



NOV 23 2011

Mr. David Kandolha  
Merced Power, LLC  
P.O. Box 298  
Chowchilla, CA 93610

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)  
District Facility # N-4607  
Project # N-1113811**

Dear Mr. Kandolha:

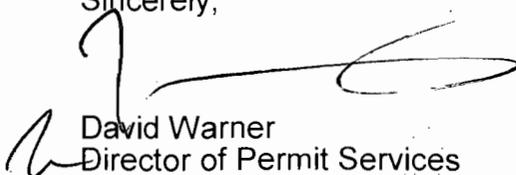
Enclosed for your review is the District's analysis of an application for Authority to Construct for the facility identified above. The applicant is requesting that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The applicant proposes to change the SOx emission limit averaging period from 1 hour rolling average to 3 hour rolling average and remove the 15-minute averaging period for PM10 and VOC.

After addressing any EPA comments made during the 45-day comment period, 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.

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



NOV 23 2011

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

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)  
District Facility # N-4607  
Project # N-1113811**

Dear Mr. Rios:

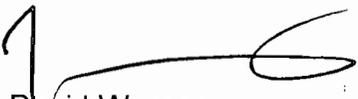
Enclosed for your review is the District's engineering evaluation of an application for Authority to Construct for Merced Power, LLC at 30 W Sandy Mush Road, El Nido, which has been issued a Title V permit. Merced Power, LLC is requesting that a Certificate of Conformity, with the procedural requirements of 40 CFR Part 70, be issued with this project. The applicant proposes to change the SOx emission limit averaging period from 1 hour rolling average to 3 hour rolling average and remove the 15-minute averaging period for PM10 and VOC.

Enclosed is the engineering evaluation of this application with a copy of the current Title V permit and proposed Authority to Construct # ATC # N-4607-8-3 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



NOV 23 2011

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

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)  
District Facility # N-4607  
Project # N-1113811**

Dear Mr. Tollstrup:

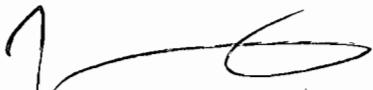
Enclosed for your review is the District's analysis of an application for Authority to Construct for the facility identified above. The applicant is requesting that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The applicant proposes to change the SOx emission limit averaging period from 1 hour rolling average to 3 hour rolling average and remove the 15-minute averaging period for PM10 and VOC.

Enclosed is the engineering evaluation of this application with a copy of the current Title V permit and proposed Authority to Construct # ATC # N-4607-8-3 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 30-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

**NOTICE OF PRELIMINARY DECISION  
FOR THE ISSUANCE OF AUTHORITY TO CONSTRUCT AND  
THE PROPOSED SIGNIFICANT MODIFICATION OF FEDERALLY  
MANDATED OPERATING PERMIT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Air Pollution Control District solicits public comment on the proposed significant modification of Merced Power, LLC for its biomass-fired power plant at 30 W Sandy Mush Road, El Nido, California. The applicant proposes to change the SOx emission limit averaging period from 1 hour rolling average to 3 hour rolling average and remove the 15-minute averaging period for PM10 and VOC.

The District's analysis of the legal and factual basis for this proposed action, project #N-1113811, 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. There are no emission increases associated with this proposed action. This will be the public's only opportunity to comment on the specific conditions of the modification. If requested by the public, the District will hold a public hearing regarding issuance of this modification. For additional information, please contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900. 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**  
Biomass-Fired Fluidized Bed Boiler

Facility Name:	Merced Power, LLC	Date:	November 12, 2011
Mailing Address:	P.O. Box 298 Chowchilla, CA 93610	Engineer:	Stanley Tom
Contact Person:	David Kandolha	Lead Engineer:	Joven Refuerzo
Telephone:	(559) 665-0819		
E-Mail:	ebomgardner@chownido.com		
Application #(s):	N-4607-8-3		
Project #:	N-1113811		
Deemed Complete:	November 10, 2011		

---

## **I. Proposal**

Merced Power LLC is proposing to modify the fluidized bed combustor permit N-4607-8 to change the SOx emission limit averaging period from 1 hour rolling average to 3 hour rolling average and to remove the 15-minute averaging period for PM10 and VOC.

Current permit lists a one-hour averaging period for SOx emissions. This averaging period is not required by BACT or any New Source Performance Subpart. Other biomass boiler permits list a three-hour averaging period for SOx emissions. As well, Rule 1081 would require an average of three one-hour runs to be performed during the annual source test. Therefore, the averaging period for SOx emissions will be changed from one-hour rolling average to three-hour rolling average.

There is no Continuous Emission Monitoring System for PM10 or VOC. Therefore, the 15-minute averaging period on the permit is not applicable and will be removed in this project.

The applicant has stated ATC N-4607-8-2 (Attachment A) will be implemented prior to the ATC in this project. Therefore, the following condition will be placed on the permit:

- Authority to Construct (ATC) N-4607-8-2 shall be implemented concurrently, or prior to the modification and startup of the equipment authorized by this Authority to Construct. [District Rule 2201]

Merced Power LLC has received their Title V Permit. This modification can be classified as a Title V significant modification pursuant to Rule 2520, Section 3.29, 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. Merced 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 1080 Stack Monitoring (12/17/92)  
Rule 1081 Source Sampling (12/16/93)  
Rule 2201 New and Modified Stationary Source Review Rule (4/21/11)  
Rule 2520 Federally Mandated Operating Permits (6/21/01)  
Rule 4001 New Source Performance Standards (4/14/99)  
Rule 4101 Visible Emissions (2/17/05)  
Rule 4102 Nuisance (12/17/92)  
Rule 4201 Particulate Matter Concentration (12/17/92)  
Rule 4301 Fuel Burning Equipment (12/17/92)  
Rule 4305 Boilers, Steam Generators and Process Heaters – Phase 2 (8/21/03)  
Rule 4306 Boilers, Steam Generators and Process Heaters – Phase 3 (10/16/08)  
Rule 4320 Advanced Emission Reduction Options For Boilers, Steam Generators, And Process Heaters Greater Than 5.0 MMBtu/hr (10/16/08)  
Rule 4352 Solid Fuel Fired Boilers, Steam Generators, and Process Heaters (5/18/06)  
Rule 4801 Sulfur Compounds (12/17/92)  
Rule 8011 General Requirements (8/19/04)  
Rule 8031 Bulk Materials (8/19/04)  
Rule 8041 Carryout And Trackout (8/19/04)  
Rule 8071 Unpaved Vehicle/Equipment Traffic Areas (9/16/04)  
CH&SC 41700 California Health & Safety Code, Sec 41700 – Health Risk Assessment  
CH&SC 42301.6 California Health & Safety Code, Sec 42301.6 – School Notice  
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)  
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

## III. Project Location

The project is located at 30 W Sandy Mush Road in El Nido, CA. The District has verified that the equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirements of California Health and Safety Code 42301.6 are not applicable to this project.

## IV. Process Description

Merced Power generates electricity by burning biomass in a bubbling fluidized bed combustor. The fuel (biomass) is delivered to the plant site in truck trailers and the material is unloaded using self-unloading trucks or a trailer tipper. Trailers are driven onto the tipper and the entire trailer is elevated to an angle such that the material free falls out of the back of the trailer. The unloaded fuel is transported into drag-chain reclaim conveyors for direct feed to the boiler or to a fuel storage area. The transfer conveyor discharges onto the scale conveyor which then feeds onto the boiler conveyor through a fuel sizing system. The sizing system screens the fuel prior to delivery to metering bins located adjacent to the fluidized bed combustor.

The fuels are fed into the fluidized bed combustor via a dual overbed fuel feed system. The combustion zone utilizes a combination of fluidizing (underfire) air and three levels of overfire air to maintain an acceptable temperature profile and excess oxygen levels. Throughout the furnace the flue gas velocities are kept low in order to minimize suspension burning and ash carry over. A collection of boiler tubes is located directly in the active combustion zone to extract energy, control combustion temperatures, and provide steam to the boiler system. From the atmospheric fluid bed combustor, the flue gases pass through the superheater, boiler, multiclone and economizer prior to entering the pulse-jet baghouse.

Superheated steam is supplied to a turbine/generator that provides 13 MW (gross) of electricity. Steam leaving the turbine is condensed in a surface condenser cooled by circulating water from the cooling tower.

The NO<sub>x</sub> in the post-combustion gas is controlled by an automated ammonia injection system.

## **V. Equipment Listing**

### Pre-Project Equipment Description:

N-4607-8-0: 185 MMBTU/HR ENERGY PRODUCTS OF IDAHO BIOMASS-FIRED BUBBLING FLUIDIZED BED COMBUSTOR WITH ONE 15 MMBTU/HR PROPANE-FIRED AUXILIARY BURNER POWERING A 13 MW STEAM TURBINE GENERATOR, SERVED BY A SELECTIVE NON-CATALYTIC REDUCTION SYSTEM WITH AN AUTOMATED AMMONIA INJECTION SYSTEM, A LIMESTONE INJECTION SYSTEM, AND A GENERAL ELECTRIC BAGHOUSE

### Proposed Modification:

N-4607-8-3: MODIFICATION OF 185 MMBTU/HR ENERGY PRODUCTS OF IDAHO BIOMASS-FIRED BUBBLING FLUIDIZED BED COMBUSTOR WITH ONE 15 MMBTU/HR PROPANE-FIRED AUXILIARY BURNER POWERING A 13 MW STEAM TURBINE GENERATOR, SERVED BY A SELECTIVE NON-CATALYTIC REDUCTION SYSTEM WITH AN AUTOMATED AMMONIA INJECTION SYSTEM, A LIMESTONE INJECTION SYSTEM, AND A GENERAL ELECTRIC BAGHOUSE: CHANGE SOX EMISSION AVERAGING PERIOD FROM ONE HOUR ROLLING AVERAGE TO THREE HOUR ROLLING AVERAGE AND REMOVE PM10 AND VOC 15-MINUTE AVERAGING PERIOD

Post Project Equipment Description:

N-4607-8-3: 185 MMBTU/HR ENERGY PRODUCTS OF IDAHO BIOMASS-FIRED BUBBLING FLUIDIZED BED COMBUSTOR WITH ONE 15 MMBTU/HR PROPANE-FIRED AUXILIARY BURNER POWERING A 13 MW STEAM TURBINE GENERATOR, SERVED BY A SELECTIVE NON-CATALYTIC REDUCTION SYSTEM WITH AN AUTOMATED AMMONIA INJECTION SYSTEM, A LIMESTONE INJECTION SYSTEM, AND A GENERAL ELECTRIC BAGHOUSE

## VI. Emission Control Technology Evaluation

Combustion of biomass fuel will result in the formation of NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, CO, and VOC emissions, via combustor exhaust stack. The auxiliary burner will combust propane, which will also result in the formation of NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, CO, and VOC emissions.

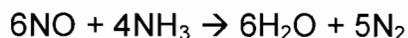
### 1. NO<sub>x</sub> Control

The NO<sub>x</sub> is formed by two sources. The nitrogen contained in the biomass fuel is liberated from the fuel during combustion and oxidized into NO<sub>x</sub> (fuel NO<sub>x</sub>). Ambient nitrogen from the boiler's air intake is also oxidized into NO<sub>x</sub> in the presence of the high combustion temperatures (Thermal NO<sub>x</sub>).

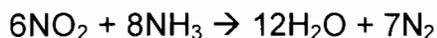
NO<sub>x</sub> is abated in two locations, in the combustor bed and the gas exit path to the superheater section.

NO<sub>x</sub> control during the combustion process is achieved through a combination of methods. The bubbling fluidized bed combustion technology in combination with multiple stages of combustion air creates an extended combustion zone where cool bed temperatures both inhibit thermal NO<sub>x</sub> formation and minimize the conversion of fuel nitrogen into NO<sub>x</sub>. The introduction of large quantities of inert materials (sand and limestone) with high volumes of preheated fluidizing air makes low NO<sub>x</sub> and VOC emissions possible.

Post-combustion NO<sub>x</sub> is controlled by an ammonia injection system, otherwise known as a Selective Non-Catalytic Reduction (SNCR) system. Ammonia (NH<sub>3</sub>) is injected into the exhaust stream of gas leaving the combustor zone where it can react with NO<sub>x</sub>. Nitric Oxide (NO) is converted into nitrogen and water in the following reaction:



Similarly, nitrogen dioxide (NO<sub>2</sub>) is converted into nitrogen and water in the following reaction:



Operation of the SNCR system is highly dependent on the temperature of the flue gas. In the absence of a catalyst, ammonia will selectively react with nitric oxide and water (as described above) at temperatures in the range of 1400 °F to 2000 °F, although temperatures above 1700 °F are preferred. Under typical conditions, the SNCR will result in the reduction of about 30% to 50% of NO<sub>x</sub>.

## **2. SO<sub>x</sub> Control**

SO<sub>x</sub> is controlled by the injection of limestone into the combustor bed. Fuel bound sulfur is released during combustion and is oxidized into SO<sub>x</sub>. Limestone (calcium carbonate, CaCO<sub>3</sub>) is added to the fluidized bed. At combustion temperatures, the limestone decomposes into calcium oxide (CaO or quicklime) and CO<sub>2</sub>. CaO then reacts with SO<sub>2</sub> in the flue gas to form calcium sulfate (CaSO<sub>4</sub>). The CaSO<sub>4</sub>, a particulate, is then removed from the exhaust stream by the baghouse.

## **3. PM<sub>10</sub> Control**

PM<sub>10</sub> is controlled by a 6-compartment pulse jet baghouse. Flue gas exhaust is routed through the baghouse which filters out the particulate matter. The manufacturer has specified a maximum grain loading emission rate of 0.01 grain per dscf for this baghouse.

## **4. CO and VOC Control**

Control of CO, VOC, and all other products of incomplete combustion are accomplished with the use of fluidized bed combustion technology, including multiple levels of staged overfire air injection.

There are no proposed changes to the emission control systems in this project.

## **VII. General Calculations**

### **A. Assumptions**

- Operating Schedule is 24 hr/day, 337 day/year
- F-Factor for wood/biomass is 9,240 scf/MMBtu
- Ammonia slip is 86 ppmv @ 3% O<sub>2</sub>
- F-Factor for propane (adjusted to 60°F) is 8,578 dscf/MMBtu (40 CFR 60 Appendix B)
- Propane heating value is 94,000 Btu/gal (AP-42, Appendix A, pg. 5, dated 9/85)
- Auxiliary burner will operate a maximum of 12 hours/day and 120 hours/year

**B. Emission Factors**

**a. 185 MMBtu/hr biomass-fired bubbling fluidized bed combustor**

The following fluidized bed emission factors are listed on the current operating permit.

<b>185 MMBtu/hr biomass-fired combustor (N-4607-8)</b>	
Pollutant	Emission Factor (controlled)
NO <sub>x</sub>	0.08 lb/MMBtu
SO <sub>x</sub>	0.02 lb/MMBtu
PM <sub>10</sub>	0.04 lb/MMBtu
CO	0.057 lb/MMBtu
VOC	0.005 lb/MMBtu
NH <sub>3</sub>	0.041 lb/MMBtu

**b. 15 MMBtu/hr propane-fired auxiliary burner**

The emission factor for propane/LPG combustion will be taken from AP-42 Table 1.5-1 (10/96), *Emission Factors for LPG Combustion*.

<b>15 MMBtu/hr propane-fired auxiliary burner (N-4607-8)</b>	
Pollutant	Emission Factor
NO <sub>x</sub>	0.202 lb/MMBtu
SO <sub>x</sub>	0.005 lb/MMBtu
PM <sub>10</sub>	0.006 lb/MMBtu
CO	0.038 lb/MMBtu
VOC	0.003 lb/MMBtu

**C. Calculations**

**1. Pre-Project Emissions (PE1)**

<b>Post Project Potential to Emit (PE2) Fluidized bed combustor (N-4607-8)</b>					
Hourly Emissions					
NO <sub>x</sub>	0.08	lb/MMBtu x	185 MMBtu/hr =	14.80	lb/hr
SO <sub>x</sub>	0.02	lb/MMBtu x	185 MMBtu/hr =	3.70	lb/hr
PM <sub>10</sub>	0.04	lb/MMBtu x	185 MMBtu/hr =	7.40	lb/hr
CO	0.057	lb/MMBtu x	185 MMBtu/hr =	10.55	lb/hr
VOC	0.005	lb/MMBtu x	185 MMBtu/hr =	0.93	lb/hr
NH <sub>3</sub>	0.041	lb/MMBtu x	185 MMBtu/hr =	7.59	lb/hr

Daily Emissions						
NO <sub>x</sub>	0.08	lb/MMBtu x	185 MMBtu/hr x	24 hr/day =	355.2	lb/day
SO <sub>x</sub>	0.02	lb/MMBtu x	185 MMBtu/hr x	24 hr/day =	88.8	lb/day
PM <sub>10</sub>	0.04	lb/MMBtu x	185 MMBtu/hr x	24 hr/day =	177.6	lb/day
CO	0.057	lb/MMBtu x	185 MMBtu/hr x	24 hr/day =	253.1	lb/day
VOC	0.005	lb/MMBtu x	185 MMBtu/hr x	24 hr/day =	22.2	lb/day
NH <sub>3</sub>	0.041	lb/MMBtu x	185 MMBtu/hr x	24 hr/day =	182.0	lb/day
Annual Emissions						
NO <sub>x</sub>	355.2	lb/day x	345 day/year =		122,544	lb/year
SO <sub>x</sub>	88.8	lb/day x	345 day/year =		30,636	lb/year
PM <sub>10</sub>	177.6	lb/day x	345 day/year =		61,272	lb/year
CO	253.1	lb/day x	345 day/year =		87,320	lb/year
VOC	22.2	lb/day x	345 day/year =		7,659	lb/year
NH <sub>3</sub>	182.0	lb/day x	345 day/year =		62,790	lb/year

Post Project Potential to Emit (PE2) Auxiliary Burner (N-4607-8)						
Hourly Emissions						
NO <sub>x</sub>	0.202	lb/MMBtu x	15 MMBtu/hr =		3.03	lb/hr
SO <sub>x</sub>	0.005	lb/MMBtu x	15 MMBtu/hr =		0.075	lb/hr
PM <sub>10</sub>	0.006	lb/MMBtu x	15 MMBtu/hr =		0.09	lb/hr
CO	0.038	lb/MMBtu x	15 MMBtu/hr =		0.57	lb/hr
VOC	0.003	lb/MMBtu x	15 MMBtu/hr =		0.045	lb/hr
Daily Emissions						
NO <sub>x</sub>	0.202	lb/MMBtu x	15 MMBtu/hr x	12 hr/day =	36.4	lb/day
SO <sub>x</sub>	0.005	lb/MMBtu x	15 MMBtu/hr x	12 hr/day =	0.9	lb/day
PM <sub>10</sub>	0.006	lb/MMBtu x	15 MMBtu/hr x	12 hr/day =	1.1	lb/day
CO	0.038	lb/MMBtu x	15 MMBtu/hr x	12 hr/day =	6.8	lb/day
VOC	0.003	lb/MMBtu x	15 MMBtu/hr x	12 hr/day =	0.5	lb/day
Annual Emissions						
NO <sub>x</sub>	0.202	lb/MMBtu x	15 MMBtu/hr x	120 hr/yr =	364	lb/year
SO <sub>x</sub>	0.005	lb/MMBtu x	15 MMBtu/hr x	120 hr/yr =	9	lb/year
PM <sub>10</sub>	0.006	lb/MMBtu x	15 MMBtu/hr x	120 hr/yr =	11	lb/year
CO	0.038	lb/MMBtu x	15 MMBtu/hr x	120 hr/yr =	68	lb/year
VOC	0.003	lb/MMBtu x	15 MMBtu/hr x	120 hr/yr =	5	lb/year

Total Pre Project Potential to Emit [PE1] (lb/year)						
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC	NH <sub>3</sub>
185 MMBtu/hr boiler	122,544	30,636	61,272	87,320	7,659	62,790
15 MMBtu/hr Aux burner	364	9	11	68	5	0
<b>Total PE1:</b>	<b>122,908</b>	<b>30,645</b>	<b>61,283</b>	<b>87,388</b>	<b>7,664</b>	<b>62,790</b>

## 2. Post Project PE (PE2)

There are no proposed changes in emission in this project. Therefore, PE2 = PE1.

## 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.

<b>Pre Project Stationary Source Potential to Emit [SSPE1] (lb/year)</b>					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
N-4607-6-3	0	0	1,314	0	0
N-4607-7-1	0	0	5	0	0
N-4607-8-2	122,544	30,645	61,272	87,320	7,659
N-4607-9-1	0	0	2,590	0	0
N-4607-10-2	0	0	10	0	0
N-4607-11-1	82	0	3	23	8
Pre Project SSPE (SSPE1)	122,626	30,645	65,194	87,343	7,667

## 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
N-4607-6-3	0	0	1,314	0	0
N-4607-7-1	0	0	5	0	0
N-4607-8-3	122,544	30,645	61,272	87,320	7,659
N-4607-9-1	0	0	2,590	0	0
N-4607-10-2	0	0	10	0	0
N-4607-11-1	82	0	3	23	8
Post Project SSPE (SSPE2)	122,626	30,645	65,194	87,343	7,667

## 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
Pre-Project SSPE (SSPE1)	122,626	30,645	65,194	87,343	7,667
Post Project SSPE (SSPE2)	122,626	30,645	65,194	87,343	7,667
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	Yes	No	No	No	No

## 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.

This is a fully offset unit per Rule 2201. 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."

Per District Policy entitled "Implementation of Rule 2201 for SB 288 Major Modifications and Federal Major Modifications", for fully offset units BAE = PE1.

SB 288 Major Modification Thresholds					
Pollutant	PE2 (lb/year)	BAE (lb/year)	NEI (lb/year)	Threshold (lb/year)	Major Modification?
NO <sub>x</sub>	122,544	122,544	0	50,000	No
SO <sub>x</sub>	30,645	30,645	0	140,000	No
PM <sub>10</sub>	61,272	61,272	0	140,000	No
VOC	7,659	7,659	0	50,000	No

As demonstrated in the preceding table, this project does not constitute an SB 288 Major Modification.

## 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.

The determination of Federal Major Modification is based on a two-step test. For the first step, only the emission *increases* are counted. Emission decreases may not cancel out the increases for this determination.

### Step 1

For existing emissions units, the increase in emissions is calculated as follows.

$$\text{Emission Increase} = \text{PAE} - \text{BAE} - \text{UBC}$$

Where: PAE = Projected Actual Emissions, and  
BAE = Baseline Actual Emissions  
UBC = Unused baseline capacity

If there is no increase in design capacity or potential to emit, the PAE is equal to the annual emission rate at which the unit is projected to emit in any one year, selected by the operator, within 5 years after the unit resumes normal operation (10 years for

existing units with an increase in design capacity or potential to emit). If detailed PAE are not provided, the PAE is equal to the PE2 for each permit unit.

The BAE is calculated based on historical emissions and operating records for any 24 month period, selected by the operator, within the previous 10 year period (5 years for electric utility steam generating units). The BAE must be adjusted to exclude any non-compliant operation emissions and emissions that are no longer allowed due to lower applicable emission limits that were in effect when this application was deemed complete.

UBC: Since this project does not result in an increase in design capacity or potential to emit, and it does not impact the ability of the emission unit to operate at a higher utilization rate, the UBC is the portion of PAE that the emission units could have accommodated during the baseline period.

The proposed modification does not result in an increase in design capacity or potential to emit, and it does not impact the ability of the emission unit to operate at a higher utilization rate. Therefore the unused baseline capacity emissions (portion of PAE that unit could have accommodated) can also be excluded from the project Emission Increase calculation as follows:

Emission Increase = PAE – BAE – unused baseline capacity emissions

The District has determined that the unit could have emitted PAE during the baseline period (when it emitted BAE) and therefore the unused baseline emissions are equal to PAE – BAE and Emission Increase = 0. Therefore the project is not 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. Detailed QNEC calculations are included in Attachment B.

## **VIII. Compliance**

### **Rule 1080 Stack Monitoring**

This Rule grants the APCO the authority to request the installation and use of continuous emissions monitors (CEMs), and specifies performance standards for the equipment and administrative requirements for recordkeeping, reporting, and notification.

The fluidized bed combustor is equipped with operational CEMs for NO<sub>x</sub>, SO<sub>x</sub>, CO, and O<sub>2</sub>. The unit is also equipped with a Continuous Opacity Monitor (COM). Provisions included in the operating permit are consistent with the requirements of this Rule. Compliance with the requirements of this Rule is anticipated.

- The applicant shall install, maintain, and operate a continuous emissions monitoring system (CEMS) to measure stack gas NO<sub>x</sub>, SO<sub>x</sub>, CO, and O<sub>2</sub> concentration and shall meet the performance specification requirements in 40 CFR, Part 60, Appendix B or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. The CEM systems shall also be operated, maintained, and calibrated pursuant to the requirements of 40 CFR 60.7(c) and 40 CFR 60.13. [District Rules 1080, 2201, and 4352]
- The applicant shall install, maintain, and operate a continuous opacity monitor (COM) and shall meet the performance specification requirements in 40 CFR, Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rules 1080 and 2201]
- The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEM data polling software system and shall make CEM data available to the District's automated polling system on a daily basis. [District Rule 1080]
- Upon notice by the District that the facility's CEM system is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEM data is sent to the District by a District-approved alternative method. [District Rule 1080]
- Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]
- Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and compliance source testing are both performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]
- Permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]
- Permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions; nature and cause of excess (averaging period used for data reporting shall correspond to the averaging period for each respective emission standard); corrective actions taken and preventive measures adopted; applicable time and date of each period during a CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1080]

## **Rule 1081 Source Sampling**

This Rule requires adequate and safe facilities for use in sampling to determine compliance with emissions limits, and specifies methods and procedures for source testing and sample collection.

The requirements of this Rule will be included in the operating permit. Compliance with this Rule is anticipated.

- The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO<sub>x</sub>, CO, and O<sub>2</sub> analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Source Emission Monitoring and Testing. [District Rule 1081]
- Source testing to measure the NO<sub>x</sub>, CO, and NH<sub>3</sub> emission rates (lb/hr and lb/MMBtu or ppmvd @ 3% O<sub>2</sub>) shall be conducted within 120 days after initial operation and at least once every twelve months thereafter. [District Rules 1081 and 4352]
- Compliance demonstration (source testing) shall be District witnessed or authorized and samples shall be collected by a certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
- The following test methods shall be used: NO<sub>x</sub> (ppmv) - EPA Method 7E or ARB Method 100, NO<sub>x</sub> (lb/MMBtu) - EPA Method 19, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, ammonia - BAAQMD ST-1B. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. The request to utilize EPA approved alternative source testing methods must be submitted in writing and written approval received from the District prior to the submission of the source test plan. [District Rules 1081, 4001, and 4352]

## **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**

As discussed in Section I above, there are no new emissions units associated with this project; therefore BACT for new units with PE > 2 lb/day purposes is not triggered.

**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**

$$\text{AIPE} = \text{PE2} - \text{HAPE}$$

Where,

AIPE = Adjusted Increase in Permitted Emissions, (lb/day)

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

HAPE = Historically Adjusted Potential to Emit, (lb/day)

$$\text{HAPE} = \text{PE1} \times (\text{EF2}/\text{EF1})$$

Where,

PE1 = The emissions unit's Potential to Emit prior to modification or relocation, (lb/day)

EF2 = The emissions unit's permitted emission factor for the pollutant after modification or relocation. If EF2 is greater than EF1 then EF2/EF1 shall be set to 1

EF1 = The emissions unit's permitted emission factor for the pollutant before the modification or relocation

$$\text{AIPE} = \text{PE2} - (\text{PE1} * (\text{EF2} / \text{EF1}))$$

There are no emission factor changes in this project. Therefore, EF2 / EF1 = 1.

Fluidized bed combustor

Pollutant	Daily PE2	Daily PE1	AIPE	BACT Triggered?
NO <sub>x</sub>	355.2 lb/day	355.2 lb/day	0.0 lb/day	No
SO <sub>x</sub>	88.8 lb/day	88.8 lb/day	0.0 lb/day	No
PM <sub>10</sub>	177.6 lb/day	177.6 lb/day	0.0 lb/day	No
CO	253.1 lb/day	253.1 lb/day	0.0 lb/day	No
VOC	22.2 lb/day	22.2 lb/day	0.0 lb/day	No
NH <sub>3</sub>	182.0 lb/day	182.0 lb/day	0.0 lb/day	No

Auxiliary Burner

Pollutant	Daily PE2	Daily PE1	AIPE	BACT Triggered?
NO <sub>x</sub>	36.4 lb/day	36.4 lb/day	0.0 lb/day	No
SO <sub>x</sub>	0.9 lb/day	0.9 lb/day	0.0 lb/day	No
PM <sub>10</sub>	1.1 lb/day	1.1 lb/day	0.0 lb/day	No
CO	6.8 lb/day	6.8 lb/day	0.0 lb/day	No
VOC	0.5 lb/day	0.5 lb/day	0.0 lb/day	No

**d. Major Modification**

As discussed in Section VII.C.7 above, this project does not constitute a Major Modification; therefore BACT is not triggered.

**B. Offsets**

**1. Offset Applicability**

Pursuant to Section 4.5.3, offset requirements shall be triggered on a pollutant-by-pollutant basis. Unless exempted pursuant to Section 4.6, offsets shall be required if the post-project SSPE2 equals or exceeds the following offset threshold levels.

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

<b>Offset Determination (lb/year)</b>					
	<b>NO<sub>x</sub></b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>CO</b>	<b>VOC</b>
Post Project SSPE (SSPE2)	122,626	30,645	65,194	87,343	7,667
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	No	Yes	No	No

Therefore, offsets are triggered for NO<sub>x</sub> and PM<sub>10</sub>.

## 2. Quantity of Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for NO<sub>x</sub>, SO<sub>x</sub>, and PM<sub>10</sub>; 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 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) =  $(\sum[PE2 - BE] + ICCE) \times DOR$ , 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)

The unit in this project is fully offset; therefore Baseline Emissions are equal to pre-project potential to emit. Also, there is only one emissions unit associated with this project and there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

$$\text{Offsets Required (lb/year)} = ([\text{PE2} - \text{BE}] + \text{ICCE}) \times \text{DOR}$$

### NO<sub>x</sub>

$$\begin{aligned} \text{PE2 (NO}_x\text{)} &= 122,544 \text{ lb/year} \\ \text{BE (NO}_x\text{)} &= 122,544 \text{ lb/year} \\ \text{ICCE} &= 0 \text{ lb/year} \end{aligned}$$

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([122,544 - 122,544] + 0) \times \text{DOR} \\ &= 0 \times \text{DOR} \\ &= 0 \text{ lb NO}_x\text{/year} \end{aligned}$$

### PM<sub>10</sub>

$$\begin{aligned} \text{PE2 (PM}_{10}\text{)} &= 61,272 \text{ lb/year} \\ \text{BE (PM}_{10}\text{)} &= 61,272 \text{ lb/year} \\ \text{ICCE} &= 0 \text{ lb/year} \end{aligned}$$

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([61,272 - 61,272] + 0) \times \text{DOR} \\ &= 0 \times \text{DOR} \\ &= 0 \text{ lb PM}_{10}\text{/year} \end{aligned}$$

As demonstrated in the calculation above, the amount of offsets is zero; therefore, offsets will not be required for this project.

## **C. Public Notification**

### **1. Applicability**

Public noticing is required for:

- a. New Major Sources, Federal Major Modifications, and SB288 Major Modifications,
- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- c. Any project which results in the offset thresholds being surpassed, and/or
- d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

**a. New Major Sources, Federal Major Modifications, and SB288 Major Modifications**

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.

As demonstrated in VII.C.7, this project does not constitute a SB 288 or Federal Major Modification; therefore, public noticing for SB 288 or Federal Major Modification purposes is not required.

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

Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. There are no new emissions units associated with this project; therefore public noticing is not required for this project for Potential to Emit Purposes.

**d. Offset Threshold**

The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO <sub>x</sub>	122,626	122,626	20,000 lb/year	No
SO <sub>x</sub>	30,645	30,645	54,750 lb/year	No
PM <sub>10</sub>	65,194	65,194	29,200 lb/year	No
CO	87,343	87,343	200,000 lb/year	No
VOC	7,667	7,667	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	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO <sub>x</sub>	122,626	122,626	0	20,000 lb/year	No
SO <sub>x</sub>	30,645	30,645	0	20,000 lb/year	No
PM <sub>10</sub>	65,194	65,194	0	20,000 lb/year	No
CO	87,343	87,343	0	20,000 lb/year	No
VOC	7,667	7,667	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, this project will not result in emissions, for any pollutant, which would subject the project to any of the noticing requirements listed above. Therefore, public notice will not be required for this project.

## 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.

- Emissions from the fluidized bed combustor unit, except during periods of startup and shutdown, shall not exceed any of the following limits: NO<sub>x</sub> - 14.8 lb/hr and 0.08 lb/MMBtu, SO<sub>x</sub> - 3.70 lb/hr and 0.02 lb/MMBtu, PM<sub>10</sub> - 7.40 lb/hr and 0.04 lb/MMBtu, CO - 10.55 lb/hr and 72 ppmv @ 3% O<sub>2</sub> (equivalent to 0.057 lb/MMBtu), or VOC - 0.93 lb/hr and 0.005 lb/MMBtu. NO<sub>x</sub> (as NO<sub>2</sub>) and CO emission limits are based on 24 hour rolling averages. SO<sub>x</sub> emission limits are based on 3 hour rolling averages. [District Rules 2201, 4352, and 4801]
- The ammonia (NH<sub>3</sub>) emissions shall not exceed 85 ppmv @ 3% O<sub>2</sub> (equivalent to 0.041 lb/MMBtu) over a 24 hour rolling average. [District Rules 2201 and 4102]
- Emissions from the auxiliary burner shall not exceed any of the following limits: NO<sub>x</sub> - 0.202 lb/MMBtu, SO<sub>x</sub> - 0.005 lb/MMBtu, PM<sub>10</sub> - 0.006 lb/MMBtu, CO - 0.038 lb/MMBtu, or VOC - 0.003 lb/MMBtu. [District Rules 2201 and 4801]

## **E. Compliance Assurance**

### **1. Source Testing**

Pursuant to Rule 4352, Section 6.3, the combustor shall be tested at least once every twelve months, to determine compliance with NO<sub>x</sub> and CO emissions limits using the following test methods:

- 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
- NO<sub>x</sub> (lb/MMBtu) - EPA Method 19
- Stack Gas Flow Rate - EPA Method 2
- Stack Gas Moisture Content - EPA Method 4
- Solid Fuel Higher Heating Value (HHV) - ASTM Method D2015-85 or E711

Also, source testing for the combustor for PM<sub>10</sub>, SO<sub>x</sub>, VOC and NH<sub>3</sub> shall be conducted at least once every twelve months using:

- PM<sub>10</sub> - EPA Method 5 (front half and back half) or 201 and 202a
- SO<sub>x</sub> - EPA Method 6 or ARB Method 100
- VOC - EPA Method 18 or 25 or ARB Method 100
- NH<sub>3</sub> - BAAQMD ST-1B

### **2. Monitoring**

Pursuant to Rule 4352, the operator of any unit using ammonia injection as a NO<sub>x</sub> control technique shall operate a Continuous Emissions Monitoring System (CEMS) to monitor and record NO<sub>x</sub> concentrations, CO<sub>2</sub>, or O<sub>2</sub> concentrations, as well as the NO<sub>x</sub> emission rate. For the purposes of quantifying the quarterly SO<sub>x</sub> emissions, a continuous monitor for SO<sub>x</sub> will be required. In addition, a Continuous Opacity Monitoring System (COMS) will be required to monitor opacity from the unit.

CEMS shall be operated, maintained, and calibrated pursuant to the requirements of 40 CFR 60.7 (c) and 60.13, CEMS must also satisfy the performance specifications of 40 CFR 60 Appendix B and have the Relative Accuracy Test Audit (RATA).

The CEMS and COMS shall be in place and operating whenever the facility is operating. NO<sub>x</sub> and SO<sub>x</sub> concentrations and opacity must be recorded continuously. The continuous monitoring equipment must be linked to a data acquisition system that is accessible by the District via modem.

### 3. Recordkeeping

All records shall be retained on-site for a period of at least five (5) years and made available for District inspection upon request. Records are required for all permit units, specifically outlined as follows.

Records for each load of fuel received shall include:

- The date the load is received,
- fuel category (creditable biomass or non-creditable fuel),
- number of tons received,
- the weight ticket number,
- fuel suppliers name and organization,
- specific fuel type (i.e. almond orchard removal or walnut prunings),
- hhv of fuel as determined by ASTM Method D 2015 or Method E 711, or as certified by a third party fuel supplier,
- the distance from the facility in miles from which the load of biomass was acquired,
- the corresponding offset distance ratio for the load of biomass (1.3 or 2),
- the historical burn fraction for the type of biomass,
- certifications that any creditable biomass for which offset credit is claimed has historically been open burned in the San Joaquin Valley air basin, and
- the open burn emission factors for NO<sub>x</sub> for the type of biomass based on District Policy SSP 2005 *Open Burn Emission Factors*.

In addition, the permittee shall maintain accurate records of continuous emissions monitoring (CEM) results, dates of occurrences and duration of start-up, shutdown, malfunction, performance testing, evaluations, calibrations, checks, adjustments and maintenance, and daily records of propane fuel usage.

### 4. Reporting

The owner/operator shall submit a written report for each calendar quarter to the APCO. The report is due by the 30<sup>th</sup> day following the end of the calendar quarter and shall include:

- Time intervals, data and magnitude of excess emissions, nature and cause of the excess (if known), corrective actions taken and preventive measures adopted.
- Averaging period used for data reporting corresponding to averaging period specified in the emission test period used to determine compliance with an emission standard for the pollutant/source category in question.
- Time and date of each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of system repairs and adjustments.

- A negative declaration when no excess emissions occurred.
- Reports on opacity monitors giving the number of three (3) minute periods during which the average opacity exceeded the standard for each hour of operation. The averages may be obtained by integration over the averaging period or by arithmetically averaging a minimum of four (4) equally spaced instantaneous opacity measurements per minute. Any time period exempted shall be considered before determining the excess averages of opacity.

The facility will also be required to report the following:

- A quarterly report accounting for the tonnage of agricultural waste eliminated from open field burning and used as plant fuel. The report shall document creditable ag waste fuel receipt quantities, if fuel originates > 15 miles from facility, offset credit ratios, emission factors used, and summary of the resultant emissions offsets provided using "the procedure." And shall document historical biomass fraction (HBF) and quarterly distribution factor (QDF) for each biomass fuel used to calculate credit.

#### **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 results in a relaxation of monitoring provisions, 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 B); 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**

40 CFR Part 60 - Subpart Da - Standards of Performance for Electric Utility Steam Generating Units for Which Construction Is Commenced After September 18, 1978

This subpart applies to electric utility steam generating units. However, the applicability is limited to boilers combusting at least 250 MMBtu/hr. Since this unit is rated at 185 MMBtu/hr, the provisions of this subpart do not apply.

40 CFR Part 60 - Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

This subpart applies to each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 MW (100 million Btu/hour). Since this unit is rated at 185 MMBtu/hr, the provisions of this subpart do apply.

**§60.42b - Standard for sulfur dioxide.**

(a) Except as provided in paragraphs (b), (c), (d), or (j) of this section, on and after the date on which the performance test is completed or required to be completed under §60.8 of this part, whichever date comes first, no owner or operator of an affected facility that combusts coal or oil shall cause to be discharged into the atmosphere any gases that contain sulfur dioxide in excess of 10 percent (0.10) of the potential sulfur dioxide emission rate (90 percent reduction) and that contain sulfur dioxide in excess of the emission limit determined according to the formula located in this section.

(b) On and after the date on which the performance test is completed or required to be completed under §60.8 of this part, whichever comes first, no owner or operator of an affected facility that combusts coal refuse alone in a fluidized bed combustion steam generating unit shall cause to be discharged into the atmosphere any gases that contain sulfur dioxide in excess of 20 percent of the potential sulfur dioxide emission rate (80 percent reduction) and that contain sulfur dioxide in excess of 520 ng/J (1.2 lb/million Btu) heat input. If coal or oil is fired with coal refuse, the affected facility is subject to paragraph (a) or (d) of this section, as applicable.

(c) On and after the date on which the performance test is completed or is required to be completed under §60.8 of this part, whichever comes first, no owner or operator of an affected facility that combusts coal or oil, either alone or in combination with any other fuel, and that uses an emerging technology for the control of sulfur dioxide emissions, shall cause to be discharged into the atmosphere any gases that contain sulfur dioxide in excess of 50 percent of the potential sulfur dioxide emission rate (50 percent reduction) and that contain sulfur dioxide in excess of the emission limit determined according to the formula located in this section.

(d) On and after the date on which the performance test is completed or required to be completed under §60.8 of this part, whichever comes first, no owner or operator of an affected facility listed in paragraphs (d) (1), (2), or (3) of this section shall cause to be discharged into the atmosphere any gases that contain sulfur dioxide in excess of 520 ng/J (1.2 lb/million Btu) heat input if the affected facility combusts coal, or 215 ng/J (0.5 lb/million Btu) heat input if the affected facility combusts oil other than very low sulfur oil. Percent reduction requirements are not applicable to affected facilities under paragraphs (d)(1), (2), or (3).

(j) Percent reduction requirements are not applicable to affected facilities combusting only very low sulfur oil. The owner or operator of an affected facility combusting very low

sulfur oil shall demonstrate that the oil meets the definition of very low sulfur oil by: (1) Following the performance testing procedures as described in §60.45b(c) or §60.45b(d), and following the monitoring procedures as described in §60.47b(a) or §60.47b(b) to determine sulfur dioxide emission rate or fuel oil sulfur content; or (2) maintaining fuel receipts as described in §60.49b(r).

This permit unit does not combust coal; oil, coal refuse, or very low sulfur oil therefore these sections do not apply.

**§60.43b - Standard for particulate matter.**

(a) On and after the date on which the initial performance test is completed or is required to be completed under §60.8 of this part, whichever comes first, no owner or operator of an affected facility which combusts coal or combusts mixtures of coal with other fuels, shall cause to be discharged into the atmosphere from that affected facility any gases that contain particulate matter in excess of the following emission limits:

(1) 22 ng/J (0.051 lb/million Btu) heat input,

(i) If the affected facility combusts only coal, or

(ii) If the affected facility combusts coal and other fuels and has an annual capacity factor for the other fuels of 10 percent (0.10) or less.

(2) 43 ng/J (0.10 lb/million Btu) heat input if the affected facility combusts coal and other fuels and has an annual capacity factor for the other fuels greater than 10 percent (0.10) and is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor greater than 10 percent (0.10) for fuels other than coal.

(3) 86 ng/J (0.20 lb/million Btu) heat input if the affected facility combusts coal or coal and other fuels and

(i) Has an annual capacity factor for coal or coal and other fuels of 30 percent (0.30) or less,

(ii) Has a maximum heat input capacity of 73 MW (250 million Btu/hour) or less,

(iii) Has a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor of 30 percent (0.30) or less for coal or coal and other solid fuels, and

(iv) Construction of the affected facility commenced after June 19, 1984, and before November 25, 1986.

This permit unit does not combust coal or combusts mixtures of coal with other fuels therefore this section does not apply.

(b) On and after the date on which the performance test is completed or required to be completed under 60.8 of this part, whichever date comes first, no owner or operator of an affected facility that combusts oil (or mixtures of oil with other fuels) and uses a conventional or emerging technology to reduce sulfur dioxide emissions shall cause to be discharged into the atmosphere from that affected facility any gases that contain particulate matter in excess of 43 ng/J (0.10 lb/million Btu) heat input.

This permit unit does not combust oil (or mixtures of oil with other fuels) therefore this section does not apply.

(c) On and after the date on which the initial performance test is completed or is required to be completed under §60.8 of this part, whichever date comes first, no owner or operator of an affected facility that combusts wood, or wood with other fuels, except coal, shall cause to be discharged from that affected facility any gases that contain particulate matter in excess of the following emission limits:

(1) 43 ng/J (0.10 lb/million Btu) heat input if the affected facility has an annual capacity factor greater than 30 percent (0.30) for wood.

(2) 86 ng/J (0.20 lb/million Btu) heat input if

(i) The affected facility has an annual capacity factor of 30 percent (0.30) or less for wood,

(ii) Is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor of 30 percent (0.30) or less for wood, and

(iii) Has a maximum heat input capacity of 73 MW (250 million Btu/hour) or less.

This permit unit does combust wood, or wood with other fuels, except coal, therefore this section does apply. The facility has proposed to take a PM<sub>10</sub> limit of 0.04 lb/MMBtu, which is in compliance with the limits of this section. Therefore, compliance is expected.

(d) On and after the date on which the initial performance test is completed or is required to be completed under §60.8 of this part, whichever date comes first, no owner or operator of an affected facility that combusts municipal-type solid waste or mixtures of municipal-type solid waste with other fuels, shall cause to be discharged into the atmosphere from that affected facility any gases that contain particulate matter in excess of the following emission limits:

(1) 43 ng/J (0.10 lb/million Btu) heat input,

(i) If the affected facility combusts only municipal-type solid waste, or

(ii) If the affected facility combusts municipal-type solid waste and other fuels and has an annual capacity factor for the other fuels of 10 percent (0.10) or less.

(2) 86 ng/J (0.20 lb/million Btu) heat input if the affected facility combusts municipal-type solid waste or municipal-type solid waste and other fuels; and

(i) Has an annual capacity factor for municipal-type solid waste and other fuels of 30 percent (0.30) or less,

(ii) Has a maximum heat input capacity of 73 MW (250 million Btu/hour) or less,

(iii) Has a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor of 30 percent (0.30) for municipal-type solid waste, or municipal-type solid waste and other fuels, and

(iv) Construction of the affected facility commenced after June 19, 1984, but before November 25, 1986.

This permit unit does combust municipal-type solid waste or mixtures of municipal-type solid waste with other fuels therefore this section does apply. The facility has proposed to take a PM<sub>10</sub> limit of 0.04 lb/MMBtu, which is in compliance with the limits of this section. Therefore, compliance is expected.

(f) On and after the date on which the initial performance test is completed or is required to be completed under 60.8 of this part, whichever date comes first, no owner or operator of an affected facility that combusts coal, oil, wood, or mixtures of these fuels with any other fuels shall cause to be discharged into the atmosphere any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity.

District Rule 4101 requires that a person shall not discharge into the atmosphere, any air contaminant, for a period or periods aggregating more than three minutes in any one hour which is as dark or darker than Ringelmann 1 (20% opacity). In addition, the permit unit will be equipped with a Continuous Opacity Monitoring system, which will ensure continued compliance.

**§60.44b - Standard for nitrogen oxides.**

(a) Except as provided under paragraphs (k) and (l) of this section, on and after the date on which the initial performance test is completed or is required to be completed under §60.8 of this part, whichever date comes first, no owner or operator of an affected facility that is subject to the provisions of this section and that combusts only coal, oil, or natural gas shall cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides (expressed as NO<sub>2</sub>) in excess of the emission limits within this section.

This permit unit does not combust only coal, oil, or natural gas therefore this section does not apply.

(b) Except as provided under paragraphs (k) and (l) of this section, on and after the date on which the initial performance test is completed or is required to be completed under §60.8 of this part, whichever date comes first, no owner or operator of an affected facility that simultaneously combusts mixtures of coal, oil, or natural gas shall cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides in excess of a limit determined by the use of the formula located within this section.

This permit unit does not combust mixtures of coal, oil, or natural gas therefore this section does not apply.

(c) Except as provided under paragraph (l) of this section, on and after the date on which the initial performance test is completed or is required to be completed under §60.8 of this part, whichever date comes first, no owner or operator of an affected facility that simultaneously combusts coal or oil, or a mixture of these fuels with natural gas, and wood, municipal-type solid waste, or any other fuel shall cause to be discharged into the atmosphere any gases that contain nitrogen oxides in excess of the emission limit for the coal or oil, or mixtures of these fuels with natural gas combusted in the affected facility, as determined pursuant to paragraph (a) or (b) of this section, unless the affected facility has an annual capacity factor for coal or oil, or mixture of these fuels with

natural gas of 10 percent (0.10) or less and is subject to a federally enforceable requirement that limits operation of the affected facility to an annual capacity factor of 10 percent (0.10) or less for coal, oil, or a mixture of these fuels with natural gas.

This permit unit does not combust mixtures of coal or oil therefore this section does not apply.

(d) On and after the date on which the initial performance test is completed or is required to be completed under §60.8 of this part, whichever date comes first, no owner or operator of an affected facility that simultaneously combusts natural gas with wood, municipal-type solid waste, or other solid fuel, except coal, shall cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides in excess of 130 ng/J (0.30 lb/million Btu) heat input unless the affected facility has an annual capacity factor for natural gas of 10 percent (0.10) or less and is subject to a federally enforceable requirement that limits operation of the affected facility to an annual capacity factor of 10 percent (0.10) or less for natural gas.

This permit unit does not simultaneously combust natural gas with wood, municipal-type solid waste, or other solid fuel, except coal therefore this section does not apply.

(e) Except as provided under paragraph (l) of this section, on and after the date on which the initial performance test is completed or is required to be completed under §60.8 of this part, whichever date comes first, no owner or operator of an affected facility that simultaneously combusts coal, oil, or natural gas with byproduct/waste shall cause to be discharged into the atmosphere any gases that contain nitrogen oxides in excess of the emission limit determined by the formula within this section unless the affected facility has an annual capacity factor for coal, oil, and natural gas of 10 percent (0.10) or less and is subject to a federally enforceable requirement that limits operation of the affected facility to an annual capacity factor of 10 percent (0.10) or less.

This permit unit does not simultaneously combust coal, oil, or natural gas with byproduct/waste therefore this section does not apply.

**§60.46b - Compliance and performance test methods and procedures for particulate matter and nitrogen oxides.**

(a) The particulate matter emission standards and opacity limits under §60.43b apply at all times except during periods of startup, shutdown, or malfunction. The nitrogen oxides emission standards under §60.44b apply at all times.

(b) Compliance with the particulate matter emission standards under §60.43b shall be determined through performance testing as described in paragraph (d) of this section.

(d) To determine compliance with the particulate matter emission limits and opacity limits under §60.43b, the owner or operator of an affected facility shall conduct an initial performance test as required under §60.8...

Performance tests will be conducted as defined under §60.8; therefore compliance is expected.

**§60.48b - Emission monitoring for particulate matter and nitrogen oxides.**

(a) The owner or operator of an affected facility subject to the opacity standard under §60.43b shall install, calibrate, maintain, and operate a continuous monitoring system for measuring the opacity of emissions discharged to the atmosphere and record the output of the system

As discussed above, the permit unit is only subject to the standards for particulate matter and the facility has proposed to install a COM system and record the output of the system. Therefore, compliance is expected.

40 CFR Part 60 - Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

This subpart applies to each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and has a maximum design heat input capacity of 29 megawatts (MW) (100 million Btu per hour (Btu/hr)) or less, but greater than or equal to 2.9 MW (10 million Btu/hr). Since this unit is rated at 185 MMBtu/hr, the provisions of this subpart do not apply.

**Rule 4101 Visible Emissions**

Rule 4101 requires that a person shall not discharge into the atmosphere from any single source of emissions whatsoever, any air contaminant, other than uncombined water vapor, for a period or periods aggregating more than three minutes in any one hour which is as dark or darker than Ringelmann 1.

PM<sub>10</sub> is controlled by a 6-compartment baghouse. Exhaust is routed through the baghouse which filters out the particulate matter. The manufacturer has specified a maximum grain loading emission rate of 0.01 grain per dscf for this baghouse. In addition, the applicant has proposed to install a continuous opacity monitor. Therefore visible emissions are not expected for this operation.

Therefore, compliance with District Rule 4101 requirements is expected.

**Rule 4102 Nuisance**

Rule 4102 states that no air contaminant shall be released into the atmosphere which causes a public nuisance. 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.

A permit condition will be listed on the permits as follows:

- {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.

As demonstrated above, there are no increases in emissions associated with this project, therefore a health risk assessment is not necessary and no further risk analysis is required.

### **Rule 4201 Particulate Matter Concentration**

Rule 4201 states that a person shall not release or discharge into the atmosphere from any single source operation, dust, fumes, or total suspended particulate matter emissions in excess of 0.1 grain per cubic foot of gas at dry standard conditions.

The combustor is expected to emit up to 0.04 lb·PM<sub>10</sub>/MMBtu. The F-factor for biomass combustion is 9,240 scf/MMBtu. Conservatively assuming that up to 50% of the total PM emissions are PM<sub>10</sub>, then the total PM emission factor for the combustor could be as high as 0.08 lb·PM/MMBtu. Therefore, the grain loading is calculated as follows.

$$\frac{0.08 \text{ lb} \cdot \text{PM}}{\text{MMBtu}} \times \frac{1 \text{ MMBtu}}{9,240 \text{ ft}^3} \times \frac{7,000 \text{ grain}}{\text{lb}} = 0.06 \frac{\text{grain} \cdot \text{PM}}{\text{ft}^3}$$

Since this does not exceed the rule threshold of 0.1 grain/scf, this unit is expected to comply with Rule 4201.

### **Rule 4301 Fuel Burning Equipment**

Rule 4301 limits air contaminant emissions from fuel burning equipment as defined in the rule. Section 3.1 defines fuel burning equipment as “any furnace, boiler, apparatus, stack, and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer”.

Based on maximum burner rating and emission factors, the biomass combustor is expected to operate in compliance with these limits as shown in the following table. Therefore, compliance with this rule is expected.

Hourly Potential to Emit				
Unit	Fuel	NO <sub>2</sub>	PM	SO <sub>2</sub>
N-4607-8-3	Biomass	14.80 lb/hr	7.40 lb/hr	3.70 lb/hr
Rule 4301 Limits		140 lb/hr	10 lb/hr	200 lb/hr

### **Rule 4305 Boilers, Steam Generators and Process Heaters (Phase II)**

District Rule 4305 applies only to liquid or gaseous fuel-fired boilers. Therefore, Rule 4305 does not apply to the biomass-fired combustor unit.

The 15 MMBtu/hr propane-fired auxiliary burner is a direct fired unit that sets into the under bed air duct and uses forced draft fan air that initially warms the air before biomass is introduced into the combustor bed. The auxiliary burner is addressed by Rule 4352 (see applicability section); therefore, Rule 4305 does not apply.

### **Rule 4306 Boilers, Steam Generators and Process Heaters (Phase III)**

District Rule 4306 applies only to liquid or gaseous fuel-fired boilers. Therefore, Rule 4306 does not apply to the biomass combustor unit.

The 15 MMBtu/hr propane-fired auxiliary burner is a direct fired unit that sets into the under bed air duct and uses forced draft fan air that initially warms the air before biomass is introduced into the combustor bed. The auxiliary burner is addressed by Rule 4352 (see applicability section); therefore, Rule 4306 does not apply.

### **Rule 4320 Advanced Emission Reduction Options For Boilers, Steam Generators, And Process Heaters Greater Than 5.0 MMBtu/hr**

District Rule 4320 applies only to liquid or gaseous fuel-fired boilers. Therefore, Rule 4320 does not apply to the biomass combustor unit.

The 15 MMBtu/hr propane-fired auxiliary burner is a direct fired unit that sets into the under bed air duct and uses forced draft fan air that initially warms the air before biomass is introduced into the combustor bed. The auxiliary burner is addressed by Rule 4352 (see applicability section); therefore, Rule 4306 does not apply.

### **Rule 4352 Solid Fuel Fired Boilers, Steam Generators and Process Heaters**

Pursuant to Section 5.1, the Tier 2 emission limits state NO<sub>x</sub> emissions shall not exceed 115 ppmv @ 3% O<sub>2</sub>, based on a 24 hour averaging period and CO emissions shall not exceed 400 ppmv @ 3% O<sub>2</sub>.

The permit lists the BACT emissions limit of 0.08 lb·NO<sub>x</sub>/MMBtu. The CO emission factor listed is 0.057 lb/MMBtu. Calculated in ppmv as follows:

$$\frac{0.08 \frac{\text{lb} \cdot \text{NO}_2}{\text{MMBtu}} \cdot 379.5 \frac{\text{dscf}}{\text{lb} \cdot \text{mol}} \cdot 10^6 \cdot \text{ppmv}}{9,240 \frac{\text{dscf}}{\text{MMBtu}} \cdot 46 \frac{\text{lb} \cdot \text{NO}_2}{\text{lb} \cdot \text{mol}} \cdot \frac{20.9}{17.9}} = 61 \text{ ppmv @ } 3\% \text{ O}_2$$

$$\frac{0.057 \frac{\text{lb} \cdot \text{CO}}{\text{MMBtu}} \cdot 379.5 \frac{\text{dscf}}{\text{lb} \cdot \text{mol}} \cdot 10^6 \cdot \text{ppmv}}{9,240 \frac{\text{dscf}}{\text{MMBtu}} \cdot 28 \frac{\text{lb} \cdot \text{CO}}{\text{lb} \cdot \text{mol}} \cdot \frac{20.9}{17.9}} = 72 \text{ ppmv @ } 3\% \text{ O}_2$$

Since the NO<sub>x</sub> and CO permitted levels are lower than the Rule limits, this unit is expected to comply with this section of Rule 4352.

Section 5.5 of the rule requires that any unit with ammonia injection for NO<sub>x</sub> control shall operate a CEMS to monitor and record NO<sub>x</sub> concentrations, NO<sub>x</sub> emission rate, and either CO or O<sub>2</sub> concentrations.

As discussed above, this unit is equipped with ammonia injection to control NO<sub>x</sub> and will have the appropriate CEMS. Therefore, this unit is expected to comply with this section of Rule 4352.

Section 6.2 of the rule requires facilities to maintain a monthly operating log that includes type and quantity of fuel used, and the hhv of such fuel.

As discussed above, records will be required which include a complete fuel description. Therefore, this unit is expected to comply with this section of the rule.

Section 6.3 of the rule requires each unit be source tested annually, with the unit operating at normal conditions.

As discussed above, this unit is subject to annual source testing for all criteria pollutants. Therefore, this unit is expected to comply with this section of Rule 4352.

### **Rule 4801 Sulfur Compounds**

Per Section 3.1, a person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: 0.2 % by volume calculated as SO<sub>2</sub> on a dry basis averaged over 15 consecutive minutes.

The SO<sub>x</sub> emission factor is 0.04 lb·SO<sub>x</sub>/MMBtu.

$$\frac{0.02 \frac{\text{lb} \cdot \text{SO}_2}{\text{MMBtu}} \cdot 379.5 \frac{\text{dscf}}{\text{lb} \cdot \text{mol}} \cdot 10^6 \cdot \text{ppmv}}{9,240 \frac{\text{dscf}}{\text{MMBtu}} \cdot 64 \frac{\text{lb} \cdot \text{SO}_2}{\text{lb} \cdot \text{mol}} \cdot \frac{20.9}{17.9}} = 10.99 \text{ ppmv @ } 3\% \text{ O}_2$$

Since 10.99 ppmv is less than 2000 ppmv, this unit is expected to comply with Rule 4801.

### **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.

### **Greenhouse Gas (GHG) 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 as there are no changes in emissions in this project. 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 N-4607-8-3 subject to the permit conditions on the attached draft Authority to Construct in Attachment C.

## X. Billing Information

Permit Number	Fee Schedule	Fee Description
N-4607-8-3	3020-8A-E	13,000 kW electrical generation

## List of Attachments

- A. Current Permit
- B. Certificate of Conformity
- C. Draft ATC

# Attachment A Current Permit



## AUTHORITY TO CONSTRUCT

**PERMIT NO:** N-4607-8-2

**ISSUANCE DATE:** 03/23/2011

**LEGAL OWNER OR OPERATOR:** MERCED POWER, LLC  
**MAILING ADDRESS:** P O BOX 298  
CHOWCHILLA, CA 93610

**LOCATION:** 30 W SANDY MUSH ROAD  
EL NIDO, CA

**EQUIPMENT DESCRIPTION:**

MODIFICATION OF 185 MMBTU/HR ENERGY PRODUCTS OF IDAHO BIOMASS-FIRED BUBBLING FLUIDIZED BED COMBUSTOR WITH ONE 15 MMBTU/HR PROPANE-FIRED AUXILIARY BURNER POWERING A 13 MW STEAM TURBINE GENERATOR, SERVED BY A SELECTIVE NON-CATALYTIC REDUCTION SYSTEM, A LIMESTONE INJECTION SYSTEM, AND A GENERAL ELECTRIC BAGHOUSE: INSTALL STACK GAS FLOW MONITORING SYSTEM, UTILIZE AUTOMATED AMMONIA INJECTION SYSTEM, AND UTILIZE OPERATIONS AND MAINTENANCE MANUAL FOR MAINTENANCE OF CEMS

### CONDITIONS

1. 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]
2. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. Operating schedule shall not exceed 345 days per year. [District Rule 2201]
5. The baghouse shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District Rule 2201]
6. The differential pressure gauge reading range shall be maintained between 2" and 8.5" water column. [District Rule 2201]
7. Differential operating pressure shall be monitored and recorded on each day that the baghouse operates. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

**YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 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  
N-4607-8-2 - Mar 23 2011 3:28PM - TOMS : Joint Inspection NOT Required

8. The baghouse shall be maintained and operated according to manufacturer's specifications. [District Rule 2201]
9. The baghouse cleaning frequency and duration shall be adjusted to optimize the control efficiency. [District Rule 2201]
10. Replacement bags numbering at least 10% of the total number of bags in the largest baghouse using each type of bag shall be maintained on the premises. [District Rule 2201]
11. Material removed from the baghouse shall be disposed of in a manner preventing entrainment into the atmosphere. [District Rule 2201]
12. The applicant shall install and maintain an operational ammonia volume flow-rate indicator for the selective non-catalytic reduction ammonia injection system. [District Rule 2201]
13. No later than 30 days following restart of the facility, the applicant shall install, maintain, and operate an automated ammonia injection system in the selective non-catalytic reduction (SNCR) system. The automated mode may be overridden by the facility operator as necessary to maintain compliance with the emission limits listed within this permit. [District Rule 1080 and US EPA and SJVUAPCD Consent Decree Case No. 1:11-cv-00241-LJO-SMS, Section V.13.b, issued February 14, 2011]
14. No later than 90 days following restart of the facility, the applicant shall install, maintain, and operate a stack gas flow monitoring system. [District Rule 1080 and US EPA and SJVUAPCD Consent Decree Case No. 1:11-cv-00241-LJO-SMS, Section V.13.a, issued February 14, 2011]
15. The permittee shall install, maintain, and operate a continuous emissions monitoring system (CEMS) to measure stack gas NO<sub>x</sub>, SO<sub>x</sub>, CO, and O<sub>2</sub> concentrations and shall meet the performance specification requirements in 40 CFR, Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. The CEMS systems shall also be operated, maintained, and calibrated pursuant to the requirements of 40 CFR 60.7(c) and 40 CFR 60.13. [District Rules 1080, 2201, and 4352]
16. The permittee shall install, maintain, and operate a continuous opacity monitor (COM) and shall meet the performance specification requirements in 40 CFR, Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rules 1080 and 2201]
17. The permittee shall install and maintain equipment, facilities, and systems compatible with the District's CEMS data polling software system and shall make CEMS data available to the District's automated polling system on a daily basis. [District Rule 1080]
18. Upon notice by the District that the facility's CEMS system is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEMS data is sent to the District by a District-approved alternative method. [District Rule 1080]
19. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]
20. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and compliance source testing are both performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]
21. Permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]
22. Within 90 days following restart of the facility, the CEM system shall be operated and maintained in accordance with the operation and maintenance procedures identified in the continuous emission monitoring system quality assurance/quality control plan. [District Rule 1080 and US EPA and SJVUAPCD Consent Decree Case No. 1:11-cv-00241-LJO-SMS, Section V.13.c, issued February 14, 2011]
23. The plant shall only be fueled by biomass materials listed in the following conditions. [District Rules 2201 and 4102]

CONDITIONS CONTINUE ON NEXT PAGE

24. Allowed fuels: Almond Prunings, Apple Prunings, Apricot Prunings, Cherry Prunings, Citrus Prunings, Fig Prunings, Generic Orchard Prunings, Grape Prunings, Nectarine Prunings, Olive Prunings, Peach Prunings, Pecan Prunings, Pistachio Prunings, Plum Prunings, Walnut Prunings, (continued); [District Rules 2201 and 4102]
25. Allowed fuels: Cedar Bark, Forest Slash/Cull, Hog Fuel (Mill Residue), Sawdust, Construction Wood Waste, Landfill Derived Wood, Landscape Tree Trimmings, Pallet/Bins Wood, Urban Development Clearing Trees, (continued); [District Rules 2201 and 4102]
26. Allowed fuels: Grape Pomace, Olive Pomace, Raisin Pomace, Tomato Pomace, Cherry Pits, Nectarine Pits, Olive Pits, Peach Pits, Prune Pits, Almond Shells, Peanut Shells, Pecan Shells, Pistachio Shells, Walnut Shells, Cotton Stalks, Coffee Grounds, Cotton Gin Trash, Turkey (Wood) Shavings, Ditchbank or Canal Weeds, Tumbleweeds, Alfalfa Straw, Barley Straw, Bean Straw/Stalks, Corn Stalks, Milo Sorghum, Rice Straw, Wheat Straw, Char, or other fuels as approved by the District. [District Rules 2201 and 4102]
27. Urban wood waste (construction and landfill derived wood wastes) is approved as fuel provided the mixed urban wood waste fuel contains less than 1% by weight, of plastic, rubber, metals, roofing felt paper, and other non-wood contaminants (other than dirt or ash). No asbestos-containing materials are approved as fuel. [District Rule 4102]
28. If urban wood wastes have been burned during the 365 day period prior to October 31 of any year, fuel testing shall be conducted by December 31 of that year, as follows: equivalent of one truckload of mixed urban wood waste fuel prepared for combustion in the boiler shall be weighed, dumped, and all contaminants shall be sorted from the fuel, identified (plastic, rubber, metals, roofing felt paper, or other non-wood contaminants) and weighed. The report for this test shall be forwarded to the District by January 31 (one month after fuel testing deadline). [District Rule 4102]
29. The auxiliary burner shall be used during start-up to reach the solid fuel ignition temperature throughout the combustor before feeding any solid fuel. [District Rule 2201]
30. "Startup" is the period of time during which the boiler is heated to operating temperature at steady state load from a lower temperature, not to exceed 96 hours. If curing of the refractory is required after furnace repair or modification, startup time may be extended to no longer than 192 hours. "Shutdown" is the period of time during which the boiler is allowed to cool from its operating temperature at steady state load to a lower temperature, not to exceed 12 hours. [District Rule 4352]
31. Emissions from the fluidized bed combustor unit, except during periods of startup and shutdown, shall not exceed any of the following limits: NO<sub>x</sub> - 14.8 lb/hr or 0.08 lb/MMBtu; SO<sub>x</sub> - 6.48 lb/hr or 0.035 lb/MMBtu; PM<sub>10</sub> - 7.40 lb/hr or 0.04 lb/MMBtu; CO - 10.55 lb/hr or 72 ppmv @ 3% O<sub>2</sub> (equivalent to 0.057 lb/MMBtu); and VOC - 0.93 lb/hr or 0.005 lb/MMBtu. NO<sub>x</sub> (as NO<sub>2</sub>) and CO emission limits are based on 24 hour rolling averages. SO<sub>x</sub> emission limits are based on 1 hour rolling averages. All other emission limits are 15-minute rolling averages. [District Rules 2201, 4352, and 4801]
32. The ammonia (NH<sub>3</sub>) emissions shall not exceed 85 ppmv @ 3% O<sub>2</sub> (equivalent to 0.041 lb/MMBtu) over a 24 hour rolling average. [District Rules 2201 and 4102]
33. Emissions from the auxiliary burner shall not exceed any of the following limits: NO<sub>x</sub> - 0.202 lb/MMBtu; SO<sub>x</sub> - 0.005 lb/MMBtu; PM<sub>10</sub> - 0.006 lb/MMBtu; CO - 0.038 lb/MMBtu; and VOC - 0.003 lb/MMBtu. [District Rules 2201 and 4801]
34. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO<sub>x</sub>, CO, and O<sub>2</sub> analyzer during District inspections. The sampling ports shall be located in accordance with the ARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
35. Source testing to measure the NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, CO, VOC, and NH<sub>3</sub> emission rates (lb/hr and lb/MMBtu or ppmvd @ 3% O<sub>2</sub>) for the fluidized bubbling bed combustor shall be conducted at least once every twelve months. [District Rules 1081 and 4352]
36. All emission measurements shall be made with the unit operating at conditions representative of normal operations. No compliance determination shall be established within two hours after a continuous period in which fuel flow to the unit is zero, or is shut off for 30 minutes or longer. [District Rule 4352]

CONDITIONS CONTINUE ON NEXT PAGE

37. Compliance demonstration (source testing) shall be witnessed or authorized by the District, and samples shall be collected by a certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
38. The following test methods shall be used: NO<sub>x</sub> (ppmv) - EPA Method 7E or ARB Method 100; NO<sub>x</sub> (lb/MMBtu) - EPA Method 19; SO<sub>x</sub> - EPA Method 6 or ARB Method 100; PM<sub>10</sub> - EPA Method 5 (front half and back half) or 201 and 202a; CO (ppmv) - EPA Method 10 or ARB Method 100; CO<sub>2</sub> - EPA Method 3 or ARB Method 100; VOC - EPA Method 18 or 25 or ARB Method 100; stack gas oxygen - EPA Method 3 or 3A or ARB Method 100; ammonia - BAAQMD ST-1B; Stack Gas Flow Rate - EPA Method 2; Moisture Content - EPA Method 4; Fuel Heating Value - ASTM Method D2015-96 or E711-87. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. The request to utilize EPA approved alternative source testing methods must be submitted in writing, and written approval received from the District, prior to the submission of the source test plan. [District Rules 1081, 4001, and 4352]
39. Permittee shall project and use the proper mix of fuels to ensure that actual emissions from this boiler are offset with creditable biomass on a quarterly basis. [District Rule 2201]
40. Open-burning emission factors used to determine the quantity of offsets generated by the diversion of biomass from open-burning are listed in the attachment "Open Burn Emission Factors" (District policy SSP-2005). [District Rule 2201]
41. If quarterly actual NO<sub>x</sub> emissions from this boiler are greater than 5,000 lbs (e.g. 1/4 offset threshold), the emission reduction credit from creditable biomass fuel shall be calculated for NO<sub>x</sub> using the following formula:  $Pq = x * [\text{sum of } j=1 \text{ to } n \text{ for } (B_j) * (EF_j) * (HBF_j) * (QDF_{jq})]$  where: Pq = Pollutant offset credit in lb/qtr = sum of NO<sub>x</sub> emissions from ag waste credit < 15 miles + NO<sub>x</sub> emissions > 15 miles from facility; q = calendar quarter; x = 0.5 for biomass originating > 15 miles and 0.769 for < 15 miles; j = each creditable biomass type; B = tons of biomass type (j) used per quarter; EF = emission factor for particular biomass (from SSP-2005); HBF<sub>j</sub> = Historical Burn Fraction - fraction of biomass type (j) that has been demonstrated to have historically been open field burned (a District approved HBF factor must be used); QDF<sub>jq</sub> = Quarterly Distribution Factor - fraction of burning of biomass (j) which occurs in calendar quarter (q). [District Rule 2201]
42. Permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals; data and magnitude of excess emissions; nature and cause of excess emission (averaging period used for data reporting shall correspond to the averaging period for each respective emission standard); corrective actions taken and preventive measures adopted; applicable time and date of each period during which a CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; a negative declaration when no excess emissions occurred, and reports on opacity monitors giving the number of three minute periods during which the average opacity exceeded the standard for each hour of operation. The average may be obtained by integration over the averaging period or by arithmetically averaging a minimum of four equally spaced instantaneous opacity measurements per minute. Any time exempted shall be considered before determining the excess averages of opacity. [District Rule 1080]
43. Permittee shall maintain accurate records of continuous emissions monitoring (CEM) results, dates of occurrences and duration of start-up, shutdown, malfunction, performance testing, evaluations, calibrations, checks, adjustments, and maintenance, and daily records of propane fuel usage. [District Rules 1080 and 2201]
44. Daily records for each load of creditable biomass received shall be maintained which include the geographic origin (for applicability of distance offset ratio), date, weigh ticket number, supplier name, fuel type, tons received, the distance offset ratio for the load of biomass, and the amount of offset credit (in pounds of NO<sub>x</sub>) attributable to each load of biomass. Records shall include certifications that any creditable biomass for which offset credit is claimed has historically been open burned in the San Joaquin Valley air basin. [District Rule 2201]
45. Any fuel which is not combusted in the boiler within 12 months of delivery to the site shall not have any value for emission credits purposes. [District Rule 2201]
46. Permittee shall submit to the District a quarterly report accounting for the tonnage of agricultural waste eliminated from open field burning and used as plant fuel. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

47. Quarterly report of agricultural waste eliminated from open field burning (to offset NOx emissions) used as fuel at facility shall document the following: historical burn fraction (HBF) and quarterly distribution factor (QDF) for each biomass fuel used to calculate credit; creditable ag waste fuel receipt quantities; if fuel originates > 15 miles from facility, offset credit ratios; emission factors used; and summary of the resultant emissions offsets provided using the calculation above. The report shall be submitted to the District within 30 days of the end of the quarter. [District Rule 2201]
48. The owner/operator shall maintain an operating log that includes the type and quantity of fuel used and the hhv of each fuel as determined by District Rule 4352, section 6.4 (as amended 10/19/95), or as certified by a third party fuel supplier. [District Rule 4352]
49. Records of all maintenance of the baghouse, including all change outs of filter media, shall be maintained. [District Rule 2201]
50. All records shall be maintained for a period of at least five years and made available for District, ARB, or EPA inspection upon request. [District Rules 1070 and 4352]

**Attachment B**  
**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)**

- SIGNIFICANT PERMIT MODIFICATION                       ADMINISTRATIVE  
 MINOR PERMIT MODIFICATION                                       AMENDMENT

COMPANY NAME:	FACILITY ID: <b>N - 4607</b>
1. Type of Organization: <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Sole Ownership <input type="checkbox"/> Government <input type="checkbox"/> Partnership <input type="checkbox"/> Utility	
2. Owner's Name: <b>Global Ampersand, LLC</b>	
3. Agent to the Owner: <b>David Kandolha</b>	

**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:

*David Kandolha*

Signature of Responsible Official

11-15-11

Date

DAVID KANDOLHA

Name of Responsible Official (please print)

MANAGER

Title of Responsible Official (please print)

Attachment C  
Draft ATC

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT

PERMIT NO: N-4607-8-3

LEGAL OWNER OR OPERATOR: MERCED POWER, LLC  
MAILING ADDRESS: P O BOX 298  
CHOWCHILLA, CA 93610

LOCATION: 30 W SANDY MUSH ROAD  
EL NIDO, CA

**EQUIPMENT DESCRIPTION:**

MODIFICATION OF 185 MMBTU/HR ENERGY PRODUCTS OF IDAHO BIOMASS-FIRED BUBBLING FLUIDIZED BED COMBUSTOR WITH ONE 15 MMBTU/HR PROPANE-FIRED AUXILIARY BURNER POWERING A 13 MW STEAM TURBINE GENERATOR, SERVED BY A SELECTIVE NON-CATALYTIC REDUCTION SYSTEM WITH AN AUTOMATED AMMONIA INJECTION SYSTEM, A LIMESTONE INJECTION SYSTEM, AND A GENERAL ELECTRIC BAGHOUSE: CHANGE SOX EMISSION AVERAGING PERIOD FROM ONE HOUR ROLLING AVERAGE TO THREE HOUR ROLLING AVERAGE AND REMOVE PM10 AND VOC 15-MINUTE AVERAGING PERIOD

**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 Rule 2201] 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) N-4607-8-2 shall be implemented concurrently, or prior to the modification and startup of the equipment authorized by this Authority to Construct. [District Rule 2201]
4. 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] Federally Enforceable Through Title V Permit
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 (209) 557-6400 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

N-4607-8-3 : Nov 17 2011 10:36AM -- TOMS : Joint Inspection NOT Required

6. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
7. Operating schedule shall not exceed 345 days per year. [District Rule 2201] Federally Enforceable Through Title V Permit
8. The baghouse shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District Rule 2201] Federally Enforceable Through Title V Permit
9. The differential pressure gauge reading range shall be maintained between 2" and 8.5" water column. [District Rule 2201] Federally Enforceable Through Title V Permit
10. Differential operating pressure shall be monitored and recorded on each day that the baghouse operates. [District Rule 2201] Federally Enforceable Through Title V Permit
11. The baghouse shall be maintained and operated according to manufacturer's specifications. [District Rule 2201] Federally Enforceable Through Title V Permit
12. The baghouse cleaning frequency and duration shall be adjusted to optimize the control efficiency. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Replacement bags numbering at least 10% of the total number of bags in the largest baghouse using each type of bag shall be maintained on the premises. [District Rule 2201] Federally Enforceable Through Title V Permit
14. Material removed from the baghouse shall be disposed of in a manner preventing entrainment into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
15. The applicant shall install and maintain an operational ammonia volume flow-rate indicator for the selective non-catalytic reduction ammonia injection system. [District Rule 2201] Federally Enforceable Through Title V Permit
16. No later than 30 days following restart of the facility, the applicant shall install, maintain, and operate an automated ammonia injection system in the selective non-catalytic reduction (SNCR) system. The automated mode may be overridden by the facility operator as necessary to maintain compliance with the emission limits listed within this permit. [District Rule 1080 and US EPA and SJVUAPCD Consent Decree Case No. 1:11-cv-00241-LJO-SMS, Section V.13.b, issued February 14, 2011] Federally Enforceable Through Title V Permit
17. No later than 90 days following restart of the facility, the applicant shall install, maintain, and operate a stack gas flow monitoring system. [District Rule 1080 and US EPA and SJVUAPCD Consent Decree Case No. 1:11-cv-00241-LJO-SMS, Section V.13.a, issued February 14, 2011] Federally Enforceable Through Title V Permit
18. The permittee shall install, maintain, and operate a continuous emissions monitoring system (CEMS) to measure stack gas NO<sub>x</sub>, SO<sub>x</sub>, CO, and O<sub>2</sub> concentrations and shall meet the performance specification requirements in 40 CFR, Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. The CEMS systems shall also be operated, maintained, and calibrated pursuant to the requirements of 40 CFR 60.7(c) and 40 CFR 60.13. [District Rules 1080, 2201, and 4352] Federally Enforceable Through Title V Permit
19. The permittee shall install, maintain, and operate a continuous opacity monitor (COM) and shall meet the performance specification requirements in 40 CFR, Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rules 1080 and 2201] Federally Enforceable Through Title V Permit
20. The permittee shall install and maintain equipment, facilities, and systems compatible with the District's CEMS data polling software system and shall make CEMS data available to the District's automated polling system on a daily basis. [District Rule 1080] Federally Enforceable Through Title V Permit
21. Upon notice by the District that the facility's CEMS system is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEMS data is sent to the District by a District-approved alternative method. [District Rule 1080] Federally Enforceable Through Title V Permit

DRAFT

CONDITIONS CONTINUE ON NEXT PAGE

22. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080] Federally Enforceable Through Title V Permit
23. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and compliance source testing are both performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080] Federally Enforceable Through Title V Permit
24. Permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080] Federally Enforceable Through Title V Permit
25. Within 90 days following restart of the facility, the CEM system shall be operated and maintained in accordance with the operation and maintenance procedures identified in the continuous emission monitoring system quality assurance/quality control plan. [District Rule 1080 and US EPA and SJVUAPCD Consent Decree Case No. 1:11-cv-00241-LJO-SMS, Section V.13.c, issued February 14, 2011] Federally Enforceable Through Title V Permit
26. The plant shall only be fueled by biomass materials listed in the following conditions. [District Rules 2201 and 4102] Federally Enforceable Through Title V Permit
27. Allowed fuels: Almond Prunings, Apple Prunings, Apricot Prunings, Cherry Prunings, Citrus Prunings, Fig Prunings, Generic Orchard Prunings, Grape Prunings, Nectarine Prunings, Olive Prunings, Peach Prunings, Pecan Prunings, Pistachio Prunings, Plum Prunings, Walnut Prunings, (continued); [District Rules 2201 and 4102] Federally Enforceable Through Title V Permit
28. Allowed fuels: Cedar Bark, Forest Slash/Cull, Hog Fuel (Mill Residue), Sawdust, Construction Wood Waste, Landfill Derived Wood, Landscape Tree Trimmings, Pallet/Bins Wood, Urban Development Clearing Trees, (continued); [District Rules 2201 and 4102] Federally Enforceable Through Title V Permit
29. Allowed fuels: Grape Pomace, Olive Pomace, Raisin Pomace, Tomato Pomace, Cherry Pits, Nectarine Pits, Olive Pits, Peach Pits, Prune Pits, Almond Shells, Peanut Shells, Pecan Shells, Pistachio Shells, Walnut Shells, Cotton Stalks, Coffee Grounds, Cotton Gin Trash, Turkey (Wood) Shavings, Ditchbank or Canal Weeds, Tumbleweeds, Alfalfa Straw, Barley Straw, Bean Straw/Stalks, Corn Stalks, Milo Sorghum, Rice Straw, Wheat Straw, Char, or other fuels as approved by the District. [District Rules 2201 and 4102] Federally Enforceable Through Title V Permit
30. Urban wood waste (construction and landfill derived wood wastes) is approved as fuel provided the mixed urban wood waste fuel contains less than 1% by weight, of plastic, rubber, metals, roofing felt paper, and other non-wood contaminants (other than dirt or ash). No asbestos-containing materials are approved as fuel. [District Rule 4102] Federally Enforceable Through Title V Permit
31. If urban wood wastes have been burned during the 365 day period prior to October 31 of any year, fuel testing shall be conducted by December 31 of that year, as follows: equivalent of one truckload of mixed urban wood waste fuel prepared for combustion in the boiler shall be weighed, dumped, and all contaminants shall be sorted from the fuel, identified (plastic, rubber, metals, roofing felt paper, or other non-wood contaminants) and weighed. The report for this test shall be forwarded to the District by January 31 (one month after fuel testing deadline). [District Rule 4102] Federally Enforceable Through Title V Permit
32. The auxiliary burner shall be used during start-up to reach the solid fuel ignition temperature throughout the combustor before feeding any solid fuel. [District Rule 2201] Federally Enforceable Through Title V Permit
33. "Startup" is the period of time during which the boiler is heated to operating temperature at steady state load from a lower temperature, not to exceed 96 hours. If curing of the refractory is required after furnace repair or modification, startup time may be extended to no longer than 192 hours. "Shutdown" is the period of time during which the boiler is allowed to cool from its operating temperature at steady state load to a lower temperature, not to exceed 12 hours. [District Rule 4352] Federally Enforceable Through Title V Permit

DRAFT

CONDITIONS CONTINUE ON NEXT PAGE

34. Emissions from the fluidized bed combustor unit, except during periods of startup and shutdown, shall not exceed any of the following limits: NO<sub>x</sub> - 14.8 lb/hr or 0.08 lb/MMBtu; SO<sub>x</sub> - 6.48 lb/hr or 0.035 lb/MMBtu; PM<sub>10</sub> - 7.40 lb/hr or 0.04 lb/MMBtu; CO - 10.55 lb/hr or 72 ppmv @ 3% O<sub>2</sub> (equivalent to 0.057 lb/MMBtu); and VOC - 0.93 lb/hr or 0.005 lb/MMBtu. NO<sub>x</sub> (as NO<sub>2</sub>) and CO emission limits are based on 24 hour rolling averages. SO<sub>x</sub> emission limits are based on 3 hour rolling averages. [District Rules 2201, 4352, and 4801]
35. The ammonia (NH<sub>3</sub>) emissions shall not exceed 85 ppmv @ 3% O<sub>2</sub> (equivalent to 0.041 lb/MMBtu) over a 24 hour rolling average. [District Rules 2201 and 4102] Federally Enforceable Through Title V Permit
36. Emissions from the auxiliary burner shall not exceed any of the following limits: NO<sub>x</sub> - 0.202 lb/MMBtu; SO<sub>x</sub> - 0.005 lb/MMBtu; PM<sub>10</sub> - 0.006 lb/MMBtu; CO - 0.038 lb/MMBtu; and VOC - 0.003 lb/MMBtu. [District Rules 2201 and 4801] Federally Enforceable Through Title V Permit
37. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO<sub>x</sub>, CO, and O<sub>2</sub> analyzer during District inspections. The sampling ports shall be located in accordance with the ARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081] Federally Enforceable Through Title V Permit
38. Source testing to measure the NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, CO, VOC, and NH<sub>3</sub> emission rates (lb/hr and lb/MMBtu or ppmvd @ 3% O<sub>2</sub>) for the fluidized bubbling bed combustor shall be conducted at least once every twelve months. [District Rules 1081 and 4352] Federally Enforceable Through Title V Permit
39. All emission measurements shall be made with the unit operating at conditions representative of normal operations. No compliance determination shall be established within two hours after a continuous period in which fuel flow to the unit is zero, or is shut off for 30 minutes or longer. [District Rule 4352] Federally Enforceable Through Title V Permit
40. Compliance demonstration (source testing) shall be witnessed or authorized by the District, and samples shall be collected by a certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
41. The following test methods shall be used: NO<sub>x</sub> (ppmv) - EPA Method 7E or ARB Method 100; NO<sub>x</sub> (lb/MMBtu) - EPA Method 19; SO<sub>x</sub> - EPA Method 6 or ARB Method 100; PM<sub>10</sub> - EPA Method 5 (front half and back half) or 201 and 202a; CO (ppmv) - EPA Method 10 or ARB Method 100; CO<sub>2</sub> - EPA Method 3 or ARB Method 100; VOC - EPA Method 18 or 25 or ARB Method 100; stack gas oxygen - EPA Method 3 or 3A or ARB Method 100; ammonia - BAAQMD ST-1B; Stack Gas Flow Rate - EPA Method 2; Moisture Content - EPA Method 4; Fuel Heating Value - ASTM Method D2015-96 or E711-87. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. The request to utilize EPA approved alternative source testing methods must be submitted in writing, and written approval received from the District, prior to the submission of the source test plan. [District Rules 1081, 4001, and 4352] Federally Enforceable Through Title V Permit
42. Permittee shall project and use the proper mix of fuels to ensure that actual emissions from this boiler are offset with creditable biomass on a quarterly basis. [District Rule 2201] Federally Enforceable Through Title V Permit
43. Open-burning emission factors used to determine the quantity of offsets generated by the diversion of biomass from open-burning are listed in the attachment "Open Burn Emission Factors" (District policy SSP-2005). [District Rule 2201] Federally Enforceable Through Title V Permit
44. If quarterly actual NO<sub>x</sub> emissions from this boiler are greater than 5,000 lbs (e.g. 1/4 offset threshold), the emission reduction credit from creditable biomass fuel shall be calculated for NO<sub>x</sub> using the following formula:  $P_q = x * [\sum_{j=1}^n (B_j) * (EF_j) * (HBF_j) * (QDF_{jq})]$  where:  $P_q$  = Pollutant offset credit in lb/qtr = sum of NO<sub>x</sub> emissions from ag waste credit < 15 miles + NO<sub>x</sub> emissions > 15 miles from facility;  $q$  = calendar quarter;  $x$  = 0.5 for biomass originating > 15 miles and 0.769 for < 15 miles;  $j$  = each creditable biomass type;  $B$  = tons of biomass type ( $j$ ) used per quarter;  $EF$  = emission factor for particular biomass (from SSP-2005);  $HBF_j$  = Historical Burn Fraction - fraction of biomass type ( $j$ ) that has been demonstrated to have historically been open field burned (a District approved HBF factor must be used);  $QDF_{jq}$  = Quarterly Distribution Factor - fraction of burning of biomass ( $j$ ) which occurs in calendar quarter ( $q$ ). [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

45. Permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals; data and magnitude of excess emissions; nature and cause of excess emission (averaging period used for data reporting shall correspond to the averaging period for each respective emission standard); corrective actions taken and preventive measures adopted; applicable time and date of each period during which a CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; a negative declaration when no excess emissions occurred, and reports on opacity monitors giving the number of three minute periods during which the average opacity exceeded the standard for each hour of operation. The average may be obtained by integration over the averaging period or by arithmetically averaging a minimum of four equally spaced instantaneous opacity measurements per minute. Any time exempted shall be considered before determining the excess averages of opacity. [District Rule 1080] Federally Enforceable Through Title V Permit
46. Permittee shall maintain accurate records of continuous emissions monitoring (CEM) results, dates of occurrences and duration of start-up, shutdown, malfunction, performance testing, evaluations, calibrations, checks, adjustments, and maintenance, and daily records of propane fuel usage. [District Rules 1080 and 2201] Federally Enforceable Through Title V Permit
47. Daily records for each load of creditable biomass received shall be maintained which include the geographic origin (for applicability of distance offset ratio), date, weigh ticket number, supplier name, fuel type, tons received, the distance offset ratio for the load of biomass, and the amount of offset credit (in pounds of NO<sub>x</sub>) attributable to each load of biomass. Records shall include certifications that any creditable biomass for which offset credit is claimed has historically been open burned in the San Joaquin Valley air basin. [District Rule 2201] Federally Enforceable Through Title V Permit
48. Any fuel which is not combusted in the boiler within 12 months of delivery to the site shall not have any value for emission credits purposes. [District Rule 2201] Federally Enforceable Through Title V Permit
49. Permittee shall submit to the District a quarterly report accounting for the tonnage of agricultural waste eliminated from open field burning and used as plant fuel. [District Rule 2201] Federally Enforceable Through Title V Permit
50. Quarterly report of agricultural waste eliminated from open field burning (to offset NO<sub>x</sub> emissions) used as fuel at facility shall document the following: historical burn fraction (HBF) and quarterly distribution factor (QDF) for each biomass fuel used to calculate credit; creditable ag waste fuel receipt quantities; if fuel originates > 15 miles from facility, offset credit ratios; emission factors used; and summary of the resultant emissions offsets provided using the calculation above. The report shall be submitted to the District within 30 days of the end of the quarter. [District Rule 2201] Federally Enforceable Through Title V Permit
51. The owner/operator shall maintain an operating log that includes the type and quantity of fuel used and the hhv of each fuel as determined by District Rule 4352, section 6.4 (as amended 10/19/95), or as certified by a third party fuel supplier. [District Rule 4352] Federally Enforceable Through Title V Permit
52. Records of all maintenance of the baghouse, including all change outs of filter media, shall be maintained. [District Rule 2201] Federally Enforceable Through Title V Permit
53. All records shall be maintained for a period of at least five years and made available for District, ARB, or EPA inspection upon request. [District Rules 1070 and 4352] Federally Enforceable Through Title V Permit

DRAFT