	100 lb/day	No
PM <sub>10</sub>	2.7	100 lb/day	No
CO	25.6	100 lb/day	No
VOC	3.7	100 lb/day	No

<b>PE &gt; 100 lb/day Public Notice Thresholds (Plastic Collection Box)</b>			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
NO <sub>x</sub>	0	100 lb/day	No
SO <sub>x</sub>	0	100 lb/day	No
PM <sub>10</sub>	0.6	100 lb/day	No
CO	0	100 lb/day	No
VOC	0	100 lb/day	No

<b>PE &gt; 100 lb/day Public Notice Thresholds (Rotary Drum Screen)</b>			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
NO <sub>x</sub>	0	100 lb/day	No
SO <sub>x</sub>	0	100 lb/day	No
PM <sub>10</sub>	0.6	100 lb/day	No
CO	0	100 lb/day	No
VOC	0	100 lb/day	No

Therefore, public noticing for PE > 100 lb/day purposes is not required.

**d. Offset Threshold**

The following table compares pollutant will trigger public noticing requirements. As seen the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

<b>Offset Threshold</b>				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO <sub>x</sub>	417,600	417,600	20,000 lb/year	No
SO <sub>x</sub>	54,000	54,000	54,750 lb/year	No
PM <sub>10</sub>	83,650	83,650	29,200 lb/year	No
CO	501,120	501,120	200,000 lb/year	No
VOC	200,448	200,448	20,000 lb/year	No

As detailed above, there were no thresholds surpassed with this project; therefore public noticing is not required for offset purposes.

**e. SSIPE > 20,000 lb/year**

Public notification is required for any permitting action that results in a Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e. SSIPE = SSPE2 – SSPE1. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table:

<b>Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice</b>					
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO <sub>x</sub>	417,600	417,600	0	20,000 lb/year	No
SO <sub>x</sub>	54,000	54,000	0	20,000 lb/year	No
PM <sub>10</sub>	83,650	83,650	0	20,000 lb/year	No
CO	501,120	501,120	0	20,000 lb/year	No
VOC	200,448	200,448	0	20,000 lb/year	No

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore public noticing for SSIPE purposes is not required.

## 2. Public Notice Action

As discussed above, public noticing is required for this project for triggering Federal Major Modification for NO<sub>x</sub> and VOC emissions. Therefore, public notice documents will be submitted to the U.S. Environmental Protection Agency (USEPA) California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

## D. Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.15.1 and 3.15.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT; therefore, the following conditions will be added to the permit to ensure compliance:

- PM10 emissions rate from this unit shall not exceed 0.003282 lb-PM10/ton of fuel processed. [District Rule 2201]
- The quantity of material processed through the equipment shall not exceed 800 tons per day. [District Rule 2201]
- The quantity of material processed through the equipment shall not exceed 120,000 tons per year. [District Rule 2201]
- Emissions from the IC engine shall not exceed any of the following limits: 2.76 g-NO<sub>x</sub>/bhp-hr, 1.04 g-CO/bhp-hr, or 0.15 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93116]
- The PM10 emissions rate from the engine shall not exceed 0.11 g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102]
- Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801]

- The maximum amount of fuel used in the engine shall not exceed 22,303 gallons per year, as determined by an operational nonresettable fuel flow meter or other APCO approved alternative. [District Rule 2201]

## **E. Compliance Assurance**

### **1. Source Testing**

Pursuant to District Policy APR 1705, source testing is not required to demonstrate compliance with Rule 2201.

### **2. Monitoring**

No monitoring is required to demonstrate compliance with Rule 2201.

### **3. Recordkeeping**

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. The following condition will appear on the permit to operate:

- The permittee shall maintain an engine operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: total hours of operation, amount and type of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rules 2201 and 4702]
- A daily log shall be maintained and shall include the total quantity of material processed (in tons) and maintenance or modifications performed. [District Rule 2201]
- For each unit subject to the Specific Limiting Condition (SLC), the permittee shall maintain all necessary records in order to show compliance with the annual SLC limits. [District NSR Rule]

Recordkeeping is required to demonstrate compliance with the offset, public notification, and daily emission limit requirements of Rule 2201. As required by District Rule 4702, *Stationary Internal Combustion Engines - Phase 2*, this IC engine is subject to recordkeeping requirements. Recordkeeping requirements, in accordance with District Rule 4702, will be discussed in Section VIII, *District Rule 4702*, of this evaluation.

### **4. Reporting**

No reporting is required to demonstrate compliance with Rule 2201.

**F. Ambient Air Quality Analysis**

Section 4.14.1 of this Rule requires that an ambient air quality analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The Technical Services Division of the SJVAPCD conducted the required analysis. Refer to Attachment E of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NO<sub>x</sub>, CO, and SO<sub>x</sub>. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO<sub>x</sub>, CO, or SO<sub>x</sub>.

The proposed location is in a non-attainment area for PM<sub>10</sub>. The increase in the ambient PM<sub>10</sub> concentration due to the proposed equipment is shown on the table titled Calculated Contribution. The levels of significance, from 40 CFR Part 51.165 (b)(2), are shown on the table titled Significance Levels.

<b>Significance Levels</b>					
Pollutant	Significance Levels (µg/m <sup>3</sup> ) - 40 CFR Part 51.165 (b)(2)				
	Annual Avg.	24 hr Avg.	8 hr Avg.	3 hr Avg.	1 hr Avg.
PM <sub>10</sub>	1.0	5	N/A	N/A	N/A

<b>Calculated Contribution</b>					
Pollutant	Calculated Contributions (µg/m <sup>3</sup> )				
	Annual Avg.	24 hr Avg.	8 hr Avg.	3 hr Avg.	1 hr Avg.
PM <sub>10</sub>	0.25	4.80	N/A	N/A	N/A

As shown, the calculated contribution of PM<sub>10</sub> will not exceed the EPA significance level. This project is not expected to cause or make worse a violation of an air quality standard.

**G. Compliance Certification**

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Federal Major Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Sections VIII-Rule 2201-C.1.a and VIII-Rule 2201-C.1.b, this source is undergoing a Federal Major Modification, therefore this requirement is applicable. Included in Attachment C is Madera Power LLC's compliance certification.

## **H. Alternative Siting Analysis**

Alternative siting analysis is required for any project, which constitutes a New Major Source or a Federal Major Modification.

The operation of a biomass power plant requires a large number support equipment, services and structures such as raw material receiving stations, fuel reclaimers, conveyors, screens, ash handling equipment, warehouses, and administration buildings.

Since the current project involves no change in the amount of biomass processed at the facility and no change to any other facets of the operation, the existing site will result in the least possible impact from the project. Alternative sites would involve the relocation and/or construction of various support structures and facilities on a much greater scale, and would therefore result in a much greater impact.

### **Rule 2520 Federally Mandated Operating Permits**

This facility is subject to this Rule, and has received their Title V Operating Permit. Section 3.29 defines a significant permit modification as a "permit amendment that does not qualify as a minor permit modification or administrative amendment."

Section 3.20.5 states that a minor permit modification is a permit modification that does not meet the definition of modification as given in Section 111 or Section 112 of the Federal Clean Air Act. Since this project is a Title I modification (i.e. Federal Major Modification), the proposed project is considered to be a modification under the Federal Clean Air Act. As a result, the proposed project constitutes a Significant Modification to the Title V Permit pursuant to Section 3.29.

As discussed above, the facility has applied for a Certificate of Conformity (COC) (see Attachment D); therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected. The facility shall not implement the changes requested until the final permit is issued.

### **Rule 4001 New Source Performance Standards (NSPS)**

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60. However, no subparts of 40 CFR Part 60 apply to material screening or transportable, non-emergency compression ignited IC engines.

### **Rule 4002 National Emission Standards for Hazardous Air Pollutants (NESHAPs)**

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to

all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63. However, no subparts of 40 CFR Part 61 or 40 CFR Part 63 apply to this IC engine.

#### **Rule 4101 Visible Emissions**

Rule 4101 states that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity.

Based on experience with similar operations, compliance with visible emission limits is expected under normal operating conditions and the following condition will be added to the permit to ensure compliance:

- No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

#### **Rule 4102 Nuisance**

Section 4.0 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations provided the equipment is well maintained. Therefore, compliance with this rule is expected and the following condition will be added to the permit to ensure compliance:

- {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

#### **California Health & Safety Code 41700 (Health Risk Assessment)**

District Policy APR 1905 – Risk Management Policy for Permitting New and Modified Sources specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

An HRA is not required for a project with a total facility prioritization score of less than or equal to one. According to the Technical Services Memo for this project (Attachment E), the total facility prioritization score including this project was greater than 1.0 and therefore a HRA was required.

The maximum individual cancer risk was greater than 1 per million and T-BACT was triggered. The following special conditions are required:

- {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

- Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93116]
- The PM10 emissions rate from the engine shall not exceed 0.15 g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102]

### Rule 4201 Particulate Matter Concentration

Particulate matter emissions from the engine will be less than or equal to the rule limit of 0.1 grain per cubic foot of gas at dry standard conditions as shown by the following:

$$0.11 \frac{g - PM_{10}}{bhp - hr} \times \frac{1 g - PM}{0.96 g - PM_{10}} \times \frac{1 bhp - hr}{2,542.5 Btu} \times \frac{10^6 Btu}{9,051 dscf} \times \frac{0.35 Btu_{out}}{1 Btu_{in}} \times \frac{15.43 grain}{g} = 0.027 \frac{grain - PM}{dscf}$$

Since 0.027 grain-PM/dscf is  $\leq$  to 0.1 grain per dscf, compliance with Rule 4201 is expected.

Therefore, the following condition will be listed on the ATC to ensure compliance:

- {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

### Rule 4202 Particulate Matter Emission Rate

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation that can be manifolded and exhausted through a stack in excess of 0.1 grain per dry standard cubic foot.

Maximum Allowable Emission Rate:

$$E_{Max} = 17.31 P^{0.16}$$

where: E = Emissions in lb/hr  
P = Process weight in ton/hr (P > 30 tons/hr)

$$E_{Max} = 3.59 P^{0.62}$$

where: E = Emissions in lb/hr  
P = Process weight in ton/hr (P  $\leq$  30 tons/hr)

P = 800 tons/day  $\div$  24 hours/day  
P = 33.3 tons/hr

$$E_{Max} = 17.31 \times (33.3)^{0.16} = 30.3 \text{ lb-PM/hr}$$

For this permit unit, the estimated potential hourly PM emission rate will be:

$$\begin{aligned} &= 2.6 \text{ lb-PM}_{10}/\text{day} \times (\text{PM}/40\% \text{ PM}_{10}) \div 24 \text{ hours/day} \\ &= 0.27 \text{ lb-PM/hr} < 30.3 \text{ lb-PM/hr (allowable)} \end{aligned}$$

The potential PM emission rate is less than the allowable emission rate. Therefore, compliance with this rule is expected.

#### **Rule 4701 Stationary Internal Combustion Engines – Phase I**

Pursuant to Section 7.5.2.3 of District Rule 4702, as of June 1, 2006 District Rule 4701 is no longer applicable to full time IC engines. Therefore, this engine will comply with the requirements of District Rule 4702 and no further discussion is required.

#### **Rule 4702 Internal Combustion Engines – Phase 2**

The purpose of this rule is to limit the emissions of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and volatile organic compounds (VOC) from internal combustion engines.

This rule applies to any internal combustion engine with a rated brake horsepower greater than 50 horsepower and that requires a Permit-to-Operate (PTO).

Section 5.1 requires that the owner of an internal combustion engine shall not operate it in such a manner that results in emissions exceeding the limits in the Engine Emission Limits table below for the appropriate engine type, according to the compliance schedule listed in Section 7.0. An engine shall be restricted by permit condition to emissions limits, in ppmv (corrected to 15% oxygen on a dry basis), that meet or exceed the following applicable emission limits pursuant to Section 5.1 or Section 8.2.

Engine Type	Emission Limit/ Standard	Compliance Date
<b>1. Non-Certified Compression-Ignited Engine</b>		
a. Greater than 50 bhp but not more than 500 bhp	EPA Tier 3 or Tier 4	1/1/2010
b. Greater than 500 bhp but not more than 750 bhp and less than 1000 annual operating hours	EPA Tier 3	1/1/2010
c. Greater than 750 bhp and less than 1000 annual operating hours	EPA Tier 4	7/1/2011
d. Greater than 500 bhp and greater than or equal to 1000 annual operating hours	80 ppm NOx, 2,000 ppm CO, 750 ppm VOC	1/1/2008 or, if owner has an agreement to electrify, comply by 1/1/2010
<b>2. Certified Compression-Ignited Engine</b>		
a. EPA Certified Tier 1 or Tier 2 Engine	EPA Tier 4	1/1/2015 or 12 years after installation date, whichever is later
b. EPA Certified Tier 3 or Tier 4 Engine	Meet Certified Compression-Ignited Engine Standard in effect at time of installation	At time of installation

The engine involved with this project is a compression-ignited IC engine that is an EPA Certified Tier 3 engine. Therefore, the IC engine involved with this project meets the emission limit/standard.

Section 5.2 requires that all continuous emission monitoring systems (CEMS) emissions measurements shall be averaged over a period of 15 consecutive minutes. Any 15-consecutive minute block average CEMS measurement exceeding the applicable emission limits of this rule shall constitute a violation of this rule. The IC engine involved with this project does not have a CEMS installed; therefore this section of the rule is not applicable.

Section 5.7.1 requires that the owner of an engine subject to the requirements of Sections 5.1 or 4.2 comply with the requirements specified in Sections 5.7.2 through 5.7.5.

Since the IC engine is subject to the requirements of Section 5.1, it must comply with the requirements specified in Sections 5.7.2 through 5.7.5.

Section 5.7.2 requires the owner to properly operation and maintain each engine as recommended by the engine manufacturer or emission control system supplier; therefore, the following conditions will be added to the permit:

- {3405} This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]

Section 5.7.3 requires the owner to monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier; therefore, the following conditions will be added to the permit:

- {4037} During periods of operation, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]

Section 5.7.4 requires each engine to install and operate a nonresettable elapsed operating time meter. In lieu of installing a nonresettable time meter, the owner of an engine may use an alternative device, method, or technique, in determining operating time provided that the alternative is approved by the APCO and is allowed by Permit-to-Operate or Stationary Equipment Registration condition. The owner of the engine shall properly maintain and operate the time meter or alternative device in accordance with the manufacturer's instructions; therefore, the following condition will be added to the permit:

- {3846} This engine shall be equipped with an operational nonresettable elapsed time meter or other APCO approved alternative. [District Rule 4702]

Section 5.7.5 is applicable to spark-ignited IC engines retrofitted with a NOx exhaust control. The IC engine in this project is not spark-ignited; therefore, the requirements of Section 5.7.5 do not apply.

Section 6.1 requires that the owner of an engine subject to the requirements Section 5.1 or Section 8.0 except for an engine specified in Section 6.1.1, shall submit to the APCO an emission control plan of all actions to be taken to satisfy the emission requirements of Section 5.1 and the compliance schedules of Section 7.0.

Section 6.1.1 states that the requirements to submit an emission control plan shall not apply to an engine specified in Section 6.1.1.1 through 6.1.1.6

Section 6.1.1.1 exempts certified compression-ignited engines that have not been retrofitted with an exhaust control system and is not subject to Section 8.0 from Sections 6.5.2 through 6.5.9. Therefore, this section of the rule is not applicable.

Section 6.2 requires that except for engines subject to Section 4.0, the owner of an engine subject to the requirements of this rule shall maintain an engine operating log to demonstrate compliance with this rule. This information shall be retained for a period of at least five years, shall be readily available, and be made available to the APCO upon

request. The engine operating log shall include, on a monthly basis, the following information:

- Total hours of operation,
- Type and quantity (cubic feet of gas or gallons of liquid) of fuel used,
- Maintenance or modifications performed,
- Monitoring data,
- Compliance source test results, and
- Any other information necessary to demonstrate compliance with this rule.

Therefore, the following condition will added to the permit:

- The permittee shall maintain an engine operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: total hours of operation, type of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702]

Section 6.2.2 requires that the data collected pursuant to the requirements of Section 5.6 shall be maintained for at least five years, shall be readily available, and made available to the APCO upon request. Therefore, the following condition will be added to the permit:

- All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702]

Section 6.3 applies to an engine subject to the requirements of Section 5.1 or the requirements of Section 8.0 except for engines specified in Section 6.3.1. Per Section 6.3.1 the following engines are not subject to the requirements of Sections 6.3.2 through 6.3.4,

- A certified compression-ignited engine that has not been retrofitted with an exhaust control and is not subject to the requirements of Section 8.0.
- A certified spark-ignited engine that has not been retro-fitted with an exhaust control and is not subject to the requirements of Section 8.0.
- An AO spark-ignited engine that has not been retro-fitted with a catalytic emission control device and is not subject to the requirements of Section 8.0.
- An engine subject to Section 4.2.
- An engine subject to Section 4.3.
- An engine with an operating exhaust control system that has been certified in accordance with Section 9.0 Exhaust Control System Certification Requirements.

The engine proposed in this project is a certified compression-ignited engine that has not been retrofitted with an exhaust control and is not subject to the requirements of Section 8.0. Therefore, the requirements of this section of the rule do not apply.

Section 6.4 requires that the compliance with the requirements of Section 5.0 shall be determined in accordance with the following test procedures or any other method approved by EPA and the APCO:

- Oxides of nitrogen - EPA Method 7E, or ARB Method 100.
- Carbon monoxide - EPA Method 10, or ARB Method 100.
- Stack gas oxygen - EPA Method 3 or 3A, or ARB Method 100.
- Volatile organic compounds - EPA Method 25A or 25B, or ARB Method 100.
- Operating horsepower determination - any method approved by EPA and the APCO.

Therefore, the following condition will be added to the permit to ensure compliance:

- {3210} The following test methods shall be used: NO<sub>x</sub> (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, and VOC (ppmv) - EPA Method 25A or 25B, or ARB Method 100. [District Rules 1081 and 4702]

Section 6.5 requires that the owner of an engine subject to the emission limits in Section 5.1 or the requirements of Section 8.2, except for an engine specified in Section 6.5.1, shall submit to the APCO for approval, an I&M plan that specifies all actions to be taken to satisfy the following requirements and the requirements of Section 5.6. The actions to be identified in the I&M plan shall include, but are not limited to, the information specified below:

Per Section 6.5.1, the requirements of Section 6.5.2 through Section 6.5.9 shall not apply to any of the following engines:

- A certified compression-ignited engine that has not been retrofitted with an exhaust control and is not subject to the requirements of Section 8.0.
- A certified spark-ignited engine that has not been retro-fitted with an exhaust control and is not subject to the requirements of Section 8.0.
- An AO spark-ignited engine that has not been retro-fitted with a catalytic emission control device and is not subject to the requirements of Section 8.0.
- An engine subject to Section 4.2.
- An engine subject to Section 4.3.
- An engine with an operating exhaust control system that has been certified in accordance with Section 9.0 Exhaust Control System Certification Requirements.

The engine proposed in this project is a certified compression-ignited engine that has not been retrofitted with an exhaust control and is not subject to the requirements of Section 8.0. Therefore, this engine is not required to meet the requirements of Sections 6.5.2 through 6.5.9.

Section 7.6 requires that the owner of an engine subject to the requirements of this rule shall not operate the engine unless the owner demonstrates and maintains the engine in compliance with the applicable requirements of this rule by the dates indicated in Compliance Schedule 1 of Section 7.6.2.

The proposed engine meets all the requirements of Rule 4702.

### Rule 4801 Sulfur Compounds

Rule 4801 requires that sulfur compound emissions (as SO<sub>2</sub>) shall not exceed 0.2% by volume. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

$$\begin{aligned} \text{Volume SO}_2 &= (n \times R \times T) \div P \\ n &= \text{moles SO}_2 \\ T \text{ (standard temperature)} &= 60 \text{ }^\circ\text{F or } 520 \text{ }^\circ\text{R} \\ R \text{ (universal gas constant)} &= \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot \text{ }^\circ\text{R}} \end{aligned}$$

$$\frac{0.000015 \text{ lb} - \text{S}}{\text{lb} - \text{fuel}} \times \frac{7.1 \text{ lb}}{\text{gal}} \times \frac{64 \text{ lb} - \text{SO}_2}{32 \text{ lb} - \text{S}} \times \frac{1 \text{ MMBtu}}{9,051 \text{ scf}} \times \frac{1 \text{ gal}}{0.137 \text{ MMBtu}} \times \frac{\text{lb} - \text{mol}}{64 \text{ lb} - \text{SO}_2} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} - \text{mol} \cdot \text{ }^\circ\text{R}} \times \frac{520 \text{ }^\circ\text{R}}{14.7 \text{ psi}} \times 1,000,000 = 1.0 \text{ ppmv}$$

Since 1.0 ppmv is ≤ 2,000 ppmv, this engine is expected to comply with Rule 4801. Therefore, the following condition (previously proposed in this engineering evaluation) will be listed on the ATC to ensure compliance:

- {3395} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93116]

### 40 CFR Part 63, Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants: Stationary Reciprocating Internal Combustion Engines)

This subpart is applicable to stationary internal combustion engines that are located at major or area sources of HAP emissions, except if the stationary IC engine is being tested at a stationary IC engine test cell/stand. The engine being proposed in this project is a transportable engine and is not stationary; therefore, this subpart is not applicable.

### Code of Federal Regulations (CFR), Title 40, Part 89

The term “non-road” is defined in Title 40 Code of Federal Regulations (CFR) Part 89 (Control Of Emissions From New and In-Use Non-Road Compression-Ignition Engines). Like District “transportable” engines, federal “non-road” engines are also mobile.

Per 40 CFR Part 89, non-road engines include compression ignited engines that, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indications of transportability include but are not limited to wheels, skids, carrying handles, dollies, trailers, or platforms.

An internal combustion engine is NOT a non-road engine if:

1. The engine is used to propel a motor vehicle or a vehicle used solely for competition; or is subject to standards promulgated under section 202 of the Clean Air Act; or
2. The engine is regulated by a New Source Performance Standard promulgated under section 111 of the Clean Air Act; or
3. The engine will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least 2 years) and that operates at that single location approximately three months (or more) each year.

In addition, there are several categories that are not included in the definition of non-road (or subject to 40 CFR 89). These categories are:

1. Aircraft Engines
2. Mining Engines
3. Locomotive Engines
4. Marine Engines
5. Hobby Engines (less than 50 cc per cylinder)
6. Tier 4 Engines that are subject to emissions standards under 40 CFR Part 1039

The proposed engine meets the definition of a non-road engine and is therefore subject to this part.

40 CFR Part 89 identifies emissions certification requirements for new non-road engines. There are no emission requirements for existing engines.

Per 40 CFR Part 89.2, "new" means:

"a non-road engine, non-road vehicle, or non-road equipment the equitable or legal title to which has never been transferred to an ultimate purchaser. Where the equitable or legal title to the engine, vehicle, or equipment is not transferred

to an ultimate purchaser until after the engine, vehicle, or equipment is placed into service, then the engine, vehicle, or equipment will no longer be new after it is placed into service. A nonroad engine, vehicle, or equipment is placed into service when it is used for its functional purposes.”

The certification requirements of this regulation are known as either Tier 1, Tier 2, or Tier 3 certifications (shown in Section VI of this document, from 40 CFR 89.112).

Pursuant to 40 CFR Part 89, Appendix A to Subpart A:

“EPA believes that states are not precluded (*or prevented*) under section 209 from regulating the use and operation of non-road engines, such as regulations on hours of usage, daily mass emission limits, or sulfur limits on fuel; nor are permits regulating such operations precluded (*or prevented*), once the engine is no longer new. EPA believes that states are precluded from requiring retrofitting of used nonroad engines except that states are permitted to adopt and enforce any such retrofitting requirements identical to California requirements which have been authorized by EPA under section 209 of the Clean Air Act.”

Therefore, beyond the requirements of Part 89, local authorities can only regulate the use and operation of non-road engines such as regulations on the hours of usage, daily mass emission limits, or sulfur limits on fuel. Local authorities cannot require retrofitting of used nonroad engines except those that are identical to California requirements that have been authorized by EPA, e.g. in the California Code of Regulations (CCR).

The engine proposed is of the meets the latest certification standards for the applicable rated power category; therefore, this part is satisfied.

**California Code of Regulations (CCR), Title 13 (Motor Vehicles), Division 3 (Air Resources Board), Chapter 9 (Off-Road Vehicles and Engines Pollution Control Devices), Article 4 (Off-Road Compression-Ignition Engines and Equipment)**

§ 2420 - Applicability:

This article is applicable to new heavy-duty compression-ignited engines produced on or after January 1, 1996 and all other new 2000 model year and later off-road compression-ignition engines, with the exception of all engines and equipment that fall within the scope of the preemption of Section 209(e)(1)(A) of the Federal Clean Air ACT and as defined by regulation of the U.S. Environmental Protection Agency. The engine proposed falls under the applicability of this article since they are “off-road” as defined below.

## § 2421 - Definitions

Like District “transportable” engines and federal “non-road” engines, California “off-road” engines are also mobile. “Off-road” engines are defined as:

“(A) Except as specified in paragraph (B) of this definition, an off-road compression-ignition engine is any internal combustion engine:

1. In or on a piece of equipment that is self-propelled or serves as a dual purpose by both propelling itself and performing another function and is primarily used off the highways (such as garden tractors, off-highway mobile cranes and bulldozers); or
2. In or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers); or
3. That, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to wheels, skids, carrying handles, dolly, trailer, or platform.

(B) An internal combustion engine is not an off-road compression-ignition engine if:

1. The engine is used to propel a vehicle subject to the emission standards contained in Title 13, California Code of Regulations, Sections 1950-1978, or a vehicle used solely for competition, or is subject to standards promulgated under Section 202 of the federal Clean Air Act (42 U.S.C. 7521); or
2. The engine is regulated by a federal New Source Performance Standard promulgated under Section 111 of the federal Clean Air Act (42 U.S.C. 7511); or
3. The engine otherwise included in paragraph (A)3 of this definition remains or will remain at a location for more than 12 consecutive months or a shorter time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least two years) and that operates at a single location approximately three months (or more) each year. This paragraph does not apply to an engine after the engine is removed from the location.”

§ 2423 - Emission Standards:

This section requires subject engines to meet the tier certification requirements identified in this section, which are taken from 40 CFR Part 89 for Tiers 1 thru 3. The proposed engine was the latest available CARB certification (Tier 3) when installed; therefore, it meets the requirements listed in this section.

**California Code of Regulations (CCR), Title 17 (Public Health), Division 3 (Air Resources), Chapter 1 (Air Resources Board), Subchapter 7.5 (Air Toxic Control Measures), Measure 93116 (Portable Diesel Engines)**

§ 93116.1 - Applicability

Except as provided in §93116.1(b), all portable engines having a maximum rated hp of 50 bhp and greater and fueled with diesel are subject to this regulation. The proposed engine(s) are portable and are subject to this regulation.

§ 93116.2 - Definitions

Like District “transportable”, federal “non-road”, and California “off-road” engines, California “portable” engines are also mobile.

(b) Portable means designed and capable of being carried or moved from one location to another. Indicia of portability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform. For the purposes of this regulation, dredge engines on a boat or barge are considered portable. The engine is not portable if:

- (1) the engine or its replacement is attached to a foundation, or if not so attached, will reside at the same location for more than 12 consecutive months. The period during which the engine is maintained at a storage facility shall be excluded from the residency time determination. Any engine, such as a back-up or stand-by engine, that replace engine(s) at a location, and is intended to perform the same or similar function as the engine(s) being replaced, will be included in calculating the consecutive time period. In that case, the cumulative time of all engine(s), including the time between the removal of the original engine(s) and installation of the replacement engine(s), will be counted toward the consecutive time period; or
- (2) the engine remains or will reside at a location for less than 12 consecutive months if the engine is located at a seasonal source and operates during the full annual operating period of the seasonal source, where a seasonal source is a stationary source that remains in a single location on a permanent basis (at least two years) and that operates at that single location at least three months each year; or
- (3) the engine is moved from one location to another in an attempt to circumvent the portable residence time requirements.

## § 93116.2 - Requirements

### Fuel and Fuel Additive Requirements:

This regulation stipulates that diesel-fueled portable engines shall use one of the following fuels:

1. CARB Diesel Fuel; or
2. An alternative diesel fuel that has been verified through the Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines; or
3. CARB diesel fuel utilizing fuel additives that have been verified through the Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines.

The proposed engine will use CARB certified diesel fuel.

### Diesel PM Standards:

Portable diesel-fueled engines that have not been permitted or registered prior to January 1, 2006, (meaning new engines) are subject to "the most stringent of the federal or California emission standard for nonroad engines".

Prior to this permitting action, the engine was the latest CARB certification (Tier 1 or better) when it was installed.

### Fleet Requirements:

The earliest fleet average PM requirement is 1/1/2013; therefore, there is no applicable fleet requirement at this time.

### **California Health & Safety Code 42301.6 (School Notice)**

The District has verified that this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

### **California Environmental Quality Act (CEQA)**

The California Environmental Quality Act (CEQA) requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The San Joaquin Valley Unified Air Pollution Control District (District) adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.

- Identify the ways that environmental damage can be avoided or significantly reduced.
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15031 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

### **Greenhouse Gas Significance Determination**

The District's engineering evaluation (this document) demonstrates that the project would not result in an increase in project specific greenhouse gas emissions (See Attachment G). The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

### **District CEQA Findings**

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15031 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

## **IX. Recommendation**

Compliance with all applicable rules and regulations is expected. Issue Authority to Construct C-799-6-2 subject to the permit conditions on the attached draft Authority to Construct in Attachment F.

**X. Billing Information**

Filing fees have been submitted with this application. The annual permit fees will be based on the following schedule.

Permit Number	Fee Schedule	Fee
C-799-6-2	99-999	No fee applicable

Attachments

- Attachment A: Current Permit
- Attachment B: BACT Guidelines and Top Down BACT Analyses
- Attachment C: Compliance Certification
- Attachment D: Certificate of Conformity
- Attachment E: HRA Summary & AAQA
- Attachment F: Draft ATC
- Attachment G: Greenhouse Gas Emissions Calculations

# Attachment A

## Current Permit



## AUTHORITY TO CONSTRUCT

**PERMIT NO:** C-799-6-1

**ISSUANCE DATE:** 05/26/2010

**LEGAL OWNER OR OPERATOR:** MADERA POWER, LLC  
**MAILING ADDRESS:** PO BOX 305  
FIREBAUGH, CA 93622

**LOCATION:** 11427 FIREBAUGH BLVD  
P O BOX 305  
FIREBAUGH, CA 93622

**EQUIPMENT DESCRIPTION:**  
MODIFICATION OF WOOD WASTE FUEL SCREENING AND HANDLING OPERATION WITH WET SUPPRESSION SYSTEM: ADD PERMIT C-799-1 TO PM10 SPECIFIC LIMITING CONDITION WITH PERMITS C-799-3, 6, 7, 8

### CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. Authority to Construct (ATC) C-799-6-0 shall be implemented concurrently, or prior to the modification and startup of the equipment authorized by this Authority to Construct. [District Rule 2201]
3. Specific Limiting Condition (SLC) limiting the annual emissions from the fuel handling listed under permit C-799-1, boiler/generator listed under permit C-799-3, the screening operation listed under permit C-799-6, the grinding operation listed under permit C-799-7 and the transportable IC engine listed under permit C-799-8 calculated on a twelve consecutive month rolling basis, shall not exceed any of the following: 417,600 lb-NOx/year, 54,000 lb-SOx/year, 83,520 lb-PM10/year, 501,120 lb-CO/year, or 200,448 lb-VOC/year. [District NSR Rule]
4. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. The wet suppression system shall be maintained in good operating condition and shall be operated at all times when screening equipment is in operation. [District Rule 2201]
6. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rules 2201 and 4101]
7. PM10 emissions rate from this unit shall not exceed 0.001062 lb-PM10/ton of fuel processed. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

**YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT.** This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

  
DAVID WARNER, Director of Permit Services

8. The quantity of material processed through the equipment shall not exceed 800 tons in any one day. [District Rule 2201]
9. A daily log shall be maintained and shall include the total quantity of material processed (in tons) and maintenance or modifications performed. [District Rule 2201]
10. For each unit subject to the Specific Limiting Condition (SLC), the permittee shall maintain all necessary records in order to show compliance with the annual SLC limits. [District NSR Rule]
11. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

# Attachment B

## BACT Guidelines and Top Down BACT Analyses

Per » **B A C T** » [Bact Guideline.asp?category Level1=6&category Level2=4&category Level3=5&last Update=9](#) » 7 :

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**Best Available Control Technology (BACT ) Guideline 6.4.5  
Last Update: 9/7/1998**

**Biomass - Fuel Receiving, Handling, and Storage**

<b>Pollutant</b>	<b>Achieved in Practice or in the SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
PM10	Use of a wet suppression system on all emission units, transfer points, and raw material stockpiles to maintain an adequate moisture to prevent visible emissions in excess of 20%.		

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

**This is a Summary Page for this Class of Source - Permit Specific BACT Determinations on Details Page.**

Per » **B A C T** » [Bact Guideline.asp?category Level1=3&category Level2=2&category Level3=11&last Update=10](#) » 30 :

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**Best Available Control Technology (BACT ) Guideline 3.2.11**  
**Last Update: 10/30/2008**

**Transportable Compression - Ignited IC Engines (Non-Agricultural, Non-Electric Generation)**

<b>Pollutant</b>	<b>Achieved in Practice or in the SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
VOC	The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range. (Example: a 200 bhp engine proposed in 2007 shall be Tier 3 certified and meet the emission standard of =< 0.149 g-PM10/bhp-hr)		LPG/Propane Fired Engine
NOx	The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range. (Example: a 200 bhp engine proposed in 2007 shall be Tier 3 certified and meet the emission standard of =< 0.149 g-PM10/bhp-hr)		LPG/Propane Fired Engine
CO	The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range. (Example: a 200 bhp engine proposed in 2007 shall be Tier 3 certified and meet the emission standard of =< 0.149 g-PM10/bhp-hr)		LPG/Propane Fired Engine
PM10	The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range. (Example: a 200 bhp engine proposed in 2007 shall be Tier 3 certified and meet the emission standard of =< 0.149 g-PM10/bhp-hr)		LPG/Propane Fired Engine
SOX	Very Low Sulfur Fuel		

(0.0015% fuel S by weight)

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

**This is a Summary Page for this Class of Source - Permit Specific BACT Determinations on Details Page.**

## Top Down BACT Analysis

### BACT Analysis for plastic storage boxes and screen in permit C-799-6-2:

For the new plastic storage boxes and screen in permit C-799-6-2, BACT is required for PM10.

#### Step 1 - Identify All Possible Control Technologies

BACT guideline 6.4.5 identifies the following control technologies:

Pollutant	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
PM10	Use of wet suppression system on all emission units, transfer points, and raw material stockpiles to maintain an adequate moisture to prevent visible emissions in excess of 20%		

#### Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options.

#### Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Rank	Control Technology	Achieved in Practice
1	Use of wet suppression system on all emission units, transfer points, and raw material stockpiles to maintain an adequate moisture to prevent visible emissions in excess of 20%	Y

There are no remaining control technologies.

#### Step 4 - Cost Effectiveness Analysis

The applicant is proposing the most effective control technology applicable for PM10; therefore, a cost effectiveness analysis is not required.

#### Step 5 - Select BACT

PM10: Use of wet suppression system on all emission units, transfer points, and raw material stockpiles to maintain an adequate moisture to prevent visible emissions in excess of 20% is selected as BACT.

**BACT Analysis for diesel-fired IC engine in permit C-799-6-2:**

**NO<sub>x</sub>, PM<sub>10</sub>, CO, and VOC (same requirements)**

**Step 1 - Identify All Possible Control Technologies**

BACT guideline 3.2.11 identifies the following control technologies:

Pollutant	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
VOC	The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range		LPG/Propane Fired Engine
NO <sub>x</sub>	The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range		LPG/Propane Fired Engine
CO	The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range		LPG/Propane Fired Engine
PM <sub>10</sub>	The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range		LPG/Propane Fired Engine
SO <sub>x</sub>	Very Low Sulfur Fuel		

**Option 1: Latest Available Certified Compression-Ignited Engine**

The latest available certification is considered achieved-in-practice (AIP) for BACT Guideline 3.2.11.

No additional control options for the engine will be considered at this time since, as shown above in Section II.A, federal law prohibits local authorities from regulating beyond the use and operation (hours, mass emission limits, or fuel sulfur content). Local authorities cannot require retrofitting of used nonroad engines except those that are identical to California requirements that have been authorized by EPA, e.g. in the California Code of Regulations (CCR). As a result, add-on controls (e.g. selective catalytic reduction, positive crankcase ventilation, turbocharging, intercooling, etc.) will not be considered as control options for this class and category or source.

**Option 2: Propane/Liquid Petroleum Gas (LPG) Fueled Engine**

The use of LPG results in lower emissions overall when compared to diesel emissions. The table below identifies emission factors (EFs) for LPG-fired IC engines:

Pollutant	EF	Source
NO <sub>x</sub>	25 ppmvd @ 15% O <sub>2</sub>	District Rule 4702 (Achieved-In-Practice)
SO <sub>x</sub>	0.012 g/bhp-hr	CARB Emissions Inventory Database
PM <sub>10</sub>	0.063 g/bhp-hr	AP-42 (7/00) Table 3.2-3
CO	400 ppmvd @ 15% O <sub>2</sub>	District Rule 4702 (Achieved-In-Practice)
VOC	100 ppmvd @ 15% O <sub>2</sub>	District Rule 4702 (Achieved-In-Practice)

\*g/hp·hr equivalent of lb/MMBtu values is calculated as follows: (example SO<sub>x</sub>)

$$0.35 \frac{lb}{1,000 \text{ gal}} \times \frac{gal}{94,000 \text{ Btu}} \times \frac{2,542.5 \text{ Btu}}{hp \cdot hr} \times \frac{1 \text{ hp}_{in}}{0.35 \text{ hp}_{out}} \times \frac{453.6 \text{ g}}{lb} = 0.012 \frac{g}{hp \cdot hr}$$

### Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options.

### Step 3 - Rank Remaining Control Technologies

Control Technology	Rank	Emission Factors (g/bhp-hr)	Technology Classification for BACT
LPG/Propane Engine + 3-way catalyst system	1	NO <sub>x</sub> : 0.35 (≈ 25 ppmvd @ 15% O <sub>2</sub> ) VOC: 0.5 (≈ 100 ppmvd @ 15% O <sub>2</sub> ) CO: 3.4 (≈ 400 ppmvd @ 15% O <sub>2</sub> ) PM <sub>10</sub> : 0.063	ABE
Latest Tier Certification Levels	2	NO <sub>x</sub> + VOC: 3.0 - 5.6 CO: 2.6 - 3.7 PM <sub>10</sub> : 0.149 - 0.3	AIP

#### **Step 4 - Cost Effectiveness Analyses**

##### **LPG Engines**

##### **LPG engine 465 bhp is not cost effective\***

\* Using the annual operation of 500 hours/year (worst case) and a linear extrapolation of Appendix A of District BACT analysis for Transportable Compression – Ignited IC Engines (Non-Agricultural, Non-Electric Generation) dated October 29, 2009 demonstrates that a LPG-fired engines 465 hp is not cost effective and is not required as Alternate Basic Equipment.

##### **Latest Available Certified Compression-Ignited Engine**

Per District BACT Policy, a cost effectiveness analysis is not required for AIP controls since the control must be implemented.

#### **Step 5 - Select BACT**

The remaining control not eliminated in Step 4 (latest available certification) is considered AIP BACT for this class and category of source for NO<sub>x</sub>, PM<sub>10</sub>, CO, and VOC.

### Alternate Basic Equipment (ABE) Cost Analysis: LPG vs Diesel

bhp	MCET <sup>4</sup> (\$/year)	Diesel Engine Purchase (\$/year)	Diesel Fuel <sup>1</sup> (\$/year)	LPG Engine (\$/year)	3-way Cat (\$/year)	LPG Fuel <sup>1</sup> (\$/year)	Cost Difference (ABE - Diesel) (\$/year)	Is LPG Cost Effective?
50	\$479	\$978	\$2,224	\$2,282	\$2,445	\$4,334	\$5,859	NO
100	\$959	\$1,467	\$4,448	\$3,668	\$2,445	\$8,669	\$8,866	NO
150	\$1,438	\$2,396	\$6,672	\$4,075	\$2,445	\$13,003	\$10,455	NO
200	\$1,917	\$2,869	\$8,896	\$6,341	\$2,445	\$17,337	\$14,358	NO
250	\$2,396	\$4,157	\$11,120	\$8,183	\$2,445	\$21,672	\$17,023	NO
300	\$2,876	\$4,189	\$13,344	\$8,981	\$2,445	\$26,006	\$19,899	NO
400	\$3,834	\$6,145	\$17,792	\$10,562	\$2,445	\$34,675	\$23,745	NO
500	\$4,793	\$6,292	\$22,240	\$12,844	\$2,445	\$43,344	\$30,101	NO
600	\$5,751	\$8,802	\$26,688	\$16,007	\$2,445	\$52,012	\$34,974	NO

#### Assumptions:

Diesel EF's - Tier 3 (g/bhp-hr) <sup>3</sup>					Engine Rating (bhp)	Diesel Engine <sup>2</sup> (\$)	LPG Engine <sup>6</sup> (\$)	3-way Cat (\$) <sup>9</sup>
NOx	VOC	SOx	PM10	CO	50	100	150	200
2.76	0.15	0.0051	0.11	1.04	50	\$6,000	\$14,000	\$15,000
Diesel Fuel Cost (\$/gal):					100	\$9,000	\$22,500	\$15,000
Diesel Brake Specific Fuel Consumption <sup>7</sup> (Btu/bhp-hr):					150	\$14,700	\$25,000	\$15,000
Spark-Ignited BSFC <sup>7</sup> (Btu/bhp-hr):					200	\$17,600	\$38,900	\$15,000
Capital recovery factor (10%, 10 yrs):					250	\$25,500	\$50,200	\$15,000
LPG fuel cost <sup>8</sup> (\$/gal):					300	\$25,700	\$55,100	\$15,000
Op Schedule (hr/year):					400	\$37,700	\$64,800	\$15,000
					500	\$38,600	\$78,800	\$15,000
					600	\$54,000	\$98,200	\$15,000
NG EF's (g/bhp-hr) <sup>5</sup>								
NOx	VOC	SOx	PM10	CO				
1.275	1.232	0.01	0.1	17.242				

<sup>1</sup> Assuming conservatively that the engine runs at 65% load.

<sup>2</sup> Per ERIP: Includes capital engine cost, misc. material, tax, and installation.

<sup>3</sup> The emission factors are taken from application

<sup>4</sup> The emissions reductions used for the MCET are based on the difference between applicant's proposed diesel emissions (Tier 3) and required District Rule 4702 spark-ignited engine emission levels. Assumes BACT is triggered for NOx, VOC, and PM10.

<sup>5</sup> Minimum 4702 requirements for NOx, VOC, CO for rich-burn ag engines (would have 3-way catalyst)

<sup>6</sup> Per Cummins, includes purchase, misc. equip. and tax.

<sup>7</sup> CAPCOA Portable IC Engine Tech. Ref. Document, 5/95.

<sup>8</sup> Per Red Triangle Oil (559-485-4320), local propane supplier on 9/23/08

<sup>9</sup> Per Ceasar Balman (Engine Control Systems), turnkey cost about \$3,000; replacment every 2 yrs (total \$15,000 over 10 yrs)

**Other Notes:**

LPG HHV (Btu/gal): 90,500 (from AP-42, A-6, 9/85)  
 453.6 g/lb x 2,000 lb/ton = 907,200 g/ton

# Attachment C

## Compliance Certification

ST

Received

**MADERA POWER, LLC**

*P.O. Box 305  
11427 Firebaugh Blvd.  
Firebaugh, CA 93622  
Tel. No.: (559) 659-4791  
FAX No.: (559) 659-4793*

SEP 17 2010  
Permits Svc  
SJVAPCD

September 16, 2010

Mr. David Warner  
Director of Permit Services  
San Joaquin Valley Air Pollution Control District  
1990 W. Gettysburgh Avenue  
Fresno, CA 93726-0244

Re: Compliance Certification  
Project No. C-1102958

Dear Mr. Warner:

In accordance with the requirements of San Joaquin Valley Air Pollution Control District Rule 2201, Section 4.15.2, Madera Power, LLC is submitting this Compliance Certification regarding major stationary sources owned and operated by Madera Power, LLC.

Madera Power, LLC is applying for Authority to Construct (ATC) to modify the screening/grinding system under ATC No. C-799-6-1 issued on May 26, 2010.

As of the date designated with signature below, Madera Power, LLC certifies the following:

All major stationary sources owned and operated by Madera Power, LLC in California which are subject to emission limitation are in compliance or on a schedule for compliance with all applicable emission limitations and standards.

If you have any questions, please call me.

Your assistance is greatly appreciated.

Sincerely,



Mark de Castro  
Plant Engineer  
Madera Power, LLC

09/16/10  
Date

Cc: Stanley Tom

# Attachment D

## Certificate of Conformity

### San Joaquin Valley Unified Air Pollution Control District

#### TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

I. TYPE OF PERMIT ACTION (Check appropriate box) *ATC Application for Plastic Screening Operation C-799, 1102958*

SIGNIFICANT PERMIT MODIFICATION                       ADMINISTRATIVE AMENDMENT

MINOR PERMIT MODIFICATION

COMPANY NAME: MADERA POWER, LLC	FACILITY ID: C- 799
1. Type of Organization: <input checked="" type="checkbox"/> LLC <input type="checkbox"/> Sole Ownership <input type="checkbox"/> Government <input type="checkbox"/> Partnership <input type="checkbox"/> Utility	
2. Owner's Name: MADERA POWER, LLC	
3. Agent to the Owner: Mark de Castro	

II. COMPLIANCE CERTIFICATION (Read each statement carefully and initial all circles for confirmation):

- Based on information and belief formed after reasonable inquiry, the equipment identified in this application will continue to comply with the applicable federal requirement(s).
- Based on information and belief formed after reasonable inquiry, the equipment identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.
- Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.
- Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true accurate and complete.

I declare, under penalty of perjury under the laws of the state of California, that the forgoing is correct and true:

*Mark de Castro*  
Signature of Responsible Official

10/04/10  
Date

Mark de Castro  
Name of Responsible Official (please print)

Plant Engineer  
Title of Responsible Official (please print)

# Attachment E

## HRA Summary & AAQA

# San Joaquin Valley Air Pollution Control District Risk Management Review

To: Stanly Tom, AQE- Permit Services  
 From: Esteban Gutierrez, AQS- Technical Services  
 Date: September 28, 2010  
 Facility Name: Madera Power LLC  
 Location: 11427 Firebaugh Ave, Firebaugh, CA  
 Application #(s): C-0799-6-2  
 Project #: C-1102958

---

## A. RMR SUMMARY

RMR Summary			
Categories	Plastic screening operation w/ Diesel ICE	Project Totals	Facility Totals
Prioritization Score	>1	>1.0	>1.0
Acute Hazard Index	NA	NA	0.0004
Chronic Hazard Index	NA	NA	0.0002
Maximum Individual Cancer Risk (10 <sup>-6</sup> )	6.71	6.71	9.85
T-BACT Required?	Yes		
Special Permit Conditions?	Yes		

### Proposed Permit Conditions

To ensure that human health risks will not exceed District allowable levels; the following permit conditions must be included for:

#### Unit # 6-2

1. The PM10 emissions rate shall not exceed 0.15 g/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201]
2. Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93115]
3. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

**T-BACT is required for this unit because of emissions of Diesel Particulate. In accordance with District policy, BACT for this unit will be considered to be T-BACT.**

## B. RMR REPORT

### I. Project Description

Technical Services received a request on September 24, 2010, to perform an Ambient Air Quality Analysis and a Risk Management Review for the installation of a plastic screening operation with a 465 bhp Diesel ICE.

### II. Analysis

Technical Services performed a screening level health risk assessment using the District developed DICE database for the 465 diesel ICE only PM emissions were calculated for the screening operation.

The following parameters were used for the review:

Analysis Parameters Unit 6-2			
Source Type	Point	Location Type	Urban
BHP	465	PM <sub>10</sub> g/hp-hr	0.15
Closest Receptor (m)	>1000	Quad	2
Max Hours per Year	8760	Type of Receptor	business

Technical Services performed modeling for criteria pollutants CO, NO<sub>x</sub>, SO<sub>x</sub> and PM<sub>10</sub>; as well as a RMR. The emission rates used for criteria pollutant modeling were as follows.

Diesel ICE		
Pollutant	(lb/day)	(lb/yr)
NO <sub>x</sub>	67.9	2,559
SO <sub>x</sub>	0.1	5
PM <sub>10</sub>	2.7	102
CO	25.6	964
VOC	3.7	139

Screening operation		
Pollutant	(lb/day)	(lb/yr)
PM <sub>10</sub>	2.7	102

The results from the Criteria Pollutant Modeling are as follows:

#### Criteria Pollutant Modeling Results\*

Diesel ICE	1 Hour	3 Hours	8 Hours.	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO <sub>x</sub>	Pass <sup>1</sup>	X	X	X	Pass
SO <sub>x</sub>	Pass	Pass	X	Pass	Pass
PM <sub>10</sub>	X	X	X	Pass <sup>2</sup>	Pass <sup>2</sup>

\*Results were taken from the attached PSD spreadsheet.

<sup>1</sup>The project was compared to the 1-hour NO<sub>2</sub> National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures.

<sup>2</sup>The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

### **III. Conclusion**

The acute and chronic indices are below 1.0 and the cancer risk associated with the plastic screening operation is greater than 1.0 in a million, but less than 10 in a million. **In accordance with the District's Risk Management Policy, the project is approved with Toxic Best Available Control Technology (T-BACT).**

To ensure that human health risks will not exceed District allowable levels; the permit conditions listed on page 1 of this report must be included for this proposed unit.

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

The emissions from the proposed equipment will not cause or contribute significantly to a violation of the State and National AAQS.

#### **Attachments:**

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Toxic emissions summary
- D. Prioritization score

**AAQA for Madera Power ( C\_0799\_6\_2 )**  
**All Values are in ug/m<sup>3</sup>**

	NOx 1 Hour	<sup>x1.5</sup> NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	<sup>x1.5</sup> SOx Annual	PM 24 Hour	<sup>1.5</sup> PM Annual
AREA1	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.304E+00	2.359E-01
ENGINE	6.504E+01	<del>2.484E-01</del> <sup>3.726E-1</sup>	3.280E+01	1.372E+01	1.287E-01	8.418E-02	2.729E-02	<del>6.471E-04</del> <sup>9.71E-4</sup>	4.995E-01	<del>1.120E-02</del> <sup>1.168E-2</sup>
Background	1.069E+02	2.678E+01	3.612E+03	2.680E+03	1.598E+02	1.332E+02	7.193E+01	2.664E+01	7.800E+01	4.000E+01
<b>Facility Totals</b>	1.720E+02	2.703E+01	3.644E+03	2.693E+03	1.600E+02	1.333E+02	7.196E+01	2.664E+01	8.280E+01	4.025E+01
<b>AAQS</b>	188.68	56	23000	10000	195	1300	105	80	50	30

Pass	Fail <i>Pass</i>	Fail <i>Pass</i>								
------	------	------	------	------	------	------	------	------	---------------------	---------------------

**EPA's Significance Level (ug/m<sup>3</sup>)**

NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM 24 Hour	PM Annual
0.0	1.0	2000.0	500.0	0.0	25.0	5.0	1.0	<sup>4.80</sup> 5.0	<sup>0.253</sup> 1.0

# Attachment F

Draft ATC

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

**PERMIT NO:** C-799-6-2

**LEGAL OWNER OR OPERATOR:** MADERA POWER, LLC

**MAILING ADDRESS:** PO BOX 305  
FIREBAUGH, CA 93622

**LOCATION:** 11427 FIREBAUGH BLVD  
P O BOX 305  
FIREBAUGH, CA 93622

**EQUIPMENT DESCRIPTION:**

MODIFICATION OF WOOD WASTE FUEL SCREENING AND HANDLING OPERATION WITH WET SUPPRESSION SYSTEM: INSTALL TWO PICKUP HOODS WITH BLOWERS FEEDING TWO PLASTIC COLLECTION BOXES, ONE MANUAL PICKING STATION, AND ONE DOPPSTADT ROTATING DRUM SCREEN POWERED BY A 465 BHP DAIMLER CHRYSLER TIER 3 TRANSPORTABLE DIESEL-FIRED IC ENGINE

**CONDITIONS**

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District NSR Rule] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Authority to Construct (ATC) C-799-6-1 shall be implemented concurrently, or prior to the modification and startup of the equipment authorized by this Authority to Construct. [District Rule 2201]
4. Specific Limiting Condition (SLC) limiting the annual emissions from the fuel handling listed under permit C-799-1, boiler/generator listed under permit C-799-3, the screening operation listed under permit C-799-6, the grinding operation listed under permit C-799-7 and the transportable IC engine listed under permit C-799-8 calculated on a twelve consecutive month rolling basis, shall not exceed any of the following: 417,600 lb-NOx/year, 54,000 lb-SOx/year, 83,520 lb-PM10/year, 501,120 lb-CO/year, or 200,448 lb-VOC/year. [District NSR Rule]
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

**DAVID WARNER**, Director of Permit Services

C-799-6-2: Oct 5 2010 2:02PM - TOMS : Joint Inspection NOT Required

6. The wet suppression system shall be maintained in good operating condition and shall be operated at all times when screening equipment is in operation. [District Rule 2201]
7. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rules 2201 and 4101]
8. PM10 emissions rate from this unit shall not exceed 0.003282 lb-PM10/ton of fuel processed. [District Rule 2201]
9. The quantity of material processed through the equipment shall not exceed 800 tons per day. [District Rule 2201]
10. The quantity of material processed through the equipment shall not exceed 120,000 tons per year. [District Rule 2201]
11. This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702]
12. Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93116]
13. This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]
14. This engine shall be equipped with an operational nonresettable volumetric fuel flow meter or other APCO approved alternative. [District Rule 4702]
15. This nonroad transportable engine utilized by this permit shall not be operated at one location for more than 12 consecutive months and shall meet all the requirements of a nonroad transportable engine, per CFR Title 40 Part 89. [CCR, Title 17 and District Rule 4701]
16. The maximum amount of fuel used in the engine shall not exceed 22,303 gallons per year when operating at facility C-799 (this limit is to enforce the zero equivalency threshold for greenhouse gas emissions). [District Rule 2201 and California Environmental Quality Act]
17. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
18. Emissions from the IC engine shall not exceed any of the following limits: 2.76 g-NOx/bhp-hr, 1.04 g-CO/bhp-hr, or 0.15 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93116]
19. The PM10 emissions rate from the engine shall not exceed 0.11 g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102]
20. {4037} During periods of operation, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]
21. The permittee shall maintain an engine operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: total hours of operation, amount and type of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rules 2201 and 4702]
22. A daily log shall be maintained and shall include the total quantity of material processed (in tons) and maintenance or modifications performed. [District Rule 2201]
23. For each unit subject to the Specific Limiting Condition (SLC), the permittee shall maintain all necessary records in order to show compliance with the annual SLC limits. [District NSR Rule]
24. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rules 1070 and 4702]

DRAFT

# Attachment G

## Greenhouse Gas Emissions Calculations

## Greenhouse Gas Emissions Evaluation

The District has evaluated potential greenhouse gas emissions from the internal combustion engine rated at 465 brake horsepower to determine if there will be an increase in greenhouse gas emissions associated with this project.

### Basis and Assumptions

- The engine is a compression-ignited unit fueled with diesel.
- The engine operates at full rated power.
- Fuel consumption is 22,303 gallons per year (applicant proposed).
- Density of diesel fuel is 7.0 lb/gallon.
- Higher Heating Value (HHV) of diesel is 138,700 Btu/gallon.
- Engine operates 15 hours per year
- Emission factors and global warming potentials (GWP) for diesel fuel are taken from the California Climate Change Action Registry (CCAR), Version 3.1, January, 2009 (Appendix C, Tables C.1, C.3 and C.6):

CO2 10.15 kg/gallon (22.3 lb/gallon)

CH4 1.44 g/gallon (0.006 lb/gal)

N2O 0.26 g/gallon (0.001 lb/gal)

GWP for CH4 = 23 lb-CO2e per lb-CH4

GWP for N2O = 296 lb-CO2e per lb-N2O

### Calculations

#### *Annual Emissions*

CO2 Emissions = 22,303 gal/year x 22.3 lb/gal = 497,356.9 lb-CO2e/year

CH4 Emissions = 22,303 gal/year x 0.006 lb/gal x 23 lb-CO2e per lb-CH4 = 3,077.814 lb-CO2e/year

N2O Emissions = 22,303 gal/year x 0.001 lb/gal x 296 lb-CO2e per lb-N2O = 6601.688 lb-CO2e/year

Total = 497,356.9 + 3,077.814 + 6,601.688 = 507,036.402 lb-CO2e/year

507,036.402 lb-CO2e/year ÷ 2,000 lb/short ton = **253.5 short tons-CO2e/year**

253.5 short tons-CO2e/year x 0.9072 metric tons/short ton = **229.99 metric tons/year**

Per District Policy, project specific greenhouse gas emissions less than or equal to 230 metric tons-CO2e/year are considered to be zero for District permitting purposes and are exempt from further environmental review.