



JUL 12 2010

Bob Ellery
Valley Bio-Energy, LLC
1121 K Street
Modesto, CA 95354

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: N-1094135

Dear Mr. Ellery:

Enclosed for your review and comment is the District's analysis of Valley Bio-Energy, LLC's application for an Authority to Construct for a 33 MW (gross) biomass-fired electrical generating station and associated facilities, at 555 Mariposa Rd, Modesto.

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

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Frank DeMaris of Permit Services at (209) 557-6454.

Sincerely,



David Warner
Director of Permit Services

DW: FGD/cm

Enclosures

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



JUL 12 2010

Mike Tollstrup, Chief
Project Assessment Branch
Stationary Source Division
California Air Resources Board
PO Box 2815
Sacramento, CA 95812-2815

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: N-1094135

Dear Mr. Tollstrup:

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JUL 12 2010

Janet Laurain
Adams Broadwell Joseph & Cardoza
601 Gateway Blvd, Suite 1000
South San Francisco, CA 94080

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: N-1094135

Dear Ms. Laurain:

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JUL 1 2 2010

Eric Reimer
Stanislaus Taxpayers Association
1022 Douglass St.
Modesto, CA 95350

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: N-1094135

Dear Mr. Reimer:

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JUL 12 2010

Richard Harriman
1130 L Street, Suite B
Modesto, CA 95354

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: N-1094135

Dear Mr. Harriman:

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Modesto Bee

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

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct to Valley Bio-Energy, LLC for a 33 MW (gross) biomass-fired electrical generating station and associated facilities, at 555 Mariposa Rd, Modesto.

The analysis of the regulatory basis for this proposed action, Project #N-1094135, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 4800 ENTERPRISE WAY, MODESTO, CA 95356.**

San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
33 MW Biomass-Fired Electrical Generating Station

Facility Name:	Valley Bio-Energy	Date:	July 12, 2010
Mailing Address:	1121 K Street Modesto, CA 95354	Engineer:	Frank DeMaris
Contact Person:	Bob Ellery	Lead Engineer:	Nick Peirce
Telephone:	(510) 786-3711		
Fax:	(510) 786-3716		
E-Mail:	bellery@baycityboiler.net		
Application #(s):	N-8095-1-0, '-2-0, '-3-0, '-4-0, '-5-0		
Project #:	N-1094135		
Deemed Complete:	December 11, 2009		

I. Proposal

Valley Bio-Energy ("VBE") requests Authority to Construct (ATC) permits for several new source operations that will be part of a new 33 MW (gross) electrical generating station. These source operations include a biomass fuel receiving, storage, and handling operation, a 402 MMBtu/hr biomass-fired combustor, a trona receiving and storage operation, a flyash storage and load out operation, and a 30,000 gal/min cooling tower. The heat from the combustor will be used to generate steam, which will in turn be used to drive a generator producing up to 30 MW (net) of electrical energy for sale to the Modesto Irrigation District.

II. Rules

- Rule 2201 New and Modified Stationary Source Review Rule (9/21/06)
- Rule 2520 Federally Mandated Operating Permits (6/21/01)
- Rule 2540 Acid Rain Program (11/13/97)
- Rule 2550 Federally Mandated Preconstruction Review for Major Sources of Air Toxics (6/18/98)
- Rule 4001 New Source Performance Standards (4/14/99)
- Rule 4002 National Emissions Standards for Hazardous Air Pollutants (5/20/04)
- Rule 4101 Visible Emissions (2/17/05)
- Rule 4102 Nuisance (12/17/92)
- Rule 4201 Particulate Matter Concentration (12/17/92)
- Rule 4202 Particulate Matter Emission Rate (12/17/92)
- Rule 4203 Particulate Matter Emissions from Incineration of Combustible Refuse (12/17/92)
- Rule 4301 Fuel Burning Equipment (12/17/92)
- Rule 4304 Equipment Tuning Procedures for Boilers, Steam Generators, and Process Heaters (10/19/95)
- 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 Operations for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)
- Rule 4351 Boilers, Steam Generators, and Process Heaters – Phase 1 (8/21/03)
- Rule 4352 Solid Fuel Fired Boilers, Steam Generators, and Process Heaters (5/18/06)
- Rule 4801 Sulfur Compounds (12/17/92)
- Rule 7012 Hexavalent Chromium – Cooling Towers (12/17/92)
- CH&SC 41700 Health Risk Assessment
- CH&SC 42301.6 School Notification
- 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. Location

This facility is located at 555 Mariposa Rd. in Modesto, California. Although this address is shared with Sunopta Asceptic (N-2236), and the two companies have some officers in common, the two facilities are distinguished by having different standard industrial classification codes, so VBE is a new stationary source. The District has determined that VBE is not located within 1,000 feet of the outer boundary of the nearest K-12 school. Therefore, the school notification requirements of California Health & Safety Code 42301.6 do not apply to this application.

IV. Process Description

VBE is a new 33 MW biomass-fired electrical generating station. Permitted operations include the biomass fuel receiving and storage operation, a solid fuel-fired boiler to produce steam for the electrical generator, a trona receiving and storage operation, a fly ash storage and load out operation, and a cooling tower.

Biomass fuel, consisting primarily of agricultural biomass but possibly including urban wood waste, almond shells, and other biomass sources, will be delivered to the site by trucks. These trucks will be unloaded by two truck tippers, one mobile and one fixed. Both truck tippers will be electrically powered to avoid emissions that would come from using internal combustion engines for power. Covered conveyors will transport the fuel from the receiving area to a screen, which will remove oversized fuel pieces, and then into the fuel house. The fuel house will be enclosed on three sides to provide substantial protection from wind erosion that can cause particulate matter to become entrained into the atmosphere. A reclaim conveyor in the fuel house will transfer the fuel to other enclosed conveyors for transfer to the fuel metering system and fuel charging hopper, which controls fuel feed to the combustor.

The combustor is a stoker-type unit, meaning that fuel is burned on a grate as opposed to being burned in suspension or in a fluidized bed. The combustor is equipped with a Detroit Stoker Company vibrating grate, upon which fuel from the charging hopper is spread using a number of distribution devices. The vibrating grate consists of a series of grate elements in a horizontal arrangement. Half of the horizontal grate elements are fixed and half oscillate to move fuel along the grates toward the ash discharge. Combustion air is fed into the combustion chamber through ports located under each grate section, while over fire air enters the combustion chamber through additional ports spaced around the combustion chamber and arranged to ensure optimal mixing and complete combustion. Bottom ash, essentially all unburned fuel residue that is too massive to become entrained in the flue gas as fly ash, is removed from the stoker grate at the opposite end from the fuel charging hopper. Pursuant to the source category description presented in Section 2.2 of *Emission Factor Documentation for AP-42 Section 1.1: Bituminous and Subbituminous Coal Combustion* (where much of the information on solid fuel-fired boilers is available), this unit is classified as a spreader stoker.

For startup operations, the combustor is equipped with two 62.5 MMBtu/hr natural gas-fired startup burners. These are used to gradually heat the boiler when starting back up, in order to ensure the unit is not physically damaged by heat stresses, and to bring the combustion chamber up to sufficiently high temperature to allow the biomass fuel to ignite. Once the biomass fuel is ignited, the combustor will be gradually transitioned to firing exclusively on biomass fuel. The startup burners will also be utilized to complete combustion of any remaining solid fuel residue when shutting the unit down.

Emissions from the combustor will be controlled by a variety of mechanisms, which are detailed in Section VI of this document. Fly ash removed from the flue gas by the electrostatic precipitator (ESP) and multiclone (multiple parallel cyclones) will be continuously routed to the fly ash storage silo by a drag chain conveyor. This feature consists of a rigid tube with a continuous chain running through it; the chain is equipped with paddles that fill the full diameter

of the tube. Fly ash enters the tube and is pushed along by the paddles until it can exit through an opening in the bottom of the tube where it passes through the silo. The drag-chain conveyor tube continues through the silo and back to the multiclone to complete the loop. Fly ash will be periodically loaded out from the silo into trucks for sale as a commodity. Load out will be accomplished through a screw conveyor, with the fly ash wetted in the conveyor to reduce PM₁₀ emissions.

SO_x and acid gas emissions from the combustor will be controlled using trona injection. Trona is a mined mineral form of sodium carbonate and is received at the site as a coarse powder delivered by trucks, which are unloaded to the trona storage silo by screw conveyor. Trona from the silo is routed by enclosed conveyor to an enclosed pulverizer, where the coarse powder is ground to a fine dust to maximize the surface area. Trona is then injected pneumatically into the flue gas immediately downstream of the combustion chamber, where it reacts with SO_x and other acidic gases such as hydrogen chloride (HCl). The resulting sulfate particulate is then readily removed in the multiclone and ESP.

Finally, the combustor is served by a steam generator with a 30,000 gal/min cooling tower served by a drift eliminator. Water is routed through the combustion chamber in water tubes, allowed to flash to steam in the steam generator and then passed through a turbine connected to an electrical generator to make electricity. Spent steam is then condensed in a heat exchanger/condenser and returned to the boiler. Water on the other side of the heat exchanger/condenser is routed to the cooling tower in a secondary loop.

V. Equipment Listing

Pre-Project Equipment Description:

This is a new stationary source, so there is no pre-project equipment to describe.

Post-Project Equipment Description:

N-8095-1-0: BIOMASS FUEL RECEIVING, SCREENING, HANDLING, AND STORAGE OPERATION CONSISTING OF TWO TRUCK DUMPERS, FUEL SIZING SCREEN, OUTDOOR OVERFLOW FUEL STORAGE PILES, AND SEMI-ENCLOSED COVERED FUEL STORAGE BUILDING

N-8095-2-0: 402 MMBTU/HR MCBURNEY CORPORATION BIOMASS-FIRED BOILER WITH DETROIT STOKER VIBRATING GRATE FEEDER DRIVING A 33 MW (GROSS) ELECTRICAL GENERATING TURBINE AND SERVED BY BAY CITY BOILER SELECTIVE NON-CATALYTIC REDUCTION (SNCR) SYSTEM, PPC INDUSTRIES MODEL T-200 DRY POWDER SCRUBBER WITH TRONA INJECTION, MULTICLONE AND ESP, AND PPC INDUSTRIES MODEL NO2-450-OC SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM

N-8095-3-0: TRONA RECEIVING AND STORAGE SYSTEM WITH ENCLOSED SCREW CONVEYOR, 10,800 GALLON STORAGE SILO, AND BIN VENT FILTER

N-8095-4-0: FLYASH RECEIVING, STORAGE, AND LOAD OUT OPERATION WITH ENCLOSED DRAG CHAIN CONVEYOR, 11,000 GALLON STORAGE SILO WITH BIN VENT FILTER, AND WET SCREW CONVEYOR FOR TRUCK LOAD OUT

N-8095-5-0: 30,000 GALLON PER MINUTE CLOSED-LOOP THREE CELL COOLING TOWER WITH DRIFT ELIMINATOR

VI. Emission Control Technology Evaluation

The combustion of biomass fuel in permit unit 2 will result in emissions of NO_x, SO_x, PM₁₀, CO, and VOC, while ammonia injection will result in ammonia “slip” emissions. Operation of the other permit units will result in emissions of PM₁₀.

N-8095-1-0:

PM₁₀ emissions from the fuel receiving, handling, and storage operation will be controlled in a variety of ways. When the fuel trucks are being unloaded, wet suppression will be utilized to minimize fugitive PM₁₀ emissions, while enclosed conveyors and the three-sided fuel house will provide considerable protection from wind erosion that would otherwise entrain dust into the atmosphere. VBE anticipates that the majority of its biomass fuel will be received on essentially a “just in time” basis and then stored within the three-sided fuel house, which is 300 ft in length and 65 ft in width. However, VBE also proposes that intermittent outside uncovered storage of excess biomass fuel be permitted in order to accommodate surges in fuel delivery; this fuel will be watered when necessary to prevent visible emissions.

N-8095-3-0:

PM₁₀ emissions from the trona receiving operation will be controlled by a bin vent filter on the storage silo, while total enclosure of the trona conveying, pulverizing, and injection system will prevent further emissions beyond the storage silo.

N-8095-4-0:

PM₁₀ emissions from the fly ash storage silo will be controlled by a bin vent filter. Since fly ash load out presents another emission point, potential emissions from load out will be controlled by use of an enclosed screw conveyor with the fly ash wetted along the way.

N-8095-5-0:

The cooling tower also has the potential to emit PM₁₀, as solids dissolved in the secondary cooling water (measured as Total Dissolved Solids, or TDS) become entrained in the atmosphere when the cooling water evaporates. A drift eliminator, essentially a mechanical separator forcing the cooling tower exhaust through several course changes, will be used on the cooling tower to minimize these emissions. The course changes cause the bulk of entrained cooling water to impact the drift eliminator walls and drip down into the cooling tower catch basin with the rest of the cooling water. The “drift rate” is a design parameter that expresses the proportion of the potential PM₁₀ emissions that will actually make it past the drift eliminator and become entrained in the atmosphere, in this case 0.0005%.

N-8095-2-0, SO_x:

SO_x emissions from fuel combustion are almost exclusively the result of fuel-bound sulfur being oxidized in the combustion process. VBE proposes to control SO_x emissions using a dry powder trona injection system. The trona powder adsorbs the gaseous SO₂ or SO₃, reacting with it to produce a sulfate that can be removed from the flue gas with the rest of the PM₁₀. Trona also has a similar affect on other acid gases, particularly HCl.

N-8095-2-0, PM₁₀:

PM₁₀ emissions from the combustor will be controlled using a combination of a multiclone and an ESP. In a multiclone, the flue gas is routed through several drastic course changes which cause suspended particulate matter to collide with the multiclone walls and fall out of suspension. In an ESP, the flue gas passes through the corona induced by an array of charged wires. Passing through the corona induces a charge on the particulate matter within the flue gas, which causes the particle to be drawn in the direction of an oppositely-charged collector plate, which it impacts and adheres to. When enough material has been collected, the plates are rapped to cause the collected dust to fall off into a collection hopper.

N-8095-2-0, CO and VOC:

CO and VOC emissions from the combustor are primarily the result of incomplete combustion. However, highly efficient combustion that minimizes CO and VOC emissions also tends to maximize NO_x emissions. VBE has proposed to control CO and VOC emissions using proper combustion supplemented by an oxidation catalyst. This catalyst uses excess oxygen in the flue gas to oxidize CO and VOC to CO₂ and gaseous H₂O.

N-8095-2-0, NO_x:

Any operation that combusts fuel has the potential to result in NO_x emissions, which can come from the oxidation of fuel-bound nitrogen ("fuel NO_x") or from the oxidation of nitrogen in the combustion air ("thermal NO_x"). Fuel NO_x is largely, although not directly, proportional to the fuel nitrogen content, and therefore essentially fixed in the design phase. Thermal NO_x is a function of several variables, including peak combustion temperature, the residence time at peak temperature, nitrogen concentration, and oxygen concentration or flame stoichiometry. Combustion modifications can be useful in adjusting these variables by reducing the peak temperature, nitrogen concentration, and stoichiometry. For example, by injecting some combustion air below the grate and the rest of the combustion air through the over fire air ports above the grate, the combustion zone can be expanded and the peak temperature reduced.

NO_x can also be controlled using add-on control devices such as selective non-catalytic reduction (SNCR) or selective catalytic reduction (SCR). These techniques are similar in that they inject ammonia or urea into the flue gas in order to reduce NO_x to molecular nitrogen and water. SNCR requires high temperatures, between 1600 °F and 2100 °F, while SCR uses a catalyst to allow the same reaction to take place between 480 °F and 800 °F. SNCR has been used on biomass-fired boilers since the mid-1980s, so this control technology is well-known and widely applied. SCR is a well-known technology for controlling NO_x from gaseous or liquid fuel-fired boilers, but has only recently been applied to solid fuel-fired units. VBE proposes to use both SNCR and SCR for controlling NO_x emissions, a combination that has been utilized in limited research and demonstration projects.

Evaluation Period:

As mentioned previously, combination or hybrid SNCR/SCR systems have been demonstrated in practice, but with a focus on minimizing ammonia slip and reagent use. VBE’s proposal to use both SNCR and SCR to control NO_x emissions from this boiler provides an opportunity to determine the lowest achievable emission rate that is appropriate for this combination of controls. Since the District is in “extreme” non-attainment of the ozone National Ambient Air Quality Standard (NAAQS), and since the 2007 Ozone Attainment Plan puts a premium on NO_x emission reductions, the District has recently allowed sources proposing novel NO_x control techniques an evaluation period in which to establish the lowest achievable emission rate for their NO_x controls.

Therefore, the District has determined that VBE will be allowed a 12-month evaluation period in which to demonstrate that compliance with the target NO_x emission limit can be achieved, or that the target NO_x emission limit is not achievable. The target NO_x limit is 0.012 lb/MMBtu, established as a technologically feasible emission limit in project C-1090203. In addition, a firm NO_x emission limit of 0.065 lb/MMBtu will be established; any emissions in excess of the firm limit will be subject to enforcement action. At the end of the evaluation period, the District will review the operational and emissions data to determine whether reasonably consistent compliance with the target limit has been demonstrated; VBE will then be required to submit an ATC application to modify the permit and establish the firm emission limit associated with the combination of SNCR and SCR.

Commissioning Period:

Power plant construction typically occurs in multiple phases, each of which is followed by a period of testing and calibration for the equipment just constructed or installed. VBE has not proposed a commissioning period for this power plant, as they anticipate proceeding from initial startup to full production in no more than one month. As this “commissioning period” is less than the normal source testing window of 60 days from initial startup, and much less than the window in the applicable New Source Performance Standard, no formal commissioning period is requested or required.

Table 1 shows the proposed control devices, target emission limit (if applicable), and firm emission limit for each pollutant:

Table 1: Boiler Emission Control Device Summary			
Pollutant	Control Device(s)	Limits (lb/MMBtu)	
		Target	Firm
NO _x	Proper combustion, SNCR, SCR	0.012	0.065
PM ₁₀	Multiclone, ESP	N/A	0.024
SO _x	Trona injection	N/A	0.012
CO	Proper combustion, oxidation catalyst	N/A	0.056
VOC	Proper combustion, oxidation catalyst	N/A	0.005

VII. General Calculations

A. Assumptions

- NO_x emissions will be less than 20,000 lb/yr to avoid offsets (applicant)
- PM₁₀ emissions will be less than 29,200 lb/yr to avoid offsets (applicant)
- O₂ F-Factor for biomass combustion is 9,100 dscf/MMBtu (corrected to 60 °F)
- CO₂ F-Factor for biomass combustion is 1,802 dscf/MMBtu (corrected to 60 °F)
- Biomass fuel receiving is 881 ton/day (applicant)
- Trona receiving is 20 ton/day (applicant)
- Ash silo filling and load out is 120 ton/day and 42,000 ton/yr (applicant)
- Outside fuel storage is no more than 5 acres (applicant)
- Cooling tower air flow is 1,080,000 acfm per cell (applicant)
- TDS in cooling tower water is 1,100 mg/L
- Other assumptions will be stated as they are made

B. Emission Factors

VBE has proposed certain emission factors for the combustor associated with this application, as presented in Table 2. In addition, the applicant has proposed emission factors for the other permit units based on EPA document AP-42, *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources*.

N-8095-1:

For the biomass fuel receiving operation, VBE has proposed to use an emission factor based on the drop equation in AP-42 Ch.13.2.4.

$EF = (k) \times (0.0032) \times (U/5)^{1.3} \div (M/2)^{1.4}$ where:
k = 0.35, (particle size factor for PM₁₀ from AP-42, Chapter 13.2.4)
U = 6.42 mi/hr, (average wind speed, Modesto City Airport meteorological station)
M = 30%, (applicant's stated moisture content¹)

Therefore,

$$EF = (0.35) \times (0.0032) \times (6.42/5)^{1.3} \div (30/2)^{1.4} = 0.000035 \text{ lb-PM}_{10}/\text{ton}$$

This emission factor calculated above is an uncontrolled factor for PM₁₀ emissions from a single drop. VBE indicates the worst-case scenario is for the fuel to experience two truck unloading drops (controlled with water sprays for 25% control efficiency (CE)), four front end loader drops (controlled with water sprays for 25% CE), four biomass conveyor drops (controlled by enclosed conveyors for 90% CE), and two biomass reclaimer drops

¹ AP-42 states that the predictive equation retains a data quality rating of "A" (best quality) if applied within the range of source conditions that were tested in developing the equation. One of these source conditions is maximum moisture content of 4.8%. However, the higher moisture does not invalidate the equation, but merely reduces the quality rating. This has been done in other recent projects as well, such as C-1090203.

(controlled by the three-sided fuel house for 80% CE). Each of these drop points is a separate emissions unit for the purpose of triggering BACT, but the combined effect of all these emission points can be calculated as follows:

$$EF_{\text{combined}} = (0.000035 \text{ lb-PM}_{10}/\text{ton}) \times [(2) \times (1 - 0.25) + (4) \times (1 - 0.25) + (4) \times (1 - 0.9) + (2) \times (1 - 0.8)]$$
$$EF_{\text{combined}} = (0.000035 \text{ lb-PM}_{10}/\text{ton}) \times [5.3] = 0.00019 \text{ lb-PM}_{10}/\text{ton}$$

VBE anticipates that the majority of its biomass fuel will be received and then stored within the three-sided fuel house, but also proposes that intermittent outside uncovered storage of excess biomass fuel be permitted. Emissions from the storage piles can be estimated using a default industrial wind erosion emission factor from the ARB Training Manual on Aggregate Plants. Since this emission factor is for generic aggregate, while the fuel comes preprocessed and screened to remove fines, it is expected that this emission factor will be conservative. The inherent moisture content of the biomass fuel, supplemented by water sprays as necessary to prevent visible emissions, is expected to provide 90% control efficiency as described in AP-42 Section 11.19.1. Visible emissions will be limited to 5% opacity to enforce this control efficiency.

$$EF = (1.7 \text{ lb/acre-day}) \times (1 - 0.9) = 0.17 \text{ lb/acre-day}$$

N-8095-2

Although VBE has proposed emission factors for all affected pollutants expressed in lb/MMBtu, the ammonia slip is expressed as 50 ppmvd @ 3% O₂ and must be converted to the more useful form as follows:

$$EF = (50/10^6) \times (17 \text{ lb/lb-mol}) \times (9,100 \text{ dscf/MMBtu}) \times (20.95 \div (20.95 - 3.0)) \div (379.5 \text{ dscf/lb-mol})$$
$$EF = 0.024 \text{ lb/MMBtu}$$

In addition, the proposed NO_x emission limit for the startup burners must also be converted to the more useful form using the 8,578 dscf/MMBtu F-Factor specified for gaseous fuels:

$$EF = (80/10^6) \times (46 \text{ lb/lb-mol}) \times (8,578 \text{ dscf/MMBtu}) \times (20.95 \div (20.95 - 3.0)) \div (379.5 \text{ dscf/lb-mol})$$
$$EF = 0.097 \text{ lb/MMBtu}$$

The dry powder trona injection system is technically part of this permit unit, but this system (including the pulverizer) is fully enclosed so there are no emissions from the trona injection system.

As noted above, VBE is being granted a 12-month evaluation period in which to demonstrate compliance with the target NO_x emission limits. The firm NO_x emission limit will be enforced, and all NO_x emission calculations and NSR requirements will be evaluated based on the firm limit.

N-8095-3

No emission factor exists specifically for trona receiving. However, since the trona is received in a coarse powder form, at an assumed moisture content of 0.25%, and is transferred through a screw conveyor from the truck to the top of the silo and then dropped in (with emissions controlled by a bin vent filter for 99% CE), the drop equation can be used to estimate an emission factor:

$$EF = (0.35) \times (0.0032) \times (6.42/5)^{1.3} \div (0.25/2)^{1.4} = 0.028 \text{ lb-PM}_{10}/\text{ton}$$

Therefore, the controlled emission factor is

$$EF = (0.028 \text{ lb-PM}_{10}/\text{ton}) \times (1 - 0.99) = 0.00028 \text{ lb-PM}_{10}/\text{ton}$$

N-8095-4

Ash collected by the multiclone and ESP is conveyed to the ash silo by a fully-enclosed drag chain conveyor. PM₁₀ emissions from silo filling will be controlled by a bin vent filter of 99% CE. The emission factor is calculated from the drop equation using the same variables as for the trona receiving operation, so the uncontrolled emission factor for silo filling is also 0.028 lb-PM₁₀/ton.

$$EF_{\text{filling}} = (0.028 \text{ lb-PM}_{10}/\text{ton}) \times (1 - 0.99) = 0.00028 \text{ lb-PM}_{10}/\text{ton}$$

For fly ash load out, the ash is wetted while it is travelling through the screw conveyor. In the engineering evaluation for project C-1090203 the District found that a moisture content of 7% for wetted fly ash was reasonable; for the current application a more conservative moisture content of 4.8% will be assumed for use in the equation:

$$EF_{\text{load out}} = (0.35) \times (0.0032) \times (6.42/5)^{1.3} \div (4.8/2)^{1.4} = 0.00046 \text{ lb-PM}_{10}/\text{ton}$$

The combined emission factor is the sum of the filling and load out emission factors:

$$EF = (0.00028 \text{ lb/ton}) + (0.00046 \text{ lb/ton}) = 0.00074 \text{ lb-PM}_{10}/\text{ton}$$

Emission factors for all proposed emission sources are summarized in Table 2:

Table 2: Emission Factors				
Permit Unit	Emission Unit	Pollutant	EF	Source
N-8095-1	Receiving	PM ₁₀	0.00019 lb/ton	AP-42, 13.2.4
	Storage piles	PM ₁₀	0.17 lb/acre-day	ARB Manual
N-8095-2	Boiler	NO _x	0.065 lb/MMBtu	Applicant
		SO _x	0.012 lb/MMBtu	Applicant
		PM ₁₀	0.024 lb/MMBtu	Applicant
		CO	0.046 lb/MMBtu	Applicant
		VOC	0.005 lb/MMBtu	Applicant
		NH ₃	0.024 lb/MMBtu	Applicant
	Startup burners	NO _x	0.097 lb/MMBtu	Applicant
		SO _x	0.00285 lb/MMBtu	APR-1720
		PM ₁₀	0.0076 lb/MMBtu	AP-42 Table 1.4-1
		CO	0.084 lb/MMBtu	AP-42 Table 1.4-1
		VOC	0.0055 lb/MMBtu	AP-42 Table 1.4-1
NH ₃	0.024 lb/MMBtu	Applicant		
N-8095-3	Trona receiving	PM ₁₀	0.00028 lb/ton	AP-42 Chapter 13.2.4
N-8095-4	Fly ash	PM ₁₀	0.00074 lb/ton	AP-42 Chapter 13.2.4
N-8095-5	Cooling tower	PM ₁₀	1,100 mg/L	Applicant

C. Emission Calculations

1. Pre-Project Potential to Emit (PE1)

The proposed emission units are all new units. Therefore, PE1 = 0 for all emission units and for all pollutants.

2. Post-Project Potential to Emit (PE2)

PE2 is calculated as follows and summarized in Tables 3 and 4.

N-8095-1 (all PM₁₀):

$$PE2 = (0.00019 \text{ lb/ton}) \times (881 \text{ ton/day}) = 0.2 \text{ lb/day}$$

$$PE2 = (0.2 \text{ lb/day}) \times (365 \text{ day/yr}) = 73 \text{ lb/yr}$$

In addition, the 5 acres of outside storage piles have the following potential emissions:

$$PE2 = (5 \text{ acre}) \times (0.17 \text{ lb/acre-day}) = 0.9 \text{ lb/day}$$

$$PE2 = (0.9 \text{ lb/day}) \times (365 \text{ day/yr}) = 329 \text{ lb/yr}$$

N-8095-2:

NO_x emissions are calculated based on the firm emission limit as explained above. Annual NO_x and PM₁₀ emissions are limited by the applicable SLCs and therefore will not be calculated from daily emissions as is the case for the other pollutants.

$$\begin{aligned} PE2_{NO_x} &= (0.065 \text{ lb/MMBtu}) \times (402 \text{ MMBtu/hr}) \times (24 \text{ hr/day}) = 627.1 \text{ lb/day} \\ PE2_{NO_x} &= 19,999 \text{ lb/yr} \end{aligned}$$

$$\begin{aligned} PE2_{SO_x} &= (0.012 \text{ lb/MMBtu}) \times (402 \text{ MMBtu/hr}) \times (24 \text{ hr/day}) = 115.8 \text{ lb/day} \\ PE2_{SO_x} &= (115.8 \text{ lb/day}) \times (365 \text{ day/yr}) = 42,267 \text{ lb/yr} \end{aligned}$$

$$\begin{aligned} PE2_{PM_{10}} &= (0.024 \text{ lb/MMBtu}) \times (402 \text{ MMBtu/hr}) \times (24 \text{ hr/day}) = 231.6 \text{ lb/day} \\ PE2_{PM_{10}} &= 29,999 \text{ lb/yr} \end{aligned}$$

$$\begin{aligned} PE2_{CO} &= (0.046 \text{ lb/MMBtu}) \times (402 \text{ MMBtu/hr}) \times (24 \text{ hr/day}) = 443.8 \text{ lb/day} \\ PE2_{CO} &= (443.8 \text{ lb/day}) \times (365 \text{ day/yr}) = 161,987 \text{ lb/yr} \end{aligned}$$

$$\begin{aligned} PE2_{VOC} &= (0.005 \text{ lb/MMBtu}) \times (402 \text{ MMBtu/hr}) \times (24 \text{ hr/day}) = 48.2 \text{ lb/day} \\ PE2_{VOC} &= (48.2 \text{ lb/day}) \times (365 \text{ day/yr}) = 17,593 \text{ lb/yr} \end{aligned}$$

$$\begin{aligned} PE2_{NH_3} &= (0.024 \text{ lb/MMBtu}) \times (402 \text{ MMBtu/hr}) \times (24 \text{ hr/day}) = 231.6 \text{ lb/day} \\ PE2_{NH_3} &= (231.6 \text{ lb/day}) \times (365 \text{ day/yr}) = 84,534 \text{ lb/yr} \end{aligned}$$

Alternatively, this boiler will operate using two natural gas-fired startup burners, each rated at 62.5 MMBtu/hr, during startup and shutdown operations. Potential emissions from these burners, as an alternative to biomass-firing, are calculated as follows:

$$\begin{aligned} PE2_{NO_x} &= [(0.097 \text{ lb/MMBtu}) \times (2 \text{ hr/day}) + (0.097 \text{ lb/MMBtu}) \times (22 \text{ hr/day}) \times (1 - 0.9)] \times \\ &\quad (2 \times 62.5 \text{ MMBtu/hr}) \\ PE2_{NO_x} &= 50.9 \text{ lb/day} \end{aligned}$$

Note that the above calculation allows the normal default startup period of 2 hours for gaseous fuel-fired boilers, during which time NO_x emissions from the startup burners are uncontrolled; however, when the flue gas reaches the correct temperature for the SCR system, operation of the SCR will reduce NO_x emissions by approximately 90%, and it is assumed this would be the case for the remaining 22 hours of the day.

$$PE2_{SO_x} = (0.00285 \text{ lb/MMBtu}) \times (2 \times 62.5 \text{ MMBtu/hr}) \times (24 \text{ hr/day}) = 8.6 \text{ lb/day}$$

$$PE2_{PM_{10}} = (0.0076 \text{ lb/MMBtu}) \times (2 \times 62.5 \text{ MMBtu/hr}) \times (24 \text{ hr/day}) = 22.8 \text{ lb/day}$$

$$PE2_{CO} = (0.084 \text{ lb/MMBtu}) \times (2 \times 62.5 \text{ MMBtu/hr}) \times (24 \text{ hr/day}) = 252.0 \text{ lb/day}$$

$$PE2_{VOC} = (0.0055 \text{ lb/MMBtu}) \times (2 \times 62.5 \text{ MMBtu/hr}) \times (24 \text{ hr/day}) = 16.5 \text{ lb/day}$$

$$PE2_{NH_3} = (0.0095 \text{ lb/MMBtu}) \times (2 \times 62.5 \text{ MMBtu/hr}) \times (24 \text{ hr/day}) = 28.5 \text{ lb/day}$$

It is noted that in all cases the uncontrolled potential daily emissions from the startup burners is less than the corresponding potential emissions from the combustion of biomass. Furthermore, the use of the startup burners will be discontinued when biomass combustion is proceeding on its own in a stable fashion, which will be well before the maximum heat input rate with biomass fuel is achieved. Therefore, the potential emissions during startup and shutdown are less than the potential daily emissions based on biomass firing and do not need to be tracked separately.

N-8095-3 (all PM₁₀):

$$PE2 = (0.00028 \text{ lb/ton}) \times (20 \text{ ton/day}) = 0.0 \text{ lb/day}$$

$$PE2 = (0.00028 \text{ lb/ton}) \times (20 \text{ ton/day}) \times (365 \text{ day/yr}) = 2 \text{ lb/yr}$$

N-8095-4 (all PM₁₀):

$$PE2 = (0.00074 \text{ lb/ton}) \times (120 \text{ ton/day}) = 0.1 \text{ lb/day}$$

$$PE2 = (0.00074 \text{ lb/ton}) \times (42,000 \text{ ton/yr}) = 31 \text{ lb/yr}$$

N-8095-5 (all PM₁₀):

Cooling tower emissions are calculated based on the design drift rate of 0.0005%.

$$PE2 = (1,100 \text{ mg/L}) \times (1 \text{ lb}/453.6 \text{ g}) \times (1 \text{ g}/1,000 \text{ mg}) \times (3.785 \text{ L/gal}) \times (30,000 \text{ gal/min})$$

$$\times (1,440 \text{ min/day}) \times (0.000005)$$

$$PE2 = 2.0 \text{ lb/day}$$

$$PE2 = (2.0 \text{ lb/day}) \times (365 \text{ day/yr}) = 730 \text{ lb/yr}$$

Table 3: PE2 (lb/day)							
Unit	Process	NO _x	SO _x	PM ₁₀	CO	VOC	NH ₃
N-8095-1	Receiving	0	0	0.2	0	0	0
	Storage	0	0	0.9	0	0	0
N-8095-1 (total)		0	0	1.1	0	0	0
N-8095-2	Combustor	627.1	115.8	231.6	443.8	48.2	91.7
N-8095-3	Trona	0	0	0.0	0	0	0
N-8095-4		0	0	0.1	0	0	0
N-8095-5	Tower	0	0	2.0	0	0	0

Table 4: PE2 (lb/yr)							
Unit	Process	NO _x	SO _x	PM ₁₀	CO	VOC	NH ₃
N-8095-1	Receiving	0	0	73	0	0	0
	Storage	0	0	329	0	0	0
N-8095-1 (total)		0	0	402	0	0	0
N-8095-2	Combustor	19,999	42,267	29,199²	161,987	17,593	33,471
N-8095-3	Trona	0	0	2	0	0	0
N-8095-4		0	0	31	0	0	0
N-8095-5	Tower	0	0	730	0	0	0

² Assumes combustor might emit up to the PM₁₀ SLC; actual PM₁₀ from the entire plant will not exceed the SLC.

3. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's Permit Administration System emissions profile screen. Detailed QNEC calculations are included in Appendix H.

D. Stationary Source Calculations

1. 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. Since VBE is a new stationary source, SSPE1 = 0 for all pollutants.

2. 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. However, since VBE is a new stationary source, no ERC exist to add into the SSPE2 calculation. Further, SSPE2 for NO_x and PM₁₀ is limited by the SLC for each pollutant, so emissions from all permit units is aggregated as a single entry. SSPE2 is calculated in Table 5.

Unit	NO _x	SO _x	PM ₁₀	CO	VOC
N-8095-1	19,999	0	29,199	0	0
N-8095-2		42,267		161,987	17,593
N-8095-3		0		0	0
N-8095-4		0		0	0
N-8095-5		0		0	0
SSPE2	19,999	42,267	29,199	161,987	17,593

It must be noted that VBE has proposed to comply with the NO_x SLC regardless of the ultimate emission limit the District determines to be applicable.

3. Major Source Determination

Pursuant to Section 3.24 of District Rule 2201, a Major Source is a stationary source with post-project emissions, or 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."

Unit	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE2	19,999	42,267	29,199	161,987	17,593
Major Source Threshold	50,000	140,000	140,000	200,000	50,000
Major Source?	No	No	No	No	No

As shown in Table 6, VBE is not a major stationary source for any pollutant. No further discussion is required.

Effective July 15, 2008 the District was required to implement the requirements of Title 40, Code of Federal Regulations, Part 51 for PM_{2.5}; under these requirements a major source of PM_{2.5} is defined as one with the potential to emit 100 ton/yr (200,000 lb/yr) or more of PM_{2.5}. Since PM_{2.5} is a subset of PM₁₀, it is evident that SSPE2 for PM_{2.5} emissions is also less than or equal to 29,199 lb/yr; since the major source threshold for PM_{2.5} is 200,000 lb/yr this facility is not a major source for PM_{2.5}. Moreover, even if the SLC were not present, the sum of PM₁₀ PE2 across all permit units is 234.7 lb/day, equivalent to 85,666 lb/yr. Since this is less than 200,000 lb/yr it reinforces the fact that PM_{2.5} emissions will be less than 200,000 lb/yr. No further discussion is required, and PM_{2.5} emissions will not be further discussed in this evaluation.

4. Baseline Emissions

Pursuant to District Rule 2201, Section 3.7, BE for any pollutant is equal to the pre-project potential to emit for any emissions unit located at a non-major source. As shown in Section VII.D.3 of this document, this facility is not a major source for any affected pollutant. Therefore, BE = PE1 for all emissions units and all pollutants.

5. Major Modification

Major Modification is defined in 40 CFR Part 51.165 as "*any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act.*" As shown in Section VII.D.3 of this document, this facility is not a major source for any pollutant; therefore, it cannot undergo a major modification, and no further discussion is required.

6. Federal Major Modification

As shown above, this project does not constitute a Major Modification. Therefore, in accordance with District Rule 2201, Section 3.17, this project does not constitute a Federal Major Modification and no further discussion is required.

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following³:

- 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.

VBE's proposal consists exclusively of new emissions units, and does not include any modifications or relocations of emissions units. As shown in Section VII.D.5, the current proposal does not constitute a major modification.

As shown in Section VII.C.2, PE2 exceeds 2.0 lb/day for all pollutants emitted by the combustor in permit unit 2; however, SSPE2 for CO is less than 200,000 lb/yr. PE2 for every other permit unit, and therefore for each emissions unit within those other permit units, is less than or equal to 2.0 lb/day, so BACT is not required for any emissions unit in permit units N-8095-1-0, '-3-0, '-4-0, and '-5-0. BACT is required for NO_x, SO_x, PM₁₀, and VOC emissions from the combustor in permit unit 2.

2. BACT Guideline

Emissions from the combustor are covered by BACT Guideline 1.3.2 for biomass-fired boilers with heat input sufficient to support 10 MW of electrical generation.

³ 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.

3. BACT Determination

As shown in the Top-Down BACT Determination included in Appendix B of this document, BACT is satisfied by the following:

N-8095-2:

- NO_x: SNCR and SCR for a firm steady-state emission limit of 0.065 lb/MMBtu and a target steady-state emission limit of 0.012 lb/MMBtu
- SO_x: Dry sorbent injection for a steady-state emission limit of 0.012 lb/MMBtu
- PM₁₀: Multiclone and ESP for a steady-state emission limit of 0.024 lb/MMBtu
- VOC: Oxidation catalyst for a steady-state emission limit of 0.005 lb/MMBtu

While the BACT requirements specified above for NO_x, SO_x, and VOC are technologically feasible limits and controls proposed by VBE, the District has also surveyed existing biomass-fired boilers and determined that a PM₁₀ emission limit of 0.024 lb/MMBtu is shown to be achievable. Documentation supporting that determination is included as Appendix C.

B. Offsets

1. Offset Applicability

Pursuant to Section 4.5.3 of the rule, emission offsets are required if SSPE2 equals or exceeds the following emission offset threshold levels for any one affected pollutant:

Table 7: Emission Offset Thresholds (lb/yr)					
	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE1	0	0	0	0	0
SSPE2	19,999	42,267	29,199	161,987	17,593
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets Triggered?	No	No	No	No	No

2. Quantity of Offsets Required

As shown in Table 7, offsets are not required for any affected pollutant. The quantity of offsets required is zero, and no further discussion is required.

C. Public Notice

1. Applicability

Pursuant to Section 5.4 of the rule, public notification and publication are required for the following types of applications:

5.4.1 New Major Sources and Major Modifications

New major sources are new stationary sources that are also major sources. As shown in Section I, this facility is not a new major source. As shown in Section VII.D.5, this facility cannot undergo a major modification. Public notification is not required under this provision.

5.4.2 Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one affected pollutant

As shown in Section VII.C.2, PE2 for the combustor exceeds 100 .0 lb/day for NO_x, SO_x, PM₁₀, and CO. Public notification is required under this provision.

5.4.3 Modifications that increase SSPE1 from a level below the emissions offset threshold level to a level exceeding the emissions offset threshold level for one or more pollutants

As shown in Section I of this document, this proposal is for a new stationary source, not a modification of an existing source. Public notification is not required under this provision.

5.4.4 New stationary sources with SSPE2 exceeding the emissions offset threshold level for one or more pollutants

As shown in Table 6, SSPE2 does not exceed the emission offset threshold level for any pollutant. Public notification is not required under this provision.

5.4.5 Any permitting action resulting in a Stationary Source Project Increase in Permitted Emissions (SSIPE) exceeding 20,000 pounds per year for any one pollutant

	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE2	19,999	42,267	29,199	161,987	17,593
SSPE1	0	0	0	0	0
SSIPE = SSPE2 – SSPE1	19,999	42,267	29,199	161,987	17,593
SSIPE > 20,000?	No	Yes	Yes	Yes	No

As shown in Table 8, SSIPE exceeds 20,000 lb/yr for SO_x, PM₁₀, and CO. Public notification is required under this provision.

2. Public Notice Action

As discussed above, public noticing is required for this project for NO_x, SO_x, PM₁₀, and CO emissions in excess of 100 lb/day, and for SO_x, PM₁₀, and CO SSIPE in excess of 20,000 lb/yr. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATCs for this equipment.

D. Daily Emission Limitation (DEL)

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 practical manner, on a daily basis. DELs are also required to enforce the applicability of BACT. The following conditions will be included on the ATC:

N-8095-1-0:

- *PM10 emissions from the biomass fuel receiving and handling operation shall not exceed 0.00019 lb/ton. [District Rule 2201]*
- *The quantity of biomass fuel processed through the fuel charging hopper shall not exceed 881 tons in any one day. [District Rule 2201]*
- *PM10 emissions from the biomass fuel storage operation shall not exceed 0.17 lb/acre-day. [District Rule 2201]*
- *The total area of all biomass fuel storage piles shall not exceed 5.0 acre. [District Rule 2201]*

In addition, VBE will be required to use water sprays or other dust suppression techniques as necessary to ensure there are no visible emissions from the fuel storage piles. This probation on visible emissions is required in order to ensure compliance with the DEL.

- *Visible emissions from the biomass fuel storage operation shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. Permittee shall use water sprays or other dust suppression techniques as necessary to ensure compliance with this opacity limit. [District Rule 2201]*

N-8095-2-0:

- *Except during periods of startup and shutdown, emission rate from this biomass-fired boiler shall not exceed 0.065 lb-NOx/MMBtu. Initial and annual compliance with this limit shall be demonstrated by source testing. Ongoing compliance with this limit shall be determined from CEM data on a 3-hour rolling average basis. [District Rule 2201]*
- *Except during periods of startup and shutdown, emission rate from this biomass-fired boiler shall not exceed the target emission limit of 0.012 lb-NOx/MMBtu on a block 24-hour average basis (as defined in District Rule 4352) as demonstrated by CEM data. [District Rule 2201]*
- *Emissions from this boiler, including startup, shutdown, flame stabilization, and steady-state operating periods, shall not exceed 627.1 lb-NOx/day. [District Rule 2201]*
- *The permittee shall be allowed a 12-month period to evaluate the operational variability and optimum control effectiveness of the proposed exhaust emission control system to meet target emission limit of 0.012 lb-NOx/MMBtu. During the evaluation period, the permittee shall operate and maintain the boiler and the emission control system in such a manner as to minimize NOx emissions, and shall perform all required source testing and monitoring. The evaluation period shall begin upon the first day of the initial source test, and shall terminate after 12 months. [District Rule 2201]*
- *NOx emissions during the 12-month evaluation period in excess of 0.012 lbs/MMBtu shall not constitute a violation of this permit provided the permittee demonstrates to the satisfaction of the Air Pollution Control Officer that the emissions are limited to the lowest emissions rate achievable by the control technology, and that the boiler and the emission control system have been installed, operated, and maintained properly in accordance with all manufacturers' specifications and instructions. [District Rule 2201]*
- *If NOx emissions continue to exceed, or are projected to exceed, 0.012 lbs/MMBtu on a block 24-hour average basis after the 12-month evaluation period, the permittee shall submit a report containing all monitoring and source test data to the District within 90 days after the end of the evaluation period. The report shall include a detailed analysis of all factors that prevent compliance with the target emission limit, as well as a detailed explanation of the steps taken to operate and maintain the boiler and the emission control system in such a manner as to minimize emissions. [District Rule 2201]*

- *Upon submittal of the report, the District shall re-evaluate BACT requirements for NOx from this class and category of source and establish appropriate BACT emissions limits. Within 30 days of receipt of the District's determination, the permittee shall submit an Authority to Construct application to incorporate the revised emissions limit. In no case shall the NOx emission limitation be higher than 0.065 lbs/MMBtu on a 3-hour rolling average basis. The boiler shall be allowed to continue to operate after the 12-month evaluation period has ended and before the new Authority to Construct permit has been issued. [District Rule 2201]*
- *If the boiler demonstrates reasonably reliable compliance with the target NOx emissions limit of 0.0012 lbs/MMBtu on a block 24-hour average basis during the 12-month evaluation period, this limit shall be deemed achievable and BACT for the installation. [District Rule 2201]*
- *Except during periods of startup and shutdown, emission rate from this biomass-fired boiler shall not exceed 0.046 lb-CO/MMBtu. Initial and annual compliance with this limit shall be demonstrated by source testing. Ongoing compliance with this limit shall be determined from CEM data on a block 24-hour average basis. [District Rule 2201]*
- *Emissions from this boiler, including startup, shutdown, flame stabilization, and steady-state operation periods, shall not exceed 443.8 lb-CO/day. [District Rule 2201]*
- *Except during periods of startup and shutdown, emission rate from this biomass-fired boiler shall not exceed 0.012 lb-SOx/MMBtu. Initial and annual compliance with this limit shall be demonstrated by source testing. Ongoing compliance with this limit shall be determined from CEM data on a 1-hour average basis. [District Rule 2201]*
- *Emissions from this boiler, including startup, shutdown, flame stabilization, and steady-state operation periods, shall not exceed 115.8 lb-SOx/day. [District Rule 2201]*
- *Except during periods of startup and shutdown, emission rate from this biomass-fired boiler shall not exceed 0.024 lb-PM10/MMBtu. Initial and annual compliance with this limit shall be demonstrated by source testing. [District Rule 2201]*
- *Emissions from this boiler, including startup, shutdown, flame stabilization, and steady-state operation periods, shall not exceed 231.6 lb-PM10/day. [District Rule 2201]*
- *Except during periods of startup and shutdown, emission rates from this biomass-fired boiler shall not exceed 0.005 lb-VOC/MMBtu. Initial and annual compliance with this limit shall be demonstrated by source testing. [District Rule 2201]*

- *Emissions from this boiler, including startup, shutdown, flame stabilization, and steady-state operation periods, shall not exceed 48.2 lb-VOC/day. [District Rule 2201]*
- *Except during periods of startup and shutdown, ammonia slip emission rate from this biomass-fired boiler shall not exceed 50 ppmvd @ 3% O₂. Initial and annual compliance with this limit shall be demonstrated by source testing. [District Rule 2201]*
- *Emissions from this boiler, including startup, shutdown, flame stabilization, and steady-state operating periods, shall not exceed 91.7 lb-NH₃/day. [District Rule 2201]*

N-8095-3-0:

- *PM₁₀ emissions from the trona receiving operation shall not exceed 0.00028 lb/ton. [District Rule 2201]*
- *The quantity of trona received by this operation shall not exceed 20 tons in any one day. [District Rule 2201]*

N-8095-4-0:

- *PM₁₀ emissions from the fly ash storage and load out operation shall not exceed 0.00074 pounds per ton of fly ash loaded out into trucks. [District Rule 2201]*
- *The quantity of fly ash loaded out into trucks shall not exceed 120 tons in any one day and 42,000 tons in any calendar year. [District Rule 2201]*

N-8095-5-0:

- *PM₁₀ emissions from the cooling tower shall not exceed 2.0 pounds in any one day. [District Rule 2201]*
- *Cooling tower drift rate shall not exceed 0.0005%. [District Rule 2201]*

In addition, the applicant has proposed conditions limiting NO_x and PM₁₀ emissions on an annual basis in order to avoid triggering the offset requirements. The following conditions will be included on the ATCs to ensure compliance:

N-8095-2-0:

- *NO_x emissions from this stationary source shall not exceed 19,999 pounds in any rolling 12-consecutive-month period. [District Rule 2201]*

N-8095-1-0, '-2-0, '-3-0, '-4-0, '-5-0:

- *PM₁₀ emissions from this stationary source shall not exceed 29,199 pounds in any rolling 12-consecutive-month period. [District Rule 2201]*

E. Compliance Assurance

1. Source Testing

Pursuant to District Policy APR-1705, *Source Testing Frequency*, source testing is required in order to demonstrate compliance with various emission limits. The boiler is also subject to source testing requirements under District Rule 4001; however, the only performance standard it is subject to under Rule 4001 is an opacity standard which is less stringent than the opacity limit specified in District Rule 4101. Pursuant to APR-1705, the testing requirement associated with the most stringent emissions limitation or performance standard is the applicable testing requirement.

As stated in APR-1705, cogeneration and resource recovery facilities utilizing external combustion boilers or turbines must be tested upon initial startup and then annually thereafter. All such units must be tested for NO_x, CO, and PM₁₀ emissions, and units fired on solid or liquid fuels must be tested for SO_x emissions as well. Furthermore, for units using ammonia injection (SNCR or SCR) to control NO_x emissions it is standard practice to require source testing for ammonia emissions. Finally, the boiler is equipped with an oxidation catalyst for control of CO and VOC; pursuant to APR-1705, units equipped with a catalyst must be tested for NO_x, CO, and VOC (the pollutants controlled by such a catalyst) upon initial startup and annually thereafter.

Therefore, the following conditions will be included on the boiler ATC to ensure compliance with the applicable source testing requirements:

N-8095-2-0:

- *Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan shall be submitted for approval at least 15 days prior to testing. [District Rule 1081]*
- *The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]*
- *This unit shall be tested for compliance with the NO_x, CO, PM₁₀, SO_x, VOC, and NH₃ emissions limits within 60 days of initial startup and at least once every 12 months thereafter. [District Rules 1081 and 2201]*
- *For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 1081 and 2201]*
- *Permittee shall test a representative mixture of biomass and urban wood waste to determine the higher heating value within 60 days of initial startup at least once every 12 months thereafter. [District Rules 1081 and 2201]*

- *NO_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 1081 and 2201]*
- *The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 1081 and 2201]*
- *CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 1081 and 2201]*
- *PM₁₀ emissions for source test purposes shall be determined using EPA Methods 201A, 202, and 19. [District Rules 1081 and 2201]*
- *In lieu of performing a source test for PM₁₀, the results of the total particulate test may be used for compliance with the PM₁₀ emission limit provided the results include both the filterable and condensable (back half) particulates, and that all particulate matter is assumed to be PM₁₀. If this option is exercised, source testing shall be conducted using CARB Method 5 or EPA Method 5 (including condensable (back half) particulates). [District Rule 1081]*
- *Stack gas oxygen shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 1081 and 2201]*
- *SO_x emissions for source test purposes shall be determined using EPA Method 6 or ARB Method 100. [District Rules 1081 and 2201]*
- *VOC emissions for source test purposes shall be determined using EPA Method 18, 25A, or 25B, or ARB Method 100. [District Rules 1081 and 2201]*
- *Source testing for ammonia slip shall be conducted utilizing BAAQMD Method ST-1B. [District Rule 1081]*

Solid fuel higher heating value (HHV) must be determined in order to calculate heat input to the boiler from solid fuels for use in various calculations. Rule 4352 specifies certain ASTM standards for determining HHV; however, one of the standards in the rule applies to coal and coke while the other applies to refuse-derived fuel. ASTM Method D 5468-02 (2007) applies to waste materials in general and is more appropriate for determining HHV from biomass fuels. The following condition will be included on the boiler ATC to ensure testing using the proper method:

- *Testing for fuel higher heating value shall be conducted using ASTM Method D 5468-02 (2007). [District Rules 1081 and 2201]*

Permit units 1, 3, 4, and 5 are not subject to any specific source testing requirements. Furthermore, it is a practical impossibility to source test fugitive emissions from the biomass fuel storage piles or the fuel handling system. However, it is both reasonable and feasible to test the total dissolved solids (TDS) content of the cooling tower blowdown water to demonstrate compliance with the DEL and to assist with the record keeping needed to demonstrate compliance with the PM₁₀ SLC. The following condition will be included on the ATC to ensure compliance:

N-8095-5-0:

- *Cooling tower blowdown water shall be tested for total dissolved solids (TDS) content within 60 days of initial startup and quarterly thereafter. [District Rule 2201]*

No further discussion is required.

2. Monitoring

Since the ESP must be equipped with gauges showing corona voltage and current, monitoring is required to ensure the gauges are useful for compliance assurance rather than post-violation diagnostics. The following condition will be included on the boiler ATC to ensure compliance:

- *Permittee shall monitor the corona voltage and current at least once each calendar day the boiler operates. [District Rule 2201]*

3. Continuous Emissions Monitoring (CEM)

CEM is required for NO_x, SO_x, CO, and O₂ under the provisions of the Rule 2540 Acid Rain Program as described later in this document. In addition, CEM for NO_x and O₂ are required for VBE to demonstrate compliance with the NO_x SLC of 19,999 lb/yr. The following conditions will be included on the ATC to ensure compliance:

N-8095-2-0:

- *The exhaust stack shall be equipped with a continuous emissions monitor (CEM) for NO_x, CO, SO_x, and O₂. The CEM shall meet the requirements of 40 CFR parts 60 and 75 and shall be capable of monitoring emissions during startups and shutdowns as well as during normal operating conditions. [District Rules 1080 and 2201]*
- *The facility shall install, calibrate, maintain, and operate a continuous opacity monitoring system in accordance with 40 CFR 60.48b, and 40 CFR 60 Appendices B and F. The sampling and analyzing cycle shall be completed every successive 10 second period, and the recording cycle shall be completed every successive 6 minute period. [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]*
- *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_x, CO, and O₂ 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]*
- *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 total accuracy testing is 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]*
- *The owner/operator shall perform a relative accuracy test audit (RATA) as specified by 40 CFR Part 60, Appendix F, 5.11, at least once every four calendar quarters. The 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]*
- *The 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 emissions (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the 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]*

4. Record Keeping

The operator is required to maintain records necessary to demonstrate compliance with Rule 2201 and all prohibitory rules. The following conditions will be included on various ATCs to ensure compliance:

N-8095-1-0:

- *Permittee shall maintain records of the quantity of biomass fuel processed through the fuel charging hopper each day, in tons, along with the total area of the biomass fuel storage piles, in acres. [District Rule 2201]*
- *Permittee shall maintain daily records of PM10 emissions from this operation. PM10 emissions from the fuel storage piles shall be calculated by multiplying the actual area of the piles (in acres) by 0.017 lb/acre-day. PM10 emissions from the fuel handling operation shall be calculated by multiplying the quantity of fuel processed through the fuel charging hopper (in ton/day) by 0.00019 lb/ton. [District Rule 1070]*
- *All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]*

N-8095-2-0:

- *Permittee shall maintain records of ESP corona voltage and current monitoring. [District Rule 2201]*
- *Permittee shall maintain records of solid fuel higher heating value and plastic content testing results. [District Rule 1070]*
- *Permittee shall calculate the heat input to the unit from biomass wood waste fuel by multiplying the quantity of fuel combusted (in tons per day) by the higher heating value of the fuel (in MMBtu per ton). Permittee shall calculate the heat input to the unit from natural gas fuel by multiplying the quantity of fuel combusted (in scf) by 1,000 Btu/scf. [District Rule 1070]*
- *Permittee shall maintain daily records of PM10 emissions from this unit. PM10 emissions for solid fuel shall be calculated by multiplying the heat input from solid fuels (in MMBtu) by the average PM10 emission factor as measured in the most recent source test (in lb/MMBtu). PM10 emissions for natural gas shall be calculated by multiplying the quantity of natural gas combusted (in MMBtu) by 0.0076 lb/MMBtu. [District Rules 1070 and 2201]*

N-8095-3-0:

- *Permittee shall maintain records of the quantity of trona received each day, in tons. [District Rule 2201]*
- *Permittee shall maintain daily records of PM10 emissions from this unit. PM10 emissions shall be calculated by multiplying the quantity of trona received (in tons) by 0.00028 lb/ton. [District Rule 1070]*
- *All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]*

N-8095-4-0:

- *Permittee shall maintain records of the quantity of fly ash loaded out into trucks each day, in tons. [District Rule 2201]*
- *Permittee shall maintain daily records of PM10 emissions from this unit. PM10 emissions from the silo storage and load out operation shall be calculated by multiplying the quantity of fly ash loaded out into trucks (in tons) by 0.00074 lb/ton. [District Rule 1070]*
- *All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]*

N-8095-5-0:

- *Compliance with the daily emissions limitation shall be demonstrated on a quarterly basis using the daily PM10 emission rate calculated as follows: (blowdown water TDS content, in mg/L) x (cooling water recirculation rate, in gal/day) x (design drift rate, as %) x (0.0000000834). [District Rule 1070]*
- *Permittee shall maintain records of the quarterly test results for TDS content of the cooling tower blowdown water, along with the calculated daily PM10 emission rate. [District Rule 1070]*
- *All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]*

In addition, record keeping is required in order to demonstrate compliance with the facility-wide specific limiting conditions for NO_x and PM₁₀. The following conditions will be included on the ATCs to ensure compliance:

N-8095-2-0:

- *Permittee shall maintain daily records of NOx emissions from CEM data. Permittee shall maintain a cumulative rolling 12-consecutive-month total of NOx emissions, and shall update the cumulative total at least once each calendar week. [District Rule 2201]*

N-8095-1-0, '-2-0, '-3-0, '-4-0, '-5-0:

- *Permittee shall maintain daily records of PM10 emissions for the entire stationary source. Permittee shall maintain a cumulative rolling 12-consecutive-month total of PM10 emissions, and shall update the cumulative total at least once each calendar week. [District Rule 2201]*

5. Reporting

No reporting is required in order to demonstrate compliance with Rule 2201. No further discussion is required.

6. Installation, Operation, and Maintenance

Pursuant to Sections 5.6.2 and 5.6.3 of the rule, an ATC will include conditions to ensure that the new or modified source is built according to the specifications and plans included in the application, or which are necessary to assure construction and operation in the manner assumed in the application review. The following conditions will be included on the ATCs to ensure proper installation, operation, and maintenance:

N-8095-1-0, '-2-0, '-3-0, '-4-0, '-5-0:

- *All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]*

N-8095-2-0:

- *The ESP shall be equipped with working gauges indicating the corona voltage and current. [District Rule 2201]*
- *The range of acceptable corona voltage and current shall be established in accordance with the manufacturer's recommendation at the time of the initial source test. Range of acceptable corona voltage and current shall be updated at the time of each annual source test. [District Rule 2201]*
- *During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rule 2201]*

F. Ambient Air Quality Analysis

Section 4.14.1 of the Rule requires that an ambient air quality analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. Section 4.14.1.1 provides that new and modified sources not subject to the public noticing requirements under Section 5.4 of the rule may be exempt from the AAQA requirements. Since this application does require public notification, an AAQA is required. The Technical Services Division of the SJVAPCD conducted the required analysis. Refer to Appendix D of this document for the AAQA summary sheet. The results of the AAQA are summarized in the following table:

Natural Gas RTO	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO _x	Pass	X	X	X	Pass
SO _x	Pass	Pass	X	Pass	Pass
PM ₁₀	X	X	X	Pass ¹	Pass ¹

¹The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

As shown, the calculated contribution of PM₁₀ will not exceed the EPA significance level. This project is not expected to cause or make worse a violation of an air quality standard.

Rule 2520 Federally Mandated Operating Permits

As shown in Section VII.D.3 of this document, SSPE2 is less than the major source threshold for each affected pollutant, so VBE is a non-major source of air pollutants and is not subject to this rule under that provision. However, as shown in the discussion of Rule 2540, *Acid Rain Program*, VBE is a stationary source that includes an acid rain unit for which an acid rain permit is required pursuant to Title IV of the Clean Air Act. Therefore, VBE is subject to this rule and will, pursuant to Section 5.1 of the rule, be required to submit a Title V application within 12 months of commencing operation. The following condition will be included on the boiler ATC to ensure compliance:

- *Permittee shall submit an application to comply with District Rule 2520 – Federally Mandated Operating Permits within 12 months of commencing operation. [District Rule 2520]*

Rule 2540 Acid Rain Program

This rule incorporates by reference the Acid Rain Standards from 40 CFR 72 and, pursuant to §72.6(a)(3)(i), applies to new utility units, meaning any new fossil fuel-fired combustion device that serves a generator and is owned or operated by any person who sells electricity. Furthermore, the definition of “fossil fuel-fired” in §72.2 makes it clear that any combustion of fossil fuel, including natural gas, qualifies the unit as a fossil fuel-fired unit, independent of the percentage of fossil fuel consumed in any calendar year. Since the proposed boiler included in permit unit N-8095-2-0 serves a 33 MW electrical generator, fires natural gas for startup and shutdown, and the electricity will be sold, this rule applies.

The acid rain program will be implemented through a Title V operating permit. Federal regulations require submission of an acid rain permit application at least 24 months before the latter of 1/1/2000 or the date the operator expects the unit to commence operation. The acid rain program requirements for this unit are expected to be minor. The owner will be required to monitor NO_x and SO_x emissions, to secure a fairly small quantity of SO_x allowances from a national SO_x allowance bank, and to install NO_x and SO_x CEMS; conditions requiring installation and operation of NO_x and SO_x CEMS are already included in the boiler ATC. The following condition will also be included on the boiler ATC to ensure compliance:

- *Permittee shall submit an application to comply with District Rule 2540 - Acid Rain Program at least 24 months prior to the date on which the unit commences operation. [District Rule 2540]*

Rule 2550 Federally Mandated Preconstruction Review for Major Sources of Air Toxics

This rule applies to any application to construct or reconstruct a major source of air toxics, defined as a facility with the potential to emit 10 tons per year or more of any one toxic air contaminant (TAC), or 25 tons per year or more of all TAC combined. VBE has provided emission factors and calculations (included in Appendix G) developed from source tests conducted at a comparable facility⁴ demonstrating that the proposed facility will not be a major source of air toxics. Therefore, this rule does not apply and no further discussion is required.

Rule 4001 New Source Performance Standards (NSPS)

This rule incorporates by reference the NSPS presented in 40 CFR 60. The boiler is a steam generating unit capable of combusting biomass fuel up to 402 MMBtu/hr, or natural gas (in startup mode) at up to 125 MMBtu/hr. The boiler is not subject to Subparts D or Da, because the maximum heat input rate from fossil fuels is less than 250 MMBtu/hr. The boiler is subject to Subpart Db of this part, which establishes standards for industrial, commercial, and institutional steam generating units with a heat input capacity greater than 100 MMBtu/hr.

40 CFR 60.42b establishes SO₂ emissions standards for affected units for a variety of fuels, depending in part on when the unit was constructed, reconstructed, or modified. §60.42b(k)(1) specifies that units that commence construction, reconstruction, or modification after February 28, 2005 and combust natural gas (among other fuels), are subject to a SO₂ emissions limit of 0.20 lb/MMBtu. However, §60.42b(k)(2) provides an exemption from this SO₂ emissions limit for units combusting very low sulfur oil, gaseous fuels, a mixture of these fuels, or a mixture of these fuels with any other fuels with a potential SO₂ emission rate of 0.32 lb/MMBtu or less. This unit combusts a mixture of natural gas and biomass, but the AP-42 emission factor for SO₂ emissions from the combustion of wood residue (Table 1.6-2), without the use of SO₂ controls, is 0.025 lb/MMBtu. Therefore, this unit qualifies for exemption from the SO₂ emissions limit, presented in §60.42b(k)(2), based on its combustion of a mixture of gaseous fuels and fuels with potential SO₂ emissions less than 0.32 lb/MMBtu.

⁴ Sierra Pacific Industries, 289 MMBtu/hr wood-fired boiler of comparable design

§60.43b establishes PM emissions standards for affected units for a variety of fuels, depending in part on when the unit commenced construction, reconstruction, or modification. §60.43b(f) establishes a general opacity limit of 20% for units combusting wood (among other fuels), with an allowance of one six-minute period per hour of not more than 27% opacity. However, owners who install and operate a continuous emissions monitoring system (CEMS) for PM on units that are subject to a federally enforceable PM emissions limit of 0.030 lb/MMBtu are exempt from the opacity limitation. Conveniently, §60.43b(h)(1) prohibits units that commence construction after February 28, 2005 and combust wood (among other fuels) from emitting PM in excess of 0.030 lb/MMBtu. This unit has a PM₁₀ emission limit of 0.02 lb/MMBtu, which is lower than the NSPS requirement. While PM₁₀ emissions are typically some fraction of PM emissions, this unit will use both a multiclone and an ESP for control of PM emissions, and both of these technologies are substantially more effective at removing large particles than small particles. For example, in AP-42 Table 1.6-1, the PM₁₀ emission factors for mechanical collectors are uniformly within 10% of the PM emission factor for the same fuel type. Since the ESP will also preferentially remove larger particles, the difference between PM and PM₁₀ emission factors is expected to be negligible. Therefore, compliance with the PM₁₀ emission limit will ensure compliance with the federal PM emission standard.

§60.44b establishes NO_x emissions standards for affected units for a variety of fuels, depending in part on when the unit commenced construction, reconstruction, or modification. §60.44b(d) establishes a NO_x emission limit of 0.30 lb/MMBtu on units that combust natural gas (among other fuels) in combination with wood. §60.44b(l) establishes a lower NO_x emission limit of 0.20 lb/MMBtu for units combusting natural gas (among other fuels) and mixtures of natural gas and other fuels, when such units commence construction after July 9, 1997. However, both of these NO_x emissions limits include an exemption if the unit has an annual capacity factor for coal, oil, and natural gas of 10% or less and is subject to a federally enforceable limit on the annual capacity factor for those fuels. The annual capacity factor is calculated as the actual heat input from the fuel in question divided by the potential heat input; for a unit rated at 402 MMBtu/hr, a 10% annual capacity factor⁵ is 352,152 MMBtu/yr. Conditions will be included on the ATC to enforce this capacity factor limit and require appropriate record keeping.

This unit is exempt from the SO₂ and NO_x performance standards, but is subject to the PM performance standard. Therefore, the unit will be required to conduct source testing to demonstrate compliance with the PM₁₀ emissions limit in accordance with the time frames specified in §60.8. That section specifies that performance testing to show compliance with a performance standard must be conducted within 60 days of achieving maximum production, but not later than 180 days after initial startup. The District's normal practice of requiring source testing within 60 days of initial startup is at least as stringent as the NSPS requirement, and a condition to this effect will be included on the boiler ATC as stated in the "Source Testing" portion of the discussion of Rule 2201.

§60.48b(j) requires that unit subject to a PM emissions standard install, calibrate, maintain, and operate a continuous opacity monitoring system (COMS). The applicant has proposed to install COMS, so this requirement of the NSPS is satisfied.

⁵ (402 MMBtu/hr) x (8,760 hr/yr) x (0.1) = 352,152 MMBtu/yr

§60.49b specifies the record keeping and reporting requirements for units subject to the NSPS. These requirements include initial source test reporting, daily fuel use records, annual capacity factor calculations for each fuel combusted, and opacity records, all of which must be maintained for at least two years. Except for the opacity and fuel use record keeping requirements, these requirements are either equal to or less stringent than other reporting and record keeping requirements itemized in this document. Since the unit will be equipped with COMS, maintenance of the COMS data will ensure compliance with the opacity record requirements. The following conditions will be included on the ATC to ensure compliance:

- *The total annual heat input to the unit from natural gas combustion shall not exceed 353,152 MMBtu in any one calendar year. [District Rule 4001 and 40 CFR 60.44b(d)]*
- *The operator shall record the heat input to the unit from each fuel combusted on a daily basis. The operator shall maintain records of the annual capacity factor for each fuel combusted on a 12-month rolling average basis, and shall update the annual capacity factor for each fuel at the end of each calendar month. [District Rules 1070 and 4001, and 40 CFR 60.49b(d)(1)]*
- *The operator shall retain and maintain on site all data from the continuous opacity monitoring system. [District Rules 1070 and 4001, and 40 CFR 60.39b(f)]*

Rule 4002 National Emission Standards for Hazardous Air Pollutants (NESHAP)

This rule incorporates by reference various NESHAP from 40 CFR 61 and 40 CFR 63. No Subpart currently in effect applies to this facility. Furthermore, as shown in the HAP emission calculations in Appendix D, the potential HAP emissions from this facility are less than 10 tons per year for any one HAP and less than 25 tons per year for all HAP combined. Therefore, this facility is not a major source of HAP and is not subject to the requirement to conduct a site-specific maximum available control technology determination under 40 CFR 63, subpart B, *Requirements for Control Technology Determinations for Major Sources in Accordance With Clean Air Act Sections, Sections 112(g) and 112(j)*. No further discussion is required.

Rule 4101 Visible Emissions

This rule defines and regulates visible emissions from any source operation. The following condition will be included on each ATC to ensure compliance:

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

In addition, pursuant to District Policy SSP-1005, *Visible Emissions from Operations Served by Baghouses*, the opacity limit for an emissions unit controlled by a baghouse is 5%. This lower opacity limit is appropriate to ensure that compliance with the opacity limit accurately reflects proper baghouse operation. The following condition will be included on the silo ATCs to ensure proper operation of the bin vent filters:

N-8095-3-0 and -4-0:

- *Visible emissions from the bin vent filter serving this storage silo shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201]*

Rule 4102 Nuisance

This rule prohibits the emission of any pollutant that results in nuisance, injury, detriment, or annoyance to any significant number of persons. The following condition will be included on each ATC to ensure compliance:

- *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 (HRA)

Pursuant to District policy APR-1905, *Risk Management Policy for Permitting New and Modified Sources*, the District must conduct a health risk assessment for any increase in affected pollutant or HAP emissions.

An HRA is not required for a project with a total facility prioritization score of less than one. According to the Technical Services Memo for this project (Appendix F), the total facility prioritization score including this project was greater than one. Therefore, a health risk assessment was required to determine the short-term acute and long-term chronic exposure from this project.

District policy APR-1905 also specifies that the increase in emissions associated with a proposed new source or modification not have acute or chronic indices, or a cancer risk greater than the District's significance levels (i.e. acute and/or chronic indices greater than 1 and a cancer risk greater than 10 in a million). As outlined by the HRA Summary in Appendix F of this report, the emissions increases for this project was determined to be less than significant.

The results of the HRA are summarized in the following table taken from the technical services memo in Appendix F:

RMR Summary			
I. Categories	Biomass Fired Power Plant (Units 1, 2, 3, 4, 5)	Project Totals	Facility Totals
II. Prioritization Score	502	502	502
Acute Hazard Index	0.01	0.01	0.01
Chronic Hazard Index	0.05	0.05	0.05
Maximum Individual Cancer Risk (E-6)	2.24*	2.24*	2.24*
T-BACT Required?	Yes		
Special Permit Conditions?	Yes		

*worker adjusted value

As shown in the table above, the proposed facility will have acute and chronic hazard indices below the significance thresholds of 1. The proposed facility will have a cancer risk between 1 and 10 in a million, and will therefore trigger T-BACT for PM₁₀ emissions. As shown in the discussion of BACT under Rule 2201 above, BACT is satisfied by VBE's proposal to use a multiclone and ESP to reduce the PM₁₀ emission rate to 0.024 lb/MMBtu. Pursuant to APR-1905, T-BACT is satisfied by BACT for the pollutants that trigger T-BACT; since VBE has proposed BACT for PM₁₀, the T-BACT requirements are also satisfied. No further discussion is required. The following special permit conditions will be included on the boiler ATC to ensure the validity of this analysis:

- *The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]*
- *This unit shall only be fired on biomass and wood waste, except that the unit may also be fired on natural gas during startup, shutdown, and flame stabilization periods. [District Rules 2201 and 4102]*
- *Biomass is defined as any organic material not derived from fossil fuels, such as agricultural crop residues, bark, lawn, yard and garden clippings, leaves, silvicultural residue, tree and brush pruning, wood and wood chips, and wood waste, including these materials when separated from other waste streams. Biomass does not include material containing sewage sludge, industrial sludge, medical waste, hazardous waste, or radioactive waste. [District Rules 2201 and 4102]*
- *Urban wood waste is approved as fuel provided it contains less than 2% by weight of plastic. Wood waste is defined as solid waste consisting of wood pieces or particles which are generated from the manufacturing or production of wood products, harvesting, processing or storage of raw wood materials, or construction and demolition activities. [District Rules 2201 and 4102]*

While it may be noted that the Technical Services memo in Appendix F also includes hourly and annual PM₁₀ emission limits for all permit units, these limits are actually enforced by the DEL for each permit unit, along with the PM₁₀ SLC.

In addition, the following conditions will also be included on the boiler ATC to ensure the validity of this analysis by defining the acceptable biomass fuels:

- *No biomass or urban wood waste fuel shall be chemically treated, painted, or oil stained. [District Rule 4102]*
- *Permittee shall test solid fuel for plastic and other contaminants within 60 days of initial startup and at least once every 12 months thereafter, or whenever requested by the District. The District shall be notified at least 7 days prior to scheduled testing. [District Rules 2201 and 4102]*

- *Testing of the solid fuel for plastic and other contaminants shall be conducted on samples collected upstream of and as close as practicable to the fuel charging hopper. Samples shall have a volume of at least 1.5 cubic feet and shall be collected at one hour intervals until three samples are collected. [District Rules 2201 and 4102]*
- *Each sample shall be sorted by hand into three piles: 1) plastic, 2) chemically treated, painted, or oil stained wood, 3) non-contaminated wood. Any chemically treated, painted, or oil stained wood shall constitute a violation of this permit. The plastic shall be weighed, and then the non-contaminated wood shall be weighed. The plastic fraction shall be calculated as follows: (total weight of plastic from all samples) ÷ (total weight of plastic and non-contaminated wood from all samples). Plastic in excess of 2.0% by weight shall constitute a violation of this permit. [District Rules 2201 and 4102]*

Since HAP emission factors associated with urban wood waste are generally higher than those associated with biomass, the health risk assessment was conducted with the assumption that all solid fuel combusted in this boiler is urban wood waste. Therefore, no additional fuel restrictions are required.

Rule 4201 Particulate Matter Concentration

This rule prohibits emissions of particulate matter from any source operation in excess of 0.1 grains per dry standard cubic foot of exhaust gas.

N-8095-2-0:

As noted in the discussion of Rule 4001, the combination of a multiclone and ESP is expected to ensure that the emission rates for PM and PM₁₀ from the combustor are essentially identical. The particulate matter concentration for the combustor is calculated as follows:

$$C = (231.6 \text{ lb-PM/day}) \times (7,000 \text{ gr/lb}) \div [(9,100 \text{ dscf/MMBtu}) \times (402 \text{ MMBtu/hr}) \times (24 \text{ hr/day})]$$
$$C = 0.018 \text{ gr/dscf}$$

Since 0.018 gr/dscf is less than the rule limit of 0.1 gr/dscf, the combustor is expected to comply with this rule requirement.

Each emissions unit must comply with the rule requirement separately; however, the fuel receiving operation has only fugitive PM emissions not subject to this rule, while the two storage silos have passive bin vent filters that are assumed to comply because their potential daily emissions are 0.0 lb-PM₁₀/day and 0.1 lb-PM₁₀/day.

N-8095-5-0:

The particulate matter concentration for the cooling tower can be calculated as follows:

$$C = (2.0 \text{ lb/day}) \times (7,000 \text{ gr/lb}) \div [(1,080,000 \text{ ft}^3/\text{min}) \times (1,440 \text{ min/day}) \times (3)]$$
$$C = 0.000003 \text{ gr/dscf}$$

Since 0.000003 gr/dscf is less than the rule requirement of 0.1 gr/dscf, the cooling tower is expected to comply with this rule.

The following condition will be included on the ATCs for the combustor, silos, and cooling tower to ensure compliance:

N-8095-2-0, '-3-0, '-4-0, '-5-0:

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

Rule 4202 Particulate Matter Emission Rate

This rule prohibits particulate matter emissions from any source operation in excess of the prescribed limits in proportion to the process weight rate.

N-8095-1-0:

The fuel receiving and storage operation has a process weight rate of:

$$\text{PWR} = (881 \text{ ton/day}) \div (24 \text{ hr/day}) = 36.7 \text{ ton/hr}$$

As shown above, for a process weight rate of 30 ton/hr the PM emission limit is 29.57 lb/hr. Since this operation has potential emissions of only 1.1 lb/day, it is evident that the fuel receiving and storage operation will also comply with the requirements of this rule. No further discussion is required.

N-8095-2-0:

For the combustor, VBE states that the maximum fuel feed rate is expected to be 35 ton/hr, while the table included in the rule specifies a PM emission limit of 29.57 lb/hr for a process weight rate of 30 ton/hr. Actual PM emissions from the combustor are 193.0 lb/day, equal to:

$$E_{\text{actual}} = (231.6 \text{ lb/day}) \div (24 \text{ hr/day}) = 9.65 \text{ lb/hr}$$

Since the actual emissions are lower than the limit specified for the lower process weight rate, the combustor is expected to comply with the rule.

N-8095-3-0, -4-0:

In evaluating the requirements of this rule, it is noted that the smaller of the two silos can receive up to 20 tons of material in any one day, or an average of 1,666 lb/hr. For a process weight rate of 1,000 lb/hr, the allowable PM emission rate under the rule is 2.25 lb/hr. Since the silo with the larger potential for emissions can only emit 0.1 lb/day of PM₁₀, less than the allowable hourly rate, it is clear that the silos will comply with this rule.

N-8095-5-0:

The cooling tower circulates 30,000 gallons of water per minute with a density of approximately 8 lb/gal, for a process weight rate of:

$$\text{PWR} = (30,000 \text{ gal/min}) \times (8 \text{ lb/gal}) \times (60 \text{ min/hr}) = 225,000 \text{ lb/hr}$$

At a process weight rate of 200,000 lb/hr, the rule allows PM emissions up to 36.11 lb/hr, whereas the cooling tower has potential PM₁₀ emissions of only 2.0 lb/day. Therefore, it is evident that the cooling tower will also comply with the rule.

Rule 4203 Particulate Matter Emissions from Incineration of Combustible Refuse

This rule limits particulate matter emissions from any operation that disposes of or processes combustible refuse by burning. The rule provides for two particulate matter grain loading limitations, one of which applies to any process with a burn rate in excess of 100 pounds per hour and the other of which applies to any process with a burn rate less than or equal to 100 pounds per hour. Alternatively, the operator may comply with a mass emission limit of 0.10 pounds per 100 pounds of combustible refuse burned. For units combusting 100 lb/hr of fuel or more, the grain loading limit is 0.10 gr/dscf calculated to 12% CO₂.

The grain loading concentration (C) for the boiler is equal to:

$$C = (0.024 \text{ lb-PM}_{10}/\text{MMBtu}) \times (7,000 \text{ gr/lb}) \times (1 \text{ MMBtu}/1,802 \text{ dscf}) \times (0.12 \div 1.0)$$
$$C = 0.011 \text{ gr/dscf}$$

Since 0.011 gr/dscf is less than the rule limit of 0.10 gr/dscf, compliance with the PM₁₀ DEL will ensure compliance with this rule. No further discussion is required.

Rule 4301 Fuel Burning Equipment

This rule regulates emissions of NO_x, SO_x, and PM from any process that burns fuel for the production of heat or power by indirect heat transfer. These limits are 140 lb/hr for NO_x, 200 lb/hr for SO_x, and 10 lb/hr for PM, which is also subject to a grain loading limit of 0.1 gr/dscf calculated to 12% carbon dioxide. The daily emission limit SO_x, based on 24-hour operation, are lower than the hourly limits in this rule, so compliance with that emission limits is expected.

The hourly emissions for NO_x can be calculated as:

$$\text{PE} = (0.065 \text{ lb/MMBtu}) \times (402 \text{ MMBtu/hr}) = 26.13 \text{ lb/hr}$$

Since 26.13 lb/hr is less than the limit of 140 lb/hr for NO_x, compliance with that emission limit is expected.

As shown above in the discussion of District Rule 4202, the maximum hourly emission rate for PM is 9.65 lb/hr, which is lower than the rule limit of 10 lb/hr, so compliance with this limit is expected. As shown in the discussion of Rule 4203 above, the grain loading concentration at 12% CO₂ is 0.011 gr/dscf. Since 0.011 gr/dscf is less than the rule limit of 0.1 gr/dscf, compliance with this rule is expected. No further discussion is required.

Rule 4304 Equipment Tuning Procedures for Boilers, Steam Generators, and Process Heaters

This rule specifies the tuning procedure for boilers that require tuning under other District rules. However, the only applicable District boiler rule does not have any tuning requirements. This rule does not apply, and no further discussion is required.

Rule 4305 Boilers, Steam Generators, and Process Heaters – Phase 2

Rule 4306 Boilers, Steam Generators, and Process Heaters – Phase 3

Rule 4320 Advanced Emission Reduction Operations for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr

Rule 4351 Boilers, Steam Generators, and Process Heaters – Phase 1

Each of these rules applies to boilers with heat input ratings in excess of 5.0 MMBtu/hr; however, each rule also includes an exemption for solid fuel-fired boilers. No further discussion is required.

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

This rule provides for emission limitations, source testing, monitoring, and record keeping requirements for solid fuel fired boilers, steam generators, and process heaters. However, Section 4.0 of the rule provides an exemption from all but the applicable record keeping requirements for units operated at a stationary source with SSPE below 10 tons (20,000 pounds) per year for NO_x and VOC. As shown in Section VII.D.2 of this document, SSPE2 is less than 20,000 lb/yr for NO_x and VOC; therefore, except for the record keeping requirements of Section 6.2, this rule does not apply to this unit.

Section 6.2 of the rule requires the operator to maintain a monthly fuel log, including the type and quantity of fuel combusted and the higher heating value of each fuel. This log is to be maintained on site for a period of five years and made available upon request. The recordkeeping requirements associated with Rule 4001 are also suitable for ensuring compliance with the fuel log requirements of this rule. The following condition will be included on the boiler ATC to ensure compliance:

- *All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rules 2201 and 4352]*

Rule 4801 Sulfur Compounds

This rule prohibits the emission of sulfur compounds in excess of 2,000 ppmv as sulfur dioxide (SO₂). The potential concentration of SO_x in the combustor exhaust gas can be calculated:

$$C = (115.8 \text{ lb-SO}_x/\text{day}) \times (1 \text{ lb-mol}/64 \text{ lb-SO}_x) \times (379.5 \text{ ft}^3/\text{lb-mol}) \div [(402 \text{ MMBtu}/\text{hr}) \times (24 \text{ hr}/\text{day}) \times (9,100 \text{ ft}^3/\text{MMBtu})]$$

C= 7.8 ppmv

Since 7.8 ppmv is less than the rule limit of 2,000 ppmv, compliance with the rule is expected and no further discussion is required.

Rule 7012 Hexavalent Chromium – Cooling Towers

This rule regulates the use of compounds containing hexavalent chromium in cooling tower. However, Section 4.1.2 exempts units that never had hexavalent chromium containing compounds added from most provisions of the rule. The remaining requirement, specified in Section 5.2 of the rule, is that hexavalent chromium containing compounds not be added to the cooling tower water. The following condition will be included on the cooling tower ATC:

- *No hexavalent chromium containing compounds shall be added to the cooling tower circulating water. [District Rule 7012]*

California Health & Safety Code 42301.6 School Notice

The District has determined that this location is not within 1,000 feet of the outer boundary of the nearest K-12 school. Therefore, the requirements of CH&SC 42301.6 do not apply. No further discussion is required.

California Environmental Quality Act (CEQA)

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

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

The Modesto Irrigation District (MID) is the Lead Agency for this project for CEQA, and the ATCs will not be issued until the CEQA requirements are fully satisfied by the Lead Agency. However, the Air Quality section of the Initial Study in support of MID's proposed Mitigated Negative Declaration includes a mitigation measure requiring VBE to consume sufficient agriculturally derived biomass that would otherwise be open-field burned to offset both the stationary source and mobile source emissions from the project. The Initial Study notes that, using the lowest emission factors as a conservative assumption, the fraction of agriculturally derived biomass the facility must consume to satisfy the mitigation measure is 6.4% of all fuel burned. The following condition will be included on the boiler ATC to make this mitigation measure enforceable and ensure compliance:

N-8095-2-0:

- *The operator shall combust agriculturally-derived biomass equal to at least 6.4% of the total fuel combusted, in tons, during each calendar year. For the purpose of this condition, agriculturally-derived biomass must come from the following list of materials: grape and kiwi vineyard removal materials, citrus orchard removal materials, apple, pear, or quince orchard removal or pruning materials (including sticks and twigs), small orchard removal materials of 15 acres or less (planted acreage), and almond, walnut, or pecan pruning materials (including sticks and twigs) of 20 acres or less (planted acreage). The operator shall maintain a daily log of agriculturally-derived biomass procured. The log shall include: 1) the type of agriculturally-derived biomass material; 2) the date on which the agriculturally-derived biomass material was received; 3) the quantity of agriculturally derived biomass material received. The operator shall calculate and record the fraction of agriculturally-derived biomass received, as a percentage, at the end of each calendar month. [California Environmental Quality Act]*

IX. Recommendation

NSR:

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue Authorities to Construct N-8095-1-0, '-2-0, '-3-0, '-4-0, and '-5-0 subject to the permit conditions on the attached draft Authorities to Construct included in Appendix A.

CEQA:

Compliance with all applicable rules and regulations is expected. Pending full satisfaction of all CEQA requirements by the Lead Agency, issue Authorities to Construct N-8095-1-0, '-2-0, '-3-0, '-4-0, and '-5-0 subject to the permit conditions on the attached draft Authorities to Construct included in Appendix A.

X. Billing Information

Billing Information		
Permit Number	Fee Schedule	Description
N-8095-1-0	999-99	Component
N-8095-2-0	3020-08A-F	33,000 kW
N-8095-3-0	999-99	Component
N-8095-4-0	999-99	Component
N-8095-5-0	999-99	Component

Appendices

- Appendix A: Draft Authorities to Construct
- Appendix B: BACT Guideline and BACT Analysis
- Appendix C: Hampton Lumber Permit
- Appendix D: Sierra Pacific Industries – Burlington Permit
- Appendix E: Sierra Pacific Industries – Aberdeen Permit
- Appendix F: Health Risk Assessment
- Appendix G: HAP Emissions
- Appendix H: QNEC Calculations

Appendix A
Draft Authorities to Construct

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-8095-1-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: VALLEY BIO-ENERGY, LLC
MAILING ADDRESS: 1121 K STREET
MODESTO, CA 95354

LOCATION: 555 MARIPOSA ROAD
MODESTO, CA

EQUIPMENT DESCRIPTION:

BIOMASS FUEL RECEIVING, SCREENING, HANDLING, AND STORAGE OPERATION CONSISTING OF TWO TRUCK DUMPERS, FUEL SIZING SCREEN, OUTDOOR OVERFLOW FUEL STORAGE PILES, AND SEMI-ENCLOSED COVERED FUEL STORAGE BUILDING

CONDITIONS

1. {15} 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. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {1407} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
4. Visible emissions from the biomass fuel storage operation shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. Permittee shall use water sprays or other dust suppression techniques as necessary to ensure compliance with this opacity limit. [District Rule 2201]
5. PM10 emissions from the biomass fuel receiving and handling operation shall not exceed 0.00019 lb/ton. [District Rule 2201]
6. The quantity of biomass fuel processed through the fuel charging hopper shall not exceed 881 tons in any one day. [District Rule 2201]
7. PM10 emissions from the biomass fuel storage operation shall not exceed 0.17 lb/acre-day. [District Rule 2201]
8. The total area of all biomass fuel storage piles shall not exceed 5.0 ac. [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-8095-1-0 : May 6 2010 3:28PM - DEMARISF : Joint Inspection Required with DEMARISF

9. PM10 emissions from this stationary source shall not exceed 29,199 pounds in any rolling 12-consecutive-month period. [District Rule 2201]
10. Permittee shall maintain records of the quantity of biomass fuel processed through the fuel charging hopper each day, in tons, along with the total area of the biomass fuel storage piles, in acres. [District Rule 2201]
11. Permittee shall maintain daily records of PM10 emissions from this operation. PM10 emissions from the fuel storage piles shall be calculated by multiplying the actual area of the piles (in acres) by 0.017 lb/acre-day. PM10 emissions from the fuel handling operation shall be calculated by multiplying the quantity of fuel processed through the fuel charging hopper (in ton/day) by 0.00019 lb/ton. [District Rule 1070]
12. Permittee shall maintain daily records of PM10 emissions for the entire stationary source. Permittee shall maintain a cumulative rolling 12-consecutive-month total of PM10 emissions, and shall update the cumulative total at least once each calendar week. [District Rule 2201]
13. {3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: N-8095-2-0

LEGAL OWNER OR OPERATOR: VALLEY BIO-ENERGY, LLC

MAILING ADDRESS: 1121 K STREET
MODESTO, CA 95354

LOCATION: 555 MARIPOSA ROAD
MODESTO, CA

EQUIPMENT DESCRIPTION:

402 MMBTU/HR MCBURNEY CORPORATION BIOMASS-FIRED BOILER WITH DETROIT STOKER VIBRATING GRATE FEEDER DRIVING A 33 MW (GROSS) ELECTRICAL GENERATING TURBINE AND SERVED BY BAY CITY BOILER SELECTIVE NON-CATALYTIC REDUCTION (SNCR) SYSTEM, PPC INDUSTRIES MODEL T-200 DRY POWDER SCRUBBER WITH TRONA INJECTION, MULTICLONE AND ESP, AND PPC INDUSTRIES MODEL NO2-450-OC SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM

CONDITIONS

1. {15} 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. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. {1407} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
5. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
6. The ESP shall be equipped with working gauges indicating the corona voltage and current. [District Rule 2201]
7. The range of acceptable corona voltage and current shall be established in accordance with the manufacturer's recommendation at the time of the initial source test. Range of acceptable corona voltage and current shall be updated at the time of each annual source test. [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-8095-2-0 - Jul 12 2010 11:38AM -- DEMARISF - Joint Inspection Required with DEMARISF

8. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rule 2201]
9. The total annual heat input to the unit from natural gas combustion shall not exceed 353,152 MMBtu in any one calendar year. [District Rule 4001 and 40 CFR 60.44b(d)]
10. This unit shall only be fired on biomass and wood waste, except that the unit may also be fired on natural gas during startup, shutdown, and flame stabilization periods. [District Rules 2201 and 4102]
11. Biomass is defined as any organic material not derived from fossil fuels, such as agricultural crop residues, bark, lawn, yard and garden clippings, leaves, silvicultural residue, tree and brush pruning, wood and wood chips, and wood waste, including these materials when separated from other waste streams. Biomass does not include material containing sewage sludge, industrial sludge, medical waste, hazardous waste, or radioactive waste. [District Rules 2201 and 4102]
12. Urban wood waste is approved as fuel provided it contains less than 2% by weight of plastic. Wood waste is defined as solid waste consisting of wood pieces or particles which are generated from the manufacturing or production of wood products, harvesting, processing or storage of raw wood materials, or construction and demolition activities. [District Rules 2201 and 4102]
13. No biomass or urban wood waste fuel shall be chemically treated, painted, or oil stained. [District Rule 4102]
14. The operator shall combust agriculturally-derived biomass equal to at least 6.4% of the total fuel combusted, in tons, during each calendar year. For the purpose of this condition, agriculturally-derived biomass must come from the following list of materials: grape and kiwi vineyard removal materials, citrus orchard removal materials, apple, pear, or quince orchard removal or pruning materials (including sticks and twigs), small orchard removal materials of 15 acres or less (planted acreage), and almond, walnut, or pecan pruning materials (including sticks and twigs) of 20 acres or less (planted acreage). The operator shall maintain a daily log of agriculturally-derived biomass procured. The log shall include: 1) the type of agriculturally-derived biomass material; 2) the date on which the agriculturally-derived biomass material was received; 3) the quantity of agriculturally derived biomass material received. The operator shall calculate and record the fraction of agriculturally-derived biomass received, as a percentage, at the end of each calendar month. [California Environmental Quality Act]
15. Except during periods of startup and shutdown, emission rate from this biomass-fired boiler shall not exceed 0.065 lb-NOx/MMBtu. Initial and annual compliance with this limit shall be demonstrated by source testing. Ongoing compliance with this limit shall be determined from CEM data on a 3-hour rolling average basis. [District Rule 2201]
16. Except during periods of startup and shutdown, emission rate from this biomass-fired boiler shall not exceed the target emission limit of 0.012 lb-NOx/MMBtu on a block 24-hour average basis (as defined in District Rule 4352) as demonstrated by CEM data. [District Rule 2201]
17. Emissions from this boiler, including startup, shutdown, flame stabilization, and steady-state operating periods, shall not exceed 627.1 lb-NOx/day. [District Rule 2201]
18. The permittee shall be allowed a 12-month period to evaluate the operational variability and optimum control effectiveness of the proposed exhaust emission control system to meet target emission limit of 0.012 lb-NOx/MMBtu. During the evaluation period, the permittee shall operate and maintain the boiler and the emission control system in such a manner as to minimize NOx emissions, and shall perform all required source testing and monitoring. The evaluation period shall begin upon the first day of the initial source test, and shall terminate after 12 months. [District Rule 2201]
19. NOx emissions during the 12-month evaluation period in excess of 0.012 lbs/MMBtu shall not constitute a violation of this permit provided the permittee demonstrates to the satisfaction of the Air Pollution Control Officer that the emissions are limited to the lowest emissions rate achievable by the control technology, and that the boiler and the emission control system have been installed, operated, and maintained properly in accordance with all manufacturers' specifications and instructions. [District Rule]

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CONDITIONS CONTINUE ON NEXT PAGE

20. If NO_x emissions continue to exceed, or are projected to exceed, 0.012 lbs/MMBtu on a block 24-hour average basis after the 12-month evaluation period, the permittee shall submit a report containing all monitoring and source test data to the District within 90 days after the end of the evaluation period. The report shall include a detailed analysis of all factors that prevent compliance with the target emission limit, as well as a detailed explanation of the steps taken to operate and maintain the boiler and the emission control system in such a manner as to minimize emissions. [District Rule 2201]
21. Upon submittal of the report, the District shall re-evaluate BACT requirements for NO_x from this class and category of source and establish appropriate BACT emissions limits. Within 30 days of receipt of the District's determination, the permittee shall submit an Authority to Construct application to incorporate the revised emissions limit. In no case shall the NO_x emission limitation be higher than 0.065 lbs/MMBtu on a 3-hour rolling average basis. The boiler shall be allowed to continue to operate after the 12-month evaluation period has ended and before the new Authority to Construct permit has been issued. [District Rule 2201]
22. If the boiler demonstrates reasonably reliable compliance with the target NO_x emissions limit of 0.012 lbs/MMBtu on a block 24-hour average basis during the 12-month evaluation period, this limit shall be deemed achievable and BACT for the installation. [District Rule 2201]
23. NO_x emissions from this stationary source shall not exceed 19,999 pounds in any rolling 12-consecutive-month period. [District Rule 2201]
24. Except during periods of startup and shutdown, emission rate from this biomass-fired boiler shall not exceed 0.046 lb-CO/MMBtu. Initial and annual compliance with this limit shall be demonstrated by source testing. Ongoing compliance with this limit shall be determined from CEM data on a block 24-hour average basis. [District Rule 2201]
25. Emissions from this boiler, including startup, shutdown, flame stabilization, and steady-state operation periods, shall not exceed 443.8 lb-CO/day. [District Rule 2201]
26. Except during periods of startup and shutdown, emission rate from this biomass-fired boiler shall not exceed 0.012 lb-SO_x/MMBtu. Initial and annual compliance with this limit shall be demonstrated by source testing. Ongoing compliance with this limit shall be determined from CEM data on a 1-hour average basis. [District Rule 2201]
27. Emissions from this boiler, including startup, shutdown, flame stabilization, and steady-state operation periods, shall not exceed 115.8 lb-SO_x/day. [District Rule 2201]
28. Except during periods of startup and shutdown, emission rate from this biomass-fired boiler shall not exceed 0.024 lb-PM₁₀/MMBtu. Initial and annual compliance with this limit shall be demonstrated by source testing. [District Rule 2201]
29. Emissions from this boiler, including startup, shutdown, flame stabilization, and steady-state operation periods, shall not exceed 231.6 lb-PM₁₀/day. [District Rule 2201]
30. PM₁₀ emissions from this stationary source shall not exceed 29,199 pounds in any rolling 12-consecutive-month period. [District Rule 2201]
31. Except during periods of startup and shutdown, emission rates from this biomass-fired boiler shall not exceed 0.005 lb-VOC/MMBtu. Initial and annual compliance with this limit shall be demonstrated by source testing. [District Rule 2201]
32. Emissions from this boiler, including startup, shutdown, flame stabilization, and steady-state operation periods, shall not exceed 48.2 lb-VOC/day. [District Rule 2201]
33. Except during periods of startup and shutdown, ammonia slip emission rate from this biomass-fired boiler shall not exceed 50 ppmvd @ 3% O₂. Initial and annual compliance with this limit shall be demonstrated by source testing. [District Rule 2201]
34. Emissions from this boiler, including startup, shutdown, flame stabilization, and steady-state operating periods, shall not exceed 91.7 lb-NH₃/day. [District Rule 2201]
35. {383} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan shall be submitted for approval at least 15 days prior to testing. [District Rule 1081]

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36. {3721} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
37. This unit shall be tested for compliance with the NO_x, CO, PM₁₀, SO_x, VOC, and NH₃ emissions limits within 60 days of initial startup and at least once every 12 months thereafter. [District Rules 1081 and 2201]
38. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 1081 and 2201]
39. Permittee shall test a representative mixture of biomass and urban wood waste to determine the higher heating value within 60 days of initial startup at least once every 12 months thereafter. [District Rules 1081 and 2201]
40. Permittee shall test solid fuel for plastic and other contaminants within 60 days of initial startup and at least once every 12 months thereafter, or whenever requested by the District. The District shall be notified at least 7 days prior to scheduled testing. [District Rules 2201 and 4102]
41. Testing of the solid fuel for plastic and other contaminants shall be conducted on samples collected upstream of and as close as practicable to the fuel charging hopper. Samples shall have a volume of at least 1.5 cubic feet and shall be collected at one hour intervals until three samples are collected. [District Rules 2201 and 4102]
42. Each sample shall be sorted by hand into three piles: 1) plastic, 2) chemically treated, painted, or oil stained wood, 3) non-contaminated wood. Any chemically treated, painted, or oil stained wood shall constitute a violation of this permit. The plastic shall be weighed, and then the non-contaminated wood shall be weighed. The plastic fraction shall be calculated as follows: (total weight of plastic from all samples) ÷ (total weight of plastic and non-contaminated wood from all samples). Plastic in excess of 2.0% by weight shall constitute a violation of this permit. [District Rules 2201 and 4102]
43. NO_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 1081 and 2201]
44. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 1081 and 2201]
45. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 1081 and 2201]
46. PM₁₀ emissions for source test purposes shall be determined using EPA Methods 201A, 202, and 19. [District Rules 1081 and 2201]
47. In lieu of performing a source test for PM₁₀, the results of the total particulate test may be used for compliance with the PM₁₀ emission limit provided the results include both the filterable and condensable (back half) particulates, and that all particulate matter is assumed to be PM₁₀. If this option is exercised, source testing shall be conducted using CARB Method 5 or EPA Method 5 (including condensable (back half) particulates). [District Rule 1081]
48. Stack gas oxygen shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 1081 and 2201]
49. SO_x emissions for source test purposes shall be determined using EPA Method 6 or ARB Method 100. [District Rules 1081 and 2201]
50. VOC emissions for source test purposes shall be determined using EPA Method 18, 25A, or 25B, or ARB Method 100. [District Rules 1081 and 2201]
51. Source testing for ammonia slip shall be conducted utilizing BAAQMD Method ST-1B. [District Rules 1081 and 2201]
52. Testing for fuel higher heating value shall be conducted using ASTM Method D 5468-02 (2007). [District Rules 1081 and 2201]
53. Permittee shall monitor the corona voltage and current at least once each calendar day the boiler operates. [District Rule 2201]
54. The exhaust stack shall be equipped with a continuous emissions monitor (CEM) for NO_x, CO, SO_x, and O₂. The CEM shall meet the requirements of 40 CFR parts 60 and 75 and shall be capable of monitoring emissions during startups and shutdowns as well as during normal operating conditions. [District Rules 1080 and 2201]

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55. The facility shall install, calibrate, maintain, and operate a continuous opacity monitoring system in accordance with 40 CFR 60.48b, and 40 CFR 60 Appendices B and F. The sampling and analyzing cycle shall be completed every successive 10 second period, and the recording cycle shall be completed every successive 6 minute period. [District Rules 1080 and 2201]
56. {1833} 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]
57. {1834} 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]
58. {1835} 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_x, CO, and O₂ 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]
59. {1836} 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]
60. {1837} Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is 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]
61. {1838} The owner/operator shall perform a relative accuracy test audit (RATA) as specified by 40 CFR Part 60, Appendix F, 5.11, at least once every four calendar quarters. The 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]
62. {1839} The 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 emissions (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the 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]
63. Permittee shall maintain records of ESP corona voltage and current monitoring. [District Rule 2201]
64. Permittee shall maintain daily records of NO_x emissions from CEM data. Permittee shall maintain a cumulative rolling 12-consecutive-month total of NO_x emissions, and shall update the cumulative total at least once each calendar week. [District Rule 2201]
65. The operator shall record the heat input to the unit from each fuel combusted on a daily basis. The operator shall maintain records of the annual capacity factor for each fuel combusted on a 12-month rolling average basis, and shall update the annual capacity factor for each fuel at the end of each calendar month. [District Rules 1070 and 4001, and 40 CFR 60.49b(d)(1)]
66. Permittee shall calculate the heat input to the unit from biomass wood waste fuel by multiplying the quantity of fuel combusted (in tons per day) by the higher heating value of the fuel (in MMBtu per ton). Permittee shall calculate the heat input to the unit from natural gas fuel by multiplying the quantity of fuel combusted (in scf) by 1,000 Btu/scf. [District Rule 1070]
67. Permittee shall maintain daily records of PM₁₀ emissions from this unit. PM₁₀ emissions for solid fuel shall be calculated by multiplying the heat input from solid fuels (in MMBtu) by the average PM₁₀ emission factor as measured in the most recent source test (in lb/MMBtu). PM₁₀ emissions for natural gas shall be calculated by multiplying the quantity of natural gas combusted (in MMBtu) by 0.0076 lb/MMBtu. [District Rules 1070 and 2201]

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68. Permittee shall maintain daily records of PM10 emissions for the entire stationary source. Permittee shall maintain a cumulative rolling 12-consecutive-month total of PM10 emissions, and shall update the cumulative total at least once each calendar week. [District Rule 2201]
69. Permittee shall retain and maintain on site all data from the continuous opacity monitoring system. [District Rules 1070 and 4001, and 40 CFR 60.39b(f)]
70. Permittee shall maintain records of solid fuel higher heating value and plastic content testing results. [District Rule 1070]
71. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rules 2201 and 4352]
72. Permittee shall submit an application to comply with District Rule 2520 - Federally Mandated Operating Permits within 12 months of commencing operation. [District Rule 2520]
73. Permittee shall submit an application to comply with District Rule 2540 - Acid Rain Program at least 24 months prior to the date on which the unit commences operation. [District Rule 2540]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: N-8095-3-0

LEGAL OWNER OR OPERATOR: VALLEY BIO-ENERGY, LLC
MAILING ADDRESS: 1121 K STREET
MODESTO, CA 95354

LOCATION: 555 MARIPOSA ROAD
MODESTO, CA

EQUIPMENT DESCRIPTION:
TRONA RECEIVING AND STORAGE SYSTEM WITH ENCLOSED SCREW CONVEYOR, 10,800 GALLON STORAGE SILO, AND BIN VENT FILTER

CONDITIONS

1. {15} 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. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. {1407} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
5. Visible emissions from the bin vent filter serving this storage silo shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201]
6. PM10 emissions from the trona receiving operation shall not exceed 0.00028 lb/ton. [District Rule 2201]
7. The quantity of trona received by this operation shall not exceed 20 tons in any one day. [District Rule 2201]
8. PM10 emissions from this stationary source shall not exceed 29,199 pounds in any rolling 12-consecutive-month period. [District Rule 2201]
9. Permittee shall maintain records of the quantity of trona received each day, in tons. [District Rule 2201]
10. Permittee shall maintain daily records of PM10 emissions from this unit. PM10 emissions shall be calculated by multiplying the quantity of trona received (in tons) by 0.00028 lb/ton. [District Rule 1070]

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-8095-3-0: May 8 2010 3:26PM - DEMARISF : Joint Inspection Required with DEMARISF

11. Permittee shall maintain daily records of PM10 emissions for the entire stationary source. Permittee shall maintain a cumulative rolling 12-consecutive-month total of PM10 emissions, and shall update the cumulative total at least once each calendar week. [District Rule 2201]
12. {3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
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PERMIT NO: N-8095-4-0

LEGAL OWNER OR OPERATOR: VALLEY BIO-ENERGY, LLC
MAILING ADDRESS: 1121 K STREET
MODESTO, CA 95354

LOCATION: 555 MARIPOSA ROAD
MODESTO, CA

EQUIPMENT DESCRIPTION:

FLYASH RECEIVING, STORAGE, AND LOAD OUT OPERATION WITH ENCLOSED DRAG CHAIN CONVEYOR, 11,000 GALLON STORAGE SILO WITH BIN VENT FILTER, AND WET SCREW CONVEYOR FOR TRUCK LOAD OUT

CONDITIONS

1. {15} 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. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. {1407} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
5. Visible emissions from the bin vent filter serving this storage silo shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201]
6. PM10 emissions from the fly ash storage operation shall not exceed 0.00028 lb/ton. [District Rule 2201]
7. The quantity of fly ash loaded into the storage silo shall not exceed 40 tons in any one day and 7,500 tons in any calendar year. [District Rule 2201]
8. PM10 emissions from the fly ash load out operation shall not exceed 0.00046 lb/ton. [District Rule 2201]
9. The quantity of fly ash loaded out into trucks shall not exceed 40 tons in any one day and 7,500 tons in any calendar year. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director APCO

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DAVID WARNER, Director of Permit Services
N-8095-4-0: May 8 2010 3:26PM - DEMARISF : Joint Inspection Required with DEMARISF

10. PM10 emissions from this stationary source shall not exceed 29,199 pounds in any rolling 12-consecutive-month period. [District Rule 2201]
11. Permittee shall maintain records of the quantity of fly ash loaded into the storage silo each day, in tons, along with records of the quantity of fly ash loaded out into trucks each day, in tons. If the fly ash silo is emptied each day, then the quantity of fly ash loaded out into trucks may be recorded for the fly ash silo filling operation without separate measurement. [District Rule 2201]
12. Permittee shall maintain daily records of PM10 emissions from this unit. PM10 emissions from the silo storage operation shall be calculated by multiplying the quantity of fly ash loaded into the silo by 0.00028 lb/ton. PM10 emissions from the fly ash load out operation shall be calculated by multiplying the quantity of fly ash loaded out (in tons) by 0.00046 lb/ton. [District Rule 1070]
13. Permittee shall maintain daily records of PM10 emissions for the entire stationary source. Permittee shall maintain a cumulative rolling 12-consecutive-month total of PM10 emissions, and shall update the cumulative total at least once each calendar week. [District Rule 2201]
14. {3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
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PERMIT NO: N-8095-5-0

LEGAL OWNER OR OPERATOR: VALLEY BIO-ENERGY, LLC
MAILING ADDRESS: 1121 K STREET
MODESTO, CA 95354

LOCATION: 555 MARIPOSA ROAD
MODESTO, CA

EQUIPMENT DESCRIPTION:
30,000 GALLON PER MINUTE CLOSED-LOOP THREE CELL COOLING TOWER WITH DRIFT ELIMINATOR

CONDITIONS

1. {15} 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. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. {1407} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
5. PM10 emissions from the cooling tower shall not exceed 2.0 pounds in any one day. [District Rule 2201]
6. Cooling tower drift rate shall not exceed 0.0005%. [District Rule 2201]
7. PM10 emissions from this stationary source shall not exceed 29,199 pounds in any rolling 12-consecutive-month period. [District Rule 2201]
8. Cooling tower blowdown water shall be tested for total dissolved solids (TDS) content within 60 days of initial startup and quarterly thereafter. [District Rule 2201]
9. Compliance with the daily emissions limitation shall be demonstrated on a quarterly basis using the daily PM10 emission rate calculated as follows: (blowdown water TDS content, in mg/L) x (cooling water recirculation rate, in gal/day) x (design drift rate, as %) x (0.000000834). [District Rule 1070]

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

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10. Permittee shall maintain records of the quarterly test results for TDS content of the cooling tower blowdown water, along with the calculated daily PM10 emission rate. [District Rule 1070]
11. Permittee shall maintain daily records of PM10 emissions for the entire stationary source. Permittee shall maintain a cumulative rolling 12-consecutive-month total of PM10 emissions, and shall update the cumulative total at least once each calendar week. [District Rule 2201]
12. {3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

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Valley Bio-Energy
N-8095, 1094135

Appendix B

BACT Guideline and BACT Analysis

**San Joaquin Valley
Unified Air Pollution Control District**

Best Available Control Technology (BACT) Guideline 1.3.2

Emission Unit: Biomass-Fired Combustors

Industry Type: Biomass
Combustion

Equipment Rating: 10 MW or greater

Pollutant	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
CO	0.1 lb/MMBtu, natural gas auxiliary fuel	0.046 lb/MMBtu, natural gas auxiliary fuel	
NO _x	0.075 lb/MMBtu, Regenerative Selective Catalytic Reduction (RSCR), or equal, and natural gas auxiliary fuel	1. 0.012 lb/MMBtu, Selective Non-Catalytic Reduction (SNCR), Selective Catalytic Reduction (SCR), and wet scrubber, or equal, and natural gas auxiliary fuel 2. 0.065 lb/MMBtu, Selective Catalytic Reduction (SCR), or equal, and natural gas auxiliary fuel	
PM ₁₀	0.045 lb/MMBtu, baghouse or ESP, and natural gas auxiliary fuel	0.024 lb/MMBtu, baghouse, multiclones, and wet scrubber, or equal, natural gas auxiliary fuel	
SO _x	0.025 lb/MMBtu, limestone injection and natural gas auxiliary fuel	0.012 lb/MMBtu, limestone injection, or equal, natural gas auxiliary fuel	
VOC	0.01 lb/MMBtu, natural gas auxiliary fuel	0.005 lb/MMBtu, natural gas auxiliary fuel	

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

***This is a Summary Page for this Class of Source - Permit Specific BACT Determinations on Next Page(s)**

NO_x BACT:

As previously stated, BACT is triggered for NO_x emissions from the boiler in permit unit 2. This unit is a biomass-fired boiler and therefore covered by BACT Guideline 1.3.2, which applies to all biomass-fired boilers with heat input sufficient to support 10 MW of electrical generation or greater.

Step 1 – Identify All Possible Control Technologies:

The following control technologies are listed in BACT Guideline 1.3.2 for NO_x control:

1. 0.075 lb/MMBtu using Regenerative Selective Catalytic Reduction, or equivalent equipment, and natural gas auxiliary fuel – Achieved in Practice
2. 0.065 lb/MMBtu using Selective Catalytic Reduction, or equivalent equipment, and natural gas auxiliary fuel – Technologically Feasible
3. 0.012 lb/MMBtu using Selective Non-Catalytic Reduction, Selective Catalytic Reduction, and wet scrubber, or equivalent equipment, and natural gas auxiliary fuel – Technologically Feasible

Step 2 – Eliminate Technologically Infeasible Options:

By definition, all technologies listed on the BACT Guideline are technologically feasible. However, it must be noted that a wet scrubber is not a NO_x control technology; the application review that developed BACT Guideline 1.3.2 (in project C-1090203) stated that the final wet scrubber located after the SCR system “provides a final means of removal for ammonia, acid gas, and particulate emissions.” The wet scrubber allowed the biomass-fired boilers proposed for that project to achieve an ammonia slip limit of 5 ppmvd @ 3% O₂, but it is not a NO_x control technology. In contrast, VBE will be limited to an ammonia slip rate of 20 ppmvd @ 3% O₂. Therefore, the wet scrubber will not be included for any further discussion of the controls allowing a 0.012 lb-NO_x/MMBtu emission rate.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

1. 0.012 lb/MMBtu using Selective Non-Catalytic Reduction and Selective Catalytic Reduction, or equivalent equipment, and natural gas auxiliary fuel
2. 0.065 lb/MMBtu using Selective Catalytic Reduction, or equivalent equipment, and natural gas auxiliary fuel
3. 0.075 lb/MMBtu using Regenerative Selective Catalytic Reduction, or equivalent equipment, and natural gas auxiliary fuel

Step 4 – Cost Effectiveness Analysis

VBE has proposed the most stringent emission limit in step 3. A cost effectiveness analysis is not required.

Valley Bio-Energy
N-8095, 1094135

Step 5 – Select BACT

BACT is satisfied by VBE's proposal of SNCR and SCR, with natural gas auxiliary fuel, for a NO_x emission limit of 0.012 lb/MMBtu. No further discussion is required.

SO_x BACT:

As previously stated, BACT is triggered for SO_x emissions from the boiler in permit unit 2. This unit is a biomass-fired boiler and therefore covered by BACT Guideline 1.3.2, which applies to all biomass-fired boilers with heat input sufficient to support 10 MW of electrical generation or greater.

Step 1 – Identify All Possible Control Technologies:

1. 0.025 lb/MMBtu using limestone injection, or equivalent equipment, and natural gas auxiliary fuel – Achieved in Practice
2. 0.012 lb/MMBtu using limestone injection, or equivalent equipment, and natural gas auxiliary fuel – Technologically Feasible

Step 2 – Eliminate Technologically Infeasible Options:

By definition, all technologies listed on the BACT Guideline are technologically feasible.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

1. 0.012 lb/MMBtu using limestone injection, or equivalent equipment, and natural gas auxiliary fuel
2. 0.025 lb/MMBtu using limestone injection, or equivalent equipment, and natural gas auxiliary fuel

Step 4 – Cost Effectiveness Analysis

VBE has proposed the most stringent emission limit in step 3. A cost effectiveness analysis is not required.

Step 5 – Select BACT

BACT is satisfied by VBE's proposal to use trona injection and natural gas auxiliary fuel to comply with a SO_x emission limit of 0.012 lb/MMBtu. The District has concluded that trona injection provides SO_x control at least equivalent to limestone injection, and VBE will be required to conduct source testing and CEMS monitoring to support that conclusion by demonstrating compliance with the emission limit. No further discussion is required.

PM₁₀ BACT:

As previously stated, BACT is triggered for PM₁₀ emissions from the boiler in permit unit 2. This unit is a biomass-fired boiler and therefore covered by BACT Guideline 1.3.2, which applies to all biomass-fired boilers with heat input sufficient to support 10 MW of electrical generation or greater.

Step 1 – Identify All Possible Control Technologies:

The following control technologies and emission limits are listed in BATC Guideline 1.3.2:

1. 0.045 lb/MMBtu using a baghouse or ESP and natural gas auxiliary fuel – Achieved in Practice
2. 0.024 lb/MMBtu using a baghouse, multiclones, and wet scrubber, or equivalent equipment, and natural gas auxiliary fuel – Technologically Feasible

However, as shown by the permits for several existing wood-fired boilers in Washington State, included in Appendices C, D, and E, at least three existing units in this class and category of source are currently in compliance with a PM₁₀ emission limit of 0.024 lb/MMBtu. Staff discussions with the local clean air agencies⁶ determined that these units have consistently demonstrated compliance with the emission limit, and that this limit (as specified in the permit) includes both filterable PM measured by EPA Method 5 and condensable PM measured by EPA Method 202 or local versions of that method. Therefore, a PM₁₀ emission limit of 0.024 lb/MMBtu is shown to be achievable. No further discussion of a 0.045 lb/MMBtu PM₁₀ emission limit is required.

Step 2 – Eliminate Technologically Infeasible Options:

By definition, all technologies listed on the BACT Guideline are technologically feasible.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

1. 0.024 lb/MMBtu using a baghouse, multiclones, and wet scrubber, or equivalent equipment, and natural gas auxiliary fuel

Step 4 – Cost Effectiveness Analysis

VBE has proposed the most stringent emission limit in step 3. A cost effectiveness analysis is not required.

Step 5 – Select BACT

BACT is satisfied by VBE's proposal to use a multiclone and ESP to comply with a PM₁₀ emission limit of 0.024 lb/MMBtu. No further discussion is required.

⁶ Ms. Theresa (Toby) Allen of the Northwest Clean Air Agency, Mr. Geoffrey Glass of the Olympic Region Clean Air Agency, and Mr. Brian Renninger of the Puget Sound Clean Air Agency

VOC BACT:

As previously stated, BACT is triggered for VOC emissions from the boiler in permit unit 2. This unit is a biomass-fired boiler and therefore covered by BACT Guideline 1.3.2, which applies to all biomass-fired boilers with heat input sufficient to support 10 MW of electrical generation or greater.

Step 1 – Identify All Possible Control Technologies:

1. 0.01 lb/MMBtu using natural gas auxiliary fuel – Achieved in Practice
2. 0.005 lb/MMBtu using natural gas auxiliary fuel – Technologically Feasible

Step 2 – Eliminate Technologically Infeasible Options:

By definition, all technologies listed on the BACT Guideline are technologically feasible.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

1. 0.005 lb/MMBtu using natural gas auxiliary fuel
2. 0.01 lb/MMBtu using natural gas auxiliary fuel

Step 4 – Cost Effectiveness Analysis

VBE has proposed the most stringent emission limit in step 3. A cost effectiveness analysis is not required.

Step 5 – Select BACT

BACT is satisfied by VBE's proposal to use an oxidation catalyst, good combustion practices, and natural gas auxiliary fuel to comply with a VOC emission limit of 0.005 lb/MMBtu. No further discussion is required.

Valley Bio-Energy
N-8095, 1094135

Appendix C Hampton Lumber Permit



Puget Sound Clean Air Agency

Notice of
Construction No. 10081

Registration No. 12378

Date

OCT 28 2009

**HEREBY ISSUES AN ORDER OF APPROVAL
TO CONSTRUCT, INSTALL, OR ESTABLISH**

Modification to extend construction period for the lumber dry kilns (3 Dry kilns, 104-foot double-track) originally approved under NOC 9149.

Lumber mill modernization project consisting of the following equipment:

- 1) Boiler, wood-fired, maximum heat input 245 MMBtu/hr, maximum steam output 140,000 lb/hr at 825 °F and 825 psi, with electrostatic precipitator for PM control and selective non-catalytic reduction for control of NOX (ammonia injection) and steam-driven turbine generator, 6 MWe peak, 4.4 MWe average electrical output;
- 2) Ammonia storage and handling equipment (exempt under Reg I: 6.03(c)(48)(A));
- 3) Wood residue storage and handling equipment (exempt under Reg I: 6.03(c)(42)); and
- 4) Three Dry kilns, 104-foot double-track

APPLICANT

**Dave Roane
Hampton Lumber Mills Washington Inc
PO Box 487
Darrington, WA 98241**

OWNER

**Hampton Lumber Mills Washington Inc
PO Box 487
Darrington, WA 98241**

INSTALLATION ADDRESS

Hampton Lumber Mills Washington Inc, 46921 288th NE Sauk Prairie Rd, Darrington, WA, 98241

THIS ORDER IS ISSUED SUBJECT TO THE FOLLOWING RESTRICTIONS AND CONDITIONS

1. Approval is hereby granted as provided in Article 6 of Regulation I of the Puget Sound Clean Air Agency to the applicant to install or establish the equipment, device or process described hereon at the INSTALLATION ADDRESS in accordance with the plans and specifications on file in the Engineering Division of the Puget Sound Clean Air Agency.
2. This approval does not relieve the applicant or owner of any requirement of any other governmental agency.
3. Hampton Lumber Mills - Washington, Inc. (Hampton) shall develop and implement the following plans prior to plant startup unless otherwise approved in writing by the Control Officer:
 - a. A Continuous Emission Monitoring System (CEMS) Quality Assurance, Quality Control (QA/QC) Plan that satisfies 40 CFR Part 60, Appendices B and F for continuous monitoring of CO, NOX and O2; and
 - b. An NH3 Emissions Monitoring Plan to relate operating parameters of the wood-waste-fired boiler and control systems with NH3 emissions, and that contains the recording and taking of defined corrective actions.
 - c. A site-specific fuel analysis plan for chlorine content as described in paragraphs (b)(2)(i) through (vi) of 40 CFR

Order of Approval for NC No. 10081

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Section 63.7521. The term "fuel type" shall be taken to mean a new batch of hog fuel, with unknown chlorine content, from a new supplier.

4. Hampton shall maintain an O&M Plan per Puget Sound Clean Air Agency Regulation I, Section 5.05. The O&M Plan shall also contain:

a. Equations, conversion calculations, and any assumptions used to demonstrate compliance and to reasonably assure continuous compliance with emissions standards;

b. Quality assurance procedures for the COMS and CEMS; and

c. Procedures and blank log forms to record all actions taken in order to prevent visible emissions of fugitive dust in accordance with Puget Sound Clean Air Agency Regulation I, Section 9.15(a).

5. Hampton shall maintain records of all monitoring and corrective actions required by this Order available for inspection by the Puget Sound Clean Air Agency. Recordkeeping shall begin no later than 30 days from the date of this Order. The most recent two years worth of records shall be available for inspection after 25 months from the date of this Order.

6. Hampton shall accept from the Town of Darrington chipped, clean land-clearing debris that meets fuel specifications set by Hampton for regular wood-waste fuel.

Wood-waste boiler

7. The wood-waste boiler is subject to Title 40 Code of Federal Regulations Part 60, New Source Performance Standards, Subparts A and Db.

8. Hampton shall fire the wood-waste boiler only on wood-waste or similar natural vegetation. No railroad ties or other wood that has been treated with preservatives shall be combusted in the wood-waste boiler.

9. The exhaust stack from the wood-waste-fired boiler shall not emit any air pollutants which exhibit greater than the following opacity limitations:

a. 20% opacity for any consecutive 6-minute period or greater than 5% opacity for a 1-hour average as measured by a continuous opacity monitoring system (COMS) per Condition 16.

b. 10% opacity for a period or periods aggregating more than 3 minutes in any 1 hour as measured by Department of Ecology Method 9A for initial compliance determination. During the annual emission test required in Condition 12, Hampton shall observe the emissions from the wood-waste boiler/ESP exhaust stack opacity using Department of Ecology Method 9A.

10. The exhaust stack from the wood-waste-fired boiler shall not emit CO in excess of:

a. 0.23 pound per million British thermal units of heat input (lb/MMBtu) averaged over 24 hours, except during periods of startup and shutdown as per Condition 13.

b. 246 tons for any consecutive 12-month period.

Hampton shall employ a continuous emission monitoring system (CEMS) installed, operated, and maintained in

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accordance with Condition 16 to demonstrate compliance with these emission limits.

11. The exhaust stack from the wood-waste-fired boiler shall not emit NOX in excess of:

- a. 0.15 lb/MMBtu averaged over 24 hours, except during periods of startup and shutdown as per Condition 13.
- b. 161 tons for any consecutive 12-month period.

Hampton shall employ a CEMS installed, operated, and maintained in accordance with Condition 16 to demonstrate compliance with these emission limits.

12. The exhaust stack from the wood-waste-fired boiler shall not emit PM10 in excess of:

- a. 0.02 lb/MMBtu averaged over 24 hours, except during periods of startup and shutdown as per Condition 13.
- b. 24.2 tons for any consecutive 12-month period.

Hampton shall perform an annual PM10 emission test in accordance with 40 CFR Part 60, Appendix A Reference Method 5 as approved by Puget Sound Clean Air Agency Board Resolution 540 dated August 11, 1983 to demonstrate compliance with these emission limits. Source testing for PM10 shall be conducted at a frequency no less than once per calendar year, with not less than 6 or more than 18 months between any two annual tests.

13. Startup and shutdown:

- a. Startup from a down condition commences when an ignition flame is first applied to the waste-wood mass in the boiler, and ends when stable burning is established under good combustion practices.
- b. Shutdown commences upon cessation of feed to the boiler, and ends when there is no longer ignited fuel in the boiler.
- c. Neither startup nor shutdown shall exceed a 6 hour continuous period.

14. The exhaust stack from the wood-waste-fired boiler shall not emit ammonia in excess of 25.0 parts per million on a dry volumetric basis, corrected to 7 % O₂ on a 24-hour average. Compliance shall be determined by an annual emissions test in accordance with Bay Area Air Quality Management District's ST-1B and EPA Conditional Test Method (CTM-027), EPA Reference Method 5 with appropriate modifications to the impinger section, or an alternative method approved by the Control Officer, in accordance with Puget Sound Clean Air Agency Regulation I, Section 3.07. Hampton shall utilize test data to relate operating parameters of the wood-waste boiler and control systems to ammonia emissions. Whenever parametric data indicate that ammonia emissions standards in this condition may be exceeded, Hampton shall, as soon as possible, but no later than within 24 hours, either take corrective action or measure actual emissions using the reference method.

15. The exhaust stack from the wood-waste fired boiler shall not emit hydrogen chloride (HCl) in excess of 0.004 lb/MMBtu of heat input on a 24-hour average. Prior to burning hog fuel from a new supplier, Hampton shall conduct a fuel analysis for chlorine on that new fuel according to the fuel analysis plan developed under Condition 3.c. Hampton shall calculate the HCl emission rate using Equation 9 of 40 CFR 63.7530 as described in paragraphs (a)(3)(i) through (iii) of 40 CFR Section 63.6540. Fuel types may be blended to achieve an average chlorine concentration that, when burned in the wood-waste boiler, will not exceed the HCl limit.

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16. Hampton shall install and operate a COMS for measurement of opacity and CEMS for measurement of CO, NOX, and O₂ at the wood-waste boiler/ESP exhaust stack, downstream from the particulate matter control device in accordance with Puget Sound Clean Air Agency Regulation I, Section 12.03 and 40 CFR 60 Subparts A and Db. Calculation of emission rates shall be done by Method 19, with the addition that CO ppm shall be multiplied by 0.00000007269 (7.269E-08 in spreadsheet terminology) to obtain CO in pound per standard cubic feet (lb/scf). Note that this factor is equal to molecular weight of the pollutant divided by 1 million, and then divided by 385.3 ft³ per mole.

Dry kilns

17. The opacity of emissions from the dry kilns shall not exceed 10% for a period or periods aggregating more than 3 minutes in any 1 hour, as determined by WDOE Method 9A. Hampton shall conduct monthly inspections of the dry kilns for visible emissions. Inspections are to be performed during daylight hours while the kilns are in operation. If, during the scheduled inspection or at any other time, visible emissions other than uncombined water are observed, Hampton shall, as soon as possible, but no later than within 24 hours of the initial observation, take corrective action until there are no visible emissions or, alternatively, record the opacity using DOE Method 9A or shut down the kiln until it can be repaired.

18. Initial compliance with Condition 17 shall be determined no later than 120 days after initial startup by a performance test using WDOE Method 9A, in accordance with Puget Sound Clean Air Agency Regulation I, Section 3.07.

19. The Hampton Darrington mill shall not emit more than 9.9 tons of methanol over any consecutive 12-month period. Hampton shall assure reasonably continuous compliance with this condition by operating all dry kilns at the Darrington mill at temperatures not to exceed 200 degrees F on a 1-hour average.

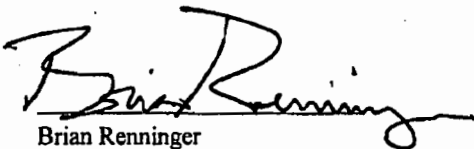
Existing oil-fired boilers

20. Oil-fired boilers at the Hampton mill shall only be operated as necessary to maintain consistent steam when the wood-waste-fired boiler is to be shut-down, and for limited periods for testing. In addition, Boilers 1 and 2 combined shall not combust more than 120,240 gallons of fuel-oil per consecutive 12-month period and Boilers 3 and 4 combined shall not combust more than 128,880 gallons of fuel-oil per consecutive 12-month period. This condition shall not become effective until 30 days after the date upon which operation of the wood waste-fired boiler is commenced, as specified by Hampton on the Notice of Completion required under Puget Sound Clean Air Agency Regulation I, Section 6.09.

21. This Order of Approval No. 10081 hereby supersedes and cancels Order of Approval No. 9767 dated May 1, 2008.

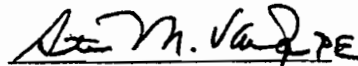
APPEAL RIGHTS

Pursuant to Puget Sound Clean Air Agency's Regulation I, Section 3.17 and RCW 43.21B.310, this Order may be appealed to the Pollution Control Hearings Board (PCHB). To appeal to the PCHB, a written notice of appeal must be filed with the PCHB and a copy served upon Puget Sound Clean Air Agency within 30 days of the date the applicant receives this Order.



Brian Renninger
Reviewing Engineer

ns.



Steven Van Slyke
Supervising Engineer

Valley Bio-Energy
N-8095, 1094135

Appendix D
Sierra Pacific Industries – Burlington Permit

SECTION 5 SPECIFICALLY APPLICABLE REQUIREMENTS

The cited requirements in the "Citation" column and incorporated herein by reference are applicable to emission units specified in the header of the table. These requirements are federally enforceable unless identified as "state only." A requirement designated "state only" is enforceable only by the state or the NWCAA, and not by the EPA or through citizen suits. The "Description" column is a brief description of the applicable requirements for informational purposes only and is not enforceable. Periodic or continuous monitoring requirements, including testing, are specified in the "Monitoring, Recordkeeping and Reporting" (MR&R) column, which identifies MR&R obligations the source must perform as required by WAC 173-401-605(1) and 615(1) and (2) or the underlying requirement. MR&R obligations do not apply to insignificant emission units. The test method cited or any credible evidence may be used to determine compliance.

The requirements in the MR&R column labeled "Directly enforceable" are legally enforceable requirements added under the NWCAA's "gap-filling" authority of WAC 173-401-615(1)(b) & (c), 10/17/02.

Some permit conditions in this section show emission limits in the "Description" column but no test frequency in the "MR&R" column. This is the result of an OAC or NESHAP condition that required an initial performance test that has been completed so there is no requirement for on-going testing. The limit, however, remains as an underlying condition of the permit and is, therefore, included.

5.1 Cogeneration Facility

Steam for the kilns is generated by the cogeneration facility. The cogeneration facility consists of a 430 MMBtu/hr, 250,000 lb/hr steam, McBurney Corp, biomass-fired water-wall boiler with a vibrating grate, a steam turbine, and a generator. The boiler burns wood residuals generated principally by the saw mill to produce high-pressure steam for the steam turbine. The steam turbine generator can generate up to 28 MW of electricity. A portion of the produced power is used on-site; the remaining power is sold to a public utility. Low-pressure steam is extracted from the steam turbine through a controlled extraction and used to heat the dry kilns. The boiler is equipped with two (2) natural gas burners, each rated at 62.5 MMBtu per hour, for start up and flame stabilization. The cogeneration unit design incorporates a selective non-catalytic reduction (SNCR) system to reduce emissions of oxides of nitrogen (NO_x), and a multiclone and ESP to control particulate matter emissions.

Table 5-1 Requirements applicable to EU-1, Cogeneration Facility

Permit Term	Regulatory Citation	Regulatory Description	Monitoring, Recordkeeping, and Reporting Requirements
5.1.1	OAC 938b, Conditions 8 and 9 (2/23/09)	<p><u>Boiler fuel requirements</u> Only clean hog fuel consisting of bark, sawdust, chips, and other wood waste from wood products industries shall be burned in the boiler. Clean hog fuel for purposes of this condition shall meet the following criteria:</p> <ul style="list-style-type: none"> a) Is derived from wood and is of a suitable size and moisture content to sustain adequate combustion; b) Is free of contamination including, but not limited to, non-wood man-made materials, painted wood, wood treated with creosote or other wood preservatives, wood from construction/demolition activities, and wood contaminated with petroleum products. <p>Combustion of wet fuel, i.e., fuel with moisture content greater than or equal to 55 percent, shall not be considered as an affirmative defense to an excess emission condition for the wood-fired boiler. Use of such fuels is a foreseeable occurrence, and as such, compliance with all permit limits and applicable regulations shall be required at all times unless the NWCAA has determined that the cause of the wet fuel condition is due to an unavoidable or emergency situation.</p>	Inspect purchased hog fuel prior to acceptance. Reject contaminated fuel.

Permit Term	Regulatory Citation	Regulatory Description	Monitoring, Recordkeeping, and Reporting Requirements
5.1.2	PSD 05-04 Amendment 1 Conditions 11 and 19 (08/06/09)	<p><u>Boiler fuel data conversions</u> "per MMBtu" shall be determined by:</p> <ul style="list-style-type: none"> • 40 CFR Part 60 Appendix A, Method 19 titled "Determined F Factors" (in the 2004 version of 40 CFR Part 60: Paragraph 12.3.2), or • 40 CFR Part 60 Appendix A, Method 19 Factors from table "F Factors for Various Fuels" (Table 19-2). The factor shall reflect the proportions of wood, bark, and natural gas in the fuel by either: <ul style="list-style-type: none"> ○ Determining the wood and bark proportions of the fuel used during the test based on randomized fuel sampling following procedure outlined in the corresponding test plan approved by Ecology and Northwest Clean Air Agency, or ○ A default assumption of equal proportions of wood and bark. Example: a 50:50 wood/bark mixture with no natural gas will have an F_d factor of 9,420 dscf/MMBtu. 	Maintain records of MMBtu determinations as required in the 40 CFR Part 60 Appendix A Method 19.
5.1.3	PSD 05-04 Amendment 1 Conditions 5 & 27.4.3 (08/06/09)	<p><u>Boiler fuel - natural gas limitation</u></p> <p>The wood-fired cogeneration unit may burn natural gas in the wood-fired cogeneration unit only to ignite the fuel or to maintain good combustion.</p>	Maintain records of natural gas consumed by the cogeneration unit. Records shall include date, times, quantity and the reason for use of natural gas by the cogeneration unit.

Permit Term	Regulatory Citation	Regulatory Description	Monitoring, Recordkeeping, and Reporting Requirements
5.1.4	40 CFR Part 60 Subpart Db §60.42b(k)(2) § 60.44b(d) § 60.49b(d)(1) & (r)(1) (1/28/09)	<p><u>Boiler fuel - NO_x and SO₂ limitation</u></p> <p>The annual capacity factor for natural gas shall not exceed 10 percent (0.10).</p> <p>The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month.</p>	<p>Record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for natural gas and wood for the reporting period.</p> <p>Obtain and maintain at the affected facility fuel receipts from the fuel supplier that certify that the gaseous fuel meets the definition of natural gas.</p> <p>Reports shall be submitted to the Administrator certifying that only natural gas, wood, and/or other fuels that are known to contain insignificant amounts of sulfur were combusted in the affected facility during the reporting period.</p>

Permit Term	Regulatory Citation	Regulatory Description	Monitoring, Recordkeeping, and Reporting Requirements
5.1.5	PSD 05-04 Amendment 1 Conditions 4.1.1 & 4.2.1 (08/06/09)	<p><u>Boiler startup</u> defined:</p> <p>Cold startup is one that starts or resumes feeding fuel of any type when the wood-fired cogeneration unit furnace temperature is 150 °F or lower. A cold startup ends upon the earlier of:</p> <ul style="list-style-type: none"> • Four hours after starting wood fuel feed to the boiler, • Dry basis flue gas carbon dioxide concentration has been greater than or equal to 11% and less than or equal to 13% for one hour while the flue gas CO concentration has simultaneously not exceeded 260 ppm_{dv}, • Steam flow exceeded 150,000 pounds over the previous hour, or • 24 hours after starting or resuming feeding fuel of any type. <p>A warm startup is one that starts or resumes feeding fuel of any type when the wood-fired cogeneration unit furnace temperature is higher than 150 °F. A warm startup ends upon the earlier of:</p> <ul style="list-style-type: none"> • Four hours after starting wood fuel feed to the boiler, • Dry basis flue gas carbon dioxide concentration has been greater than or equal to 11% and less than or equal to 13% for one hour while the flue gas CO concentration has simultaneously not exceeded 260 ppm_{dv}, • Steam flow exceeded 150,000 pounds over the previous hour, or • Eight hours after starting or resuming feeding fuel of any type. 	<p><i>Directly Enforceable</i></p> <p>Maintain records in accordance with Section 2.4; furnace temperature, fuel feed start and stop, and steam production including times and dates to demonstrate that a startup has occurred.</p>

Permit Term	Regulatory Citation	Regulatory Description	Monitoring, Recordkeeping, and Reporting Requirements
5.1.6	PSD 05-04 Amendment 1 Conditions 4.1.2 & 4.2.2 (08/06/09)	<p><u>Boiler shutdown</u> defined:</p> <p>A cold shutdown is one wherein wood fuel feed stops, and the furnace is allowed to cool to 150 °F or lower. A cold shutdown ends when:</p> <ul style="list-style-type: none"> • No fuel of any type is being feed, and the furnace temperature is 150 °F or lower and the FD fan is off-line, or • 24 hours after wood fuel feed was stopped, whichever comes first. <p>A warm shutdown is one wherein wood fuel feed stops, but the furnace temperature does not cool to 150 °F or lower before wood fuel feed is resumed.</p> <p>A warm shutdown ends when:</p> <ul style="list-style-type: none"> • Wood fuel feed is resumed, • No fuel of any type is being feed, and the furnace temperature is 150 °F or lower (at which point the shutdown becomes a "cold shutdown"), or <p>24 hours after wood fuel feed was stopped, whichever comes first.</p>	<p><i>Directly enforceable</i></p> <p>Maintain records of furnace temperature, fuel feed start and stop, and steam production, including times and dates to demonstrate that a shutdown has occurred.</p>

Permit Term	Regulatory Citation	Regulatory Description	Monitoring, Recordkeeping, and Reporting Requirements
5.1.7	OAC 938b, Conditions 4 and 5, 2/23/09	<p><u>Boiler stack opacity</u></p> <p>The exhaust stack from the wood-fired boiler shall not emit any air pollutants which exhibit greater than the following opacity limitations:</p> <ul style="list-style-type: none"> • 20% opacity for a period or periods aggregating more than 3 minutes in any 1 hour as measured by a COMS. • 5% opacity (1-hour average) as measured by a continuous opacity monitoring system (COMS), except for periods of soot-blowing. • 10% opacity (aggregated 3 minutes in any 1 hour) as measured by WA DOE Method 9A. <p>Soot-blowing shall occur as a regularly scheduled event and shall not exceed 1 hour per 8-hour shift.</p> <p>Soot-blowing shall not cause the boiler stack to exceed 10% opacity (1-hour average) as measured by COMS.</p> <p>Deviations from the regular soot-blowing schedule that result in excess emissions shall trigger agency notification.</p>	<p>Install and operate a COMS for measurement of opacity at the wood-fired boiler/ESP exhaust stack, downstream from the particulate matter control device in accordance with NWCAA Regulation 367 and Appendix A and applicable 40 CFR Part 60 Appendix A and B specifications.</p> <p>Record and maintain a soot-blowing schedule. Maintain records of soot-blowing including start and stop times.</p> <p>Annually, conduct a 40 CFR 60 Appendix A Method 9 test. Notification and reports shall be provided to the NWCAA as specified in NWCAA Regulation Appendix A.</p>
5.1.8	40 CFR Part 60 Subpart Db § 60.43b(f), § 60.46b(d)(7), § 60.48b(a), (e)(1) § 60.49b(d), (f), (h)(3), (w) (1/28/09)	<p><u>Boiler stack opacity</u></p> <p>SPI shall not cause to be discharged into the atmosphere any gases that exhibit greater than 20% opacity (6-minute average), <i>except</i> for one 6-minute period per hour of not more than 27 percent opacity</p>	<p>Follow MR&R in term 5.1.7</p> <p>Maintain records of opacity</p> <p>Submit excess emission reports for all 6-minute periods during which average opacity exceeds standards. The reporting period for the reports required under this subpart is each 6 month period. All reports shall be submitted to the NWCAA and shall be postmarked by the 30th day following the end of the reporting period.</p>

Permit Term	Regulatory Citation	Regulatory Description	Monitoring, Recordkeeping, and Reporting Requirements
5.1.9	OAC 938b, Conditions 6 and 7 2/23/09	<p><u>Boiler stack ammonia limit</u> Emissions of ammonia from the wood-fired boiler shall not exceed</p> <ul style="list-style-type: none"> • 50 ppm_{dv} NH₃ corrected to 7% O₂ as a 24-hour average 	<p>Demonstrate compliance at least once every twelve months in accordance with Bay Area Air Quality Management District Source Test Procedure #1B (BAAQMD ST-1B) or alternative method approved by NWCAA. Monitor and record ammonia feed rate and NO_x emissions during the tests.</p> <p>Maintain and operate the boiler and urea injection system (SNCR system) in accordance with good air pollution control practices and in a manner minimizing particulate and visible emissions from the unit.</p> <p>At least 30 days prior to any modification of the ammonia injection system, a written notification to the NWCAA is required and an updated Ammonia Emissions Monitoring Plan must be submitted evaluating a predictive relationship between boiler and SNCR parameters and emissions of ammonia.</p> <ol style="list-style-type: none"> a) An initial plan shall be submitted to NWCAA for approval at least 30 days prior to startup and shall include specific operating parameters. b) A final plan shall be submitted to NWCAA for approval within 60 days after conducting the initial ammonia compliance test and shall contain source test results and the established relationship between the boiler and SNCR operating parameters and ammonia emissions. This plan shall define QA/QC procedures and corrective actions when parameter monitoring indicates the emission limit in Condition 6 may be exceeded

Permit Term	Regulatory Citation	Regulatory Description	Monitoring, Recordkeeping, and Reporting Requirements
5.1.10	PSD 05-04 Amendment 1 Conditions 6.1, 20, 26.1, 26.3, and 27.3.3.2.1 (08/06/09)	<p><u>Boiler stack NO_x limits</u> NO_x emissions shall not exceed, on a daily average:</p> <ul style="list-style-type: none"> • 0.13 lb NO_x/MMBtu • 56 lb NO_x/hr 	<p>Monitor continuing compliance with a CEMS that satisfies the requirements of 40 CFR 60.48b(b) through (f) and Section 2.1.9. Compliance will be determined from the arithmetic mean of the hours of valid NO_x emissions data in lb NO_x/MMBtu. Data that is "valid" shall be as defined in 40 CFR 60.13(h). A calendar day used for compliance monitoring shall have at least 18 hours of valid data. Valid data from any calendar day having fewer than 18 hours of valid data shall be included in either the following or preceding day's data, whichever is contiguous, and the 24-hour average calculated using the cumulative hours of the conjoined periods.</p> <p>Use EPA Method 19 for calculation of lb/MMBtu from ppm.</p> <p>Annual NO_x CEMS RATA certification shall be conducted concurrently with CO CEMS RATA certification.</p> <p>Quarterly, submit NO_x emissions data in continuing performance monitoring reports in accordance with 5.1.16.</p>

Permit Term	Regulatory Citation	Regulatory Description	Monitoring, Recordkeeping, and Reporting Requirements
5.1.11	PSD 05-04 Amendment 1 Conditions 6.4, 24, and 27.3.3.2.8 (08/06/09)	<p><u>Boiler stack SO₂ limits</u></p> <p>SO₂ emissions shall not exceed:</p> <ul style="list-style-type: none"> • 0.025 lb SO₂/MMBtu on a 3-hour average, based on the heat input value of the fuel • 47.1 tons SO₂ over any consecutive 12-month period. 	<p>Demonstrate continuing compliance with the arithmetic mean of not less than three 1-hour Method 6, 6A, or 6C samples (unless an equivalent test method has been approved by Ecology and NWCAA) by an independent testing vendor at least once every 12 months, to coincide with RATA for the CEMS. Use Method 19 to develop a lb/MMBtu emission factor. Multiply emission factor by fuel heat input rate to determine SO₂ mass emissions.</p> <p>If three consecutive tests (each test being the average of three 1-hour samples) have emissions less than 0.019 lb/MMBtu, testing interval goes to at least once every 24 months. Any test with an average of 0.019 lb SO₂/MMBtu or greater causes the testing interval to go back to at least once every 12 months.</p> <p>Monitor continuous compliance on a monthly basis by multiplying SO₂ emission factor (developed during initial compliance test) by monthly average firing rates (unless an equivalent test method has been approved by Ecology and NWCAA). Calculate and show mass emission rates determined monthly using the appropriate procedures outlined in 40 CFR Part 60 Appendix A Method 19, unless otherwise approved by Ecology and NWCAA.</p> <p>Quarterly, submit SO₂ emissions data in continuing performance monitoring reports in accordance with 5.1.16.</p>

Permit Term	Regulatory Citation	Regulatory Description	Monitoring, Recordkeeping, and Reporting Requirements
5.1.12	PSD 05-04 Amendment 1 Conditions 6.2, 21, 26.2 and 27.3.3.2 (08/06/09)	<p><u>Boiler stack CO limits</u> CO emissions shall not exceed;</p> <ul style="list-style-type: none"> • 0.35 lb CO/MMBtu, 1-hour average • 400 lb CO/hr 1-hour average, during cold startups and shutdowns • 300 lb CO/hr 1-hour average, during warm startups and shutdowns • 659 tons CO in any consecutive 12-month period (including startups and shutdowns). 	<p>Monitor continuing compliance at all times the furnace temperature exceeds 150 °F by a CEMS that satisfies the requirements in 40 CFR 60, Appendix B, Performance Specification 4, 40 CFR 60, Appendix F and Section 2.1.9.</p> <p>Compliance shall be demonstrated averaging the arithmetic mean of the emissions data for each operating scenario and averaging period.</p> <p>The span and linearity calibration gas concentrations in Method 10 will be appropriate to the CO concentration limits specified in this condition.</p> <p>Use EPA Method 19 for calculation of CO emission factor in lb/MMBtu from ppm, using a value of 7.270E-08 pound of CO per standard cubic foot of stack gas. Multiply CO emission factor in lb/MMBtu by fuel input rate in MMBtu/hr to get CO emission rate in pounds per hour.</p> <p>Quarterly, submit CO emissions (lb/MMBtu and 12-month total data, as well as times, durations, and average hourly CO mass emissions for any cold or warm start-ups and shutdowns) in continuing performance monitoring reports in accordance with 5.1.16.</p>

Permit Term	Regulatory Citation	Regulatory Description	Monitoring, Recordkeeping, and Reporting Requirements
5.1.13	PSD 05-04 Amendment 1 Conditions 6.3, 22.1, and 27.3.3.2.6 (08/06/09)	<p><u>Boiler stack PM/PM₁₀/PM_{2.5} limits (filterable + condensable) expressed as PM₁₀ emissions shall not exceed:</u></p> <ul style="list-style-type: none"> • 0.02 lb PM₁₀/MMBtu 24-hour average, based on the heat input value of the fuel • 37.7 tons PM₁₀ in any consecutive 12-month period 	<p>Monitor continuing compliance by conducting 40 CFR Part 60 Appendix A Methods 5 (in the manner prescribed in 40 CFR 60.46b(d)) and 202 by an independent testing vendor at least once every 12 months.</p> <p>Compliance will be demonstrated from the arithmetic mean of not less than three 2-hour test samples.</p> <p>The emission rate expressed in lb PM₁₀/MMBtu will be determined using the procedure described in 40 CFR 60.46b(d)(6). Equivalent concentration test methods may be used if approved in advance by Ecology and NWCAA.</p> <p>Monitor compliance with the mass emission limit calculating the arithmetic mean of the test results in tpy PM₁₀ based on monthly average firing rates.</p> <p>If three consecutive tests (each test being the average of three 2-hour samples) have emissions less than 0.015 lb/MMBtu, testing interval goes to at least once every 24 months. Any test with an average of 0.015 lb/MMBtu or greater causes the testing interval to go back to at least once every 12 months.</p> <p>Quarterly, submit PM₁₀ emissions (12-month total data) in continuing performance monitoring reports in accordance with 5.1.16.</p>
5.1.14	40 CFR Part 60 Subpart Db § 60.43b(h)(4), § 60.46b(b), (d)(1)-(6), (j), § 60.49b(d)(1/28/09)	<p><u>Boiler stack PM limit</u></p> <p>Emission of particulate matter shall not exceed</p> <ul style="list-style-type: none"> • 0.085 lb PM/MMBtu <p>Standard applies at all times, except during periods of startup, shutdown or malfunction.</p>	<p>Demonstrate compliance by performance testing in accordance with 40 CFR Part 60 Appendix A, Methods 1, 3 and 5 upon request by the administrator.</p> <p>Maintain records of each fuel combusted on a daily basis as required in Section 2.4</p>

Permit Term	Regulatory Citation	Regulatory Description	Monitoring, Recordkeeping, and Reporting Requirements
5.1.15	PSD 05-04 Amendment 1 Conditions 6.5, 25.1, and 27.3.3.2.10 (08/06/09)	<p><u>Boiler stack VOC limits</u></p> <p>Emissions calculated as propane (MW 44) shall not exceed:</p> <ul style="list-style-type: none"> • 0.019 lb VOC/MMBtu 1-hour average, based on the heat input value of the fuel • 35.8 tons VOC in any consecutive 12-month period 	<p>Monitor continuous compliance with the arithmetic mean of not less than three Method 25, 25A, or 25B samples (unless an equivalent test method has been approved by Ecology) by an independent testing vendor at least once every 12 months, to coincide with RATA for the CEMS. Use Method 19 (with VOC as propane) and fuel heat input rate to determine VOC mass emissions.</p> <p>If three consecutive tests (each test being the average of three 1-hour samples) have emissions less than 0.014 lb/MMBtu, testing interval goes to at least once every 24 months. Any test with an average of 0.014 lb/MMBtu or greater causes the testing interval to go back to at least once every 12 months.</p> <p>Monitor continuous compliance on an hourly basis by multiplying VOC emission factor (developed during most recent compliance test) by hourly average firing rates (unless an equivalent test method has been approved by Ecology and NWCAA).</p> <p>Monitor continuous compliance on a monthly basis from the arithmetic mean of the most recent test results and monthly average firing rates. Mass emission rates will be determined using Method 19 with indicated calculations modified to be applicable to VOCs measured as propane (unless an equivalent test method has been approved by Ecology and NWCAA).</p> <p>Quarterly, submit VOC emissions (12-month total data) in continuing performance monitoring reports in accordance with 5.1.16.</p>

Permit Term	Regulatory Citation	Regulatory Description	Monitoring, Recordkeeping, and Reporting Requirements
5.1.16	PSD 05-04 Amendment 1 Condition 27.3 (08/06/09)	<p><u>Boiler reports:</u> Quarterly, submit continuing compliance reports to NWCAA and Ecology (postmarked no later than one calendar month after the close of each respective calendar quarter) which shall include:</p>	<p>The report shall include: Certification by the responsible party for the facility that the relevant equipment was operated and maintained in accordance with the O & M Manual. NO_x emissions (lb/MMBtu) since the last report CO emission (lb/MMBtu) since the last report For each month since the last report, show the 12-month CO mass emissions ending with that month The times, durations, and average hourly CO mass emissions for any cold or warm start-ups and shutdowns Results of any required source tests for PM10 since the last report. 12-month PM10 mass emissions ending with that month Results of any required source tests for SO2 since the last report For each month since the last report, show the 12-month SO2 mass emissions ending with that month Results of any required source tests for VOCs since the last report For each month since the last report, show the 12-month VOC mass emissions ending with that month. The duration and nature of any CEMS down-time excluding zero and span checks Results of any CEMS audits or accuracy checks</p>

Permit Term	Regulatory Citation	Regulatory Description	Monitoring, Recordkeeping, and Reporting Requirements
5.1.17	40 CFR §72.6(b)(4)(ii) (3/1/01)	<p><u>Cogeneration unit regulatory status:</u> Supply equal to or less than one-third the potential electrical output capacity or equal to or less than 219,000 MWe-hrs actual electric output on an annual basis to any utility power distribution system for sale (on a gross basis).</p> <p>If in any three calendar year period, the unit sells to a utility power distribution system an annual average of more than one-third of its potential electrical output capacity and more than 219,000 MWe-hrs actual electric output (on a gross basis), that unit shall be an affected unit, subject to the requirements of the Acid Rain Program.</p>	<p><i>Directly enforceable</i> Maintain records of electricity generation and sales in accordance with Section 2.4.</p>

Valley Bio-Energy
N-8095, 1094135

Appendix E
Sierra Pacific Industries – Aberdeen Permit



AIR OPERATING PERMIT

Olympic Region Clean Air Agency
2940 B Limited Lane NW
Olympia, WA 98502
(360) 586-1044 or 1-800-422-5623

ISSUED IN ACCORDANCE WITH:
40 CFR Part 70, Chapter 70.94 RCW, and Chapter 173-401 WAC

PERMIT NO: 04AOP358

ISSUANCE DATE: July 13, 2007

EXPIRATION DATE: July 13, 2012

PERMITTEE & MAILING ADDRESS: Sierra Pacific Industries
Aberdeen Cogeneration Facility
301 Hagara Street
Aberdeen, WA 98520

FACILITY LOCATION: 301 Hagara Street
Aberdeen, WA 98520

FACILITY DESCRIPTION: Cogeneration of steam and electricity from
waste wood combustion

ORCAA File #: 244

PRIMARY SIC: 4911

REVIEWED BY: _____
Mark V. Goodin

APPROVED BY: _____
Richard A. Stedman

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1. Air Operating Permit Regulatory Basis

Pursuant to Chapter 173-401 Washington Administrative Code (WAC), Sierra Pacific Industries (SPI) is authorized to operate their steam and electricity cogeneration facility located at 301 Hagara Street in Aberdeen, Washington, in accordance with the terms and conditions listed in this permit.

The conditions in this permit contain the emission limitations, operating requirements, and monitoring, recordkeeping, and reporting requirements that apply to the facility. All terms and conditions of this permit, including any provisions designed to limit potential to emit, are enforceable under the Federal Clean Air Act (FCAA) unless specifically identified as not federally enforceable in the "regulatory basis" description that follows each condition. Conditions identified as "local only" are enforceable only by Olympic Region Clean Air Agency (ORCAA). Conditions identified as "state/local only" are enforceable only by ORCAA and the State of Washington. Conditions identified as "local only" or "state/local only" are not federally enforceable.

The conditions in this permit contain abbreviated and in some cases paraphrased versions of the exact language of the applicable requirements from the underlying laws, regulations and regulatory orders. Any difference between the description of an applicable requirement in this permit compared to the corresponding law, regulation or order is provided for purposes of clarifying the underlying requirement. The legal requirement remains the underlying applicable requirement cited in the "Applicable Requirement" column of the tables and the citations contained in brackets at the end of each requirement. Any perceived conflicts between the permit and an underlying applicable requirement will be resolved by referring to the cited applicable requirement.

Unless otherwise stated, terms used in the conditions of this permit shall be defined consistent with their definitions from the corresponding referenced regulations. If not defined in the referenced regulations, terms shall be defined consistent with the definitions contained in Chapter 70.94 RCW, WAC 173-401-200, WAC 173-400-030, and Rule 1.4 of ORCAA Regulations. Terms not defined in this permit or by applicable regulation shall be defined consistent with the Merriam-Webster's Collegiate Dictionary, Tenth Edition copyright © 2002 by Merriam-Webster Inc.

Unless otherwise stated, the versions of the referenced laws, regulations and orders cited in this permit are the versions that were in effect on the date this permit was issued.

2. Standard Terms and Conditions

Standard terms and conditions are administrative and other requirements that have no ongoing compliance monitoring requirements. The permittee must comply with the requirements listed below, and must certify compliance annually. Unless the text of the term is specifically identified to be directly enforceable, the language of the cited regulation takes precedence.

2.1 Duty to comply. The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of Chapter 70.94 RCW and, for federally enforceable provisions, a violation of the FCAA. Such violations are grounds for enforcement action; for permit termination, revocation and re-issuance, or modification; or for denial of a permit renewal application. [WAC 173-401-620(2)(a)]

2.2 Duty to Provide Information. The permittee shall furnish to ORCAA, within a reasonable time, any information that ORCAA may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit, or to determine compliance with the permit. Upon request, the permittee shall also furnish to ORCAA copies of records that the permittee is required to keep by this permit, or for information claimed to be confidential, the permittee may furnish such records directly to ORCAA along with a claim of confidentiality. Permitting authorities shall maintain confidentiality of such information in accordance with RCW 70.94.205. [WAC 173-401-620(2)(e)]

2.3 Need to Halt or Reduce Activity Not a Defense. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. [WAC 173-401-620(2)(b)]

2.4 Property Rights. This permit does not convey property rights of any sort, or any exclusive privilege. [WAC 173-401-620(2)(d)]

2.5 Annual Fees. The permittee shall pay an annual permit fee as a condition of this permit in accordance with ORCAA's fee schedule contained in Rule 3.2. Failure to pay fees in a timely fashion shall subject the permittee to civil and criminal penalties as prescribed in Chapter 70.94 RCW. [ORCAA 3.2; WAC 173-401-620(2)(f)]

2.6 Severability. If any provision of this permit is to be held invalid, all unaffected provisions of the permit shall remain in effect and enforceable. [WAC 173-401-620(2)(h)]

2.7 Federally Enforceable Requirements.

- a) All terms and conditions in this air operating permit, including any provision designed to limit potential to emit, are enforceable by the Administrator and citizens under the FCAA.
- b) Notwithstanding subsection (a) of this condition, any terms and conditions included in this permit that are not required under the FCAA or under any of its applicable requirements are specifically designated as "state" or "local" only, and are not federally enforceable under the FCAA. Terms and conditions so designated are not subject to the requirements of WAC 173-401-810.

[WAC 173-401-625]

2.8 Permit Actions. This permit may be modified, revoked, reopened, and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and re-issuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. [WAC 173-401-620(2)(c)]

2.9 Permit Appeals. This permit or any conditions in it may be appealed only by filing an appeal with the Washington State Pollution Control Hearings Board and serving it on ORCAA within thirty days from receiving the permit pursuant to RCW 43.21B.310. This provision for appeal in this section is separate from and additional to any federal rights to petition and review under §505(b) of the FCAA. [WAC 173-401-620(2)(i)]

2.10 Permit Renewal and Expiration. This permit is issued for a fixed term of five years from date of issuance. Permit expiration terminates the permittee's right to operate the source unless a complete renewal application has been submitted to ORCAA no later than six months prior to the expiration date of this permit. This permit and all conditions contained therein, including any permit shield provided under WAC 173-401-640, shall not expire until the renewal permit has been issued or denied if a complete application has been submitted by the renewal application due date. An application shield granted pursuant to WAC 173-401-705(2) shall remain in effect until the renewal permit has been issued or denied if a complete application has been submitted by the renewal application due date. This protection shall cease to apply if, subsequent to a completeness determination, the applicant fails to submit by the deadline specified in writing by ORCAA any additional information identified as being needed to process the application. [WAC 173-401-705; WAC 173-401-610; WAC 173-401-620(2)(j)]

2.11 Duty to Supplement or Correct Application. The permittee, upon becoming aware that any relevant facts were omitted or incorrect information was submitted in the permit application, shall promptly submit such supplementary facts or corrected information. [WAC 173-401-500(6)]

2.12 Reopening for Cause. The permit shall be reopened and revised under any of the following circumstances:

- a) Additional requirements become applicable to the source with a remaining permit term of three or more years. Such a reopening shall be completed not later than eighteen months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions have been extended pursuant to WAC 173-401-620(2)(j);
- b) Additional requirements (including excess emissions requirements) become applicable to an affected source under the acid rain program. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into the permit;
- c) ORCAA or the Administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit; or
- d) ORCAA or the Administrator determines that the permit must be revised or revoked to assure compliance with the applicable requirements.

[WAC 173-401-730]

2.13 Changes not Requiring Permit Revision/Off Permit Changes. The permittee may make the changes described in WAC 173-401-722 and WAC 173-401-724 without revising this permit, provided that the changes satisfy the criteria set forth in those sections. [WAC 173-401-722; WAC 173-401-724]

2.14 Permit Revisions. This permit may be revised as provided in WAC 173-401-720 (administrative permit amendments) and WAC 173-401-725 (permit modifications). [WAC 173-401-720; WAC 173-401-725]

2.15 Emission Trading. No permit revision shall be required under any approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for in the permit. [WAC 173-401-620(2)(g)]

2.16 Compliance Maintenance. The permittee shall maintain compliance with all applicable requirements with which the source was in compliance as of the date of permit issuance. The permittee shall meet on a timely basis any applicable requirements that become effective during the permit term. [WAC 173-401-630(3); WAC 173-401-510(2)(h)(iii)]

2.17 False or Misleading Statements. No person shall willfully make a false or misleading statement to ORCAA as to any matter within the jurisdiction of ORCAA. [Local only. ORCAA 7.2; WAC 173-400-105(7)]

2.18 Inspection and Entry.

- a) Upon presentation of appropriate credentials, the permittee shall allow a representative from ORCAA or an authorized representative to perform the following:
 - i) Enter upon the premises where a Chapter 401 source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
 - ii) Have access to and copy at reasonable times any records that must be kept under the conditions of this permit;
 - iii) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and
 - iv) Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the permit or other applicable requirements.
- b) Nothing in this condition or permit shall limit the ability of EPA to inspect or enter the premises of the permittee under Section 114 or other provisions of the Federal Clean Air Act.

[WAC 173-401-630(2)]

2.19 Access for Inspection. No person shall refuse entry or access to an ORCAA representative who requests entry for the purpose of inspection, and who presents appropriate credentials; nor shall any person obstruct, hamper or interfere with any such inspection. [Local Only: ORCAA 1.5(e)]

2.20 Credible Evidence. For purposes of certifying compliance or establishing whether or not the permittee has violated or is in violation of this permit, nothing shall preclude the use, including the exclusive use, of any credible evidence. [40 CFR 51.212; 40 CFR 52.12; 40 CFR 52.33; 40 CFR 60.11; 40 CFR 61.12]

2.21 Emergency as Affirmative Defense. An emergency, as defined in WAC 173-401-645(1), constitutes an affirmative defense to an action brought for non-compliance with a technology-based emission limitation provided the criteria and procedures of WAC 173-401-645(3) are met. This provision is in addition to the affirmative defense for unavoidable excess emissions found in WAC 173-400-107. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that demonstrates:

- a) An emergency occurred and that the permittee can identify the cause(s) of the emergency;
- b) The permitted facility was at the time being properly operated;
- c) During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and
- d) The permittee submitted notice of the emergency to the permitting authority within two working days of the time when emission limitations were exceeded due to the emergency or shorter periods of time specified in an applicable requirement. This notice fulfills the requirement of WAC 173-401-615(3)(b) unless the excess emissions represent a potential threat to human health or safety. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

[WAC 173-401-645(2); WAC 173-401-645(5)]

2.22 Unavoidable Excess Emissions Excused. Excess emissions due to startup, shutdown, scheduled maintenance or upset conditions that are determined by ORCAA to be unavoidable under the procedures and criteria in WAC 173-400-107 and ORCAA Rule 8.7, shall be excused and not subject to penalty. The permittee shall have the burden of proving to ORCAA that excess emissions were unavoidable. Excess emissions may qualify for consideration as unavoidable excess emissions provided the permittee includes in the permit deviation report required by condition 8.5(c) of this permit, information that demonstrates:

- a) The event was not caused by poor or inadequate design, operation, maintenance, or any other reasonably preventable condition;
- b) The event was not of a recurring pattern indicative of inadequate design, operation, or maintenance; and,
- c) The operator took immediate and appropriate corrective action in a manner consistent with good air pollution control practice for minimizing emissions during the event, taking into account the total emissions impact of the corrective action, including slowing or shutting down the emissions unit as necessary to minimize emissions, when the operator knew or should have known that an emission standard or permit condition was being exceeded.

[WAC 173-400-107; ORCAA 8.7]

3. Actions Requiring Prior Approval

3.1 New Source Review. Prior to commencing any new installation, replacement, modification or alteration of any stationary source, emission unit, area source or fugitive source, the permittee shall secure all necessary approvals under Rule 6.1 of ORCAA Regulations. [ORCAA 6.1]

3.2 Replacement or Substantial Alteration of Existing Control Equipment. Prior to commencing replacement or substantial alteration of existing control equipment, the permittee shall secure all necessary approvals under Rule 6.1 of ORCAA Regulations. [State/Local Only: ORCAA 6.1.10]

3.3 Demolition and Asbestos Projects. The permittee shall comply with the notification and approval requirements in Rule 6.3.2 of ORCAA Regulations prior to commencing any asbestos or demolition project at the facility as defined in Rule 6.3.1 of the regulation. [Local Only: ORCAA 6.3.2]

3.4 Demolition and Renovation Projects. The permittee shall comply with the notification requirements in 40 CFR 61.145 (b) prior to commencing any renovation or demolition activities at the facility as defined in 40 CFR 61.141. [40 CFR 61.145(b)]

3.5 Temporary Sources. The permittee may operate portable air contaminant sources at temporary locations within the facility subject to this permit provided that the permittee has complied with the requirements for temporary portable sources under ORCAA Rule 6.1.1. [WAC 173-401-635; ORCAA 6.1.1]

4. Facility-Wide and General Applicable Requirements

The following facility-wide and general applicable requirements apply to all stationary sources of emissions throughout the facility including emission units (EUs), area sources, and insignificant emission units (IEUs). However, any monitoring requirements identified in the right hand column of the following table pursuant to WAC 173-401-615(1) and (2) and any of the general recordkeeping and reporting requirements of this permit are not required for IEU's.

#	Applicable Requirement Citations	Applicable Requirement Description (for information purposes only)	Reference Method (if applicable)	Required Monitoring Provisions
4.1	40 CFR 61.145(b); ORCAA 6.3.2 (local only)	Demolition and Renovation Projects. The permittee shall conduct all renovation, demolition and asbestos projects in accordance with applicable asbestos control standards and requirements in ORCAA Rule 6.3, 40 CFR § 61.145 and 40 CFR §61.150.	None	None
4.2	40 CFR 82 Subpart F	Stratospheric Ozone. The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, Recycling and Emissions Reduction.	None	None
4.3	WAC 173-400-040(5); ORCAA 7.6 (local only)	Emissions Detrimental to Persons or Property. No person shall cause or permit the emission of any air contaminant from any source if it is detrimental to the health, safety, or welfare of any person, or causes damage to property or business.	None	6.4
4.4	WAC 173-400-040(2); ORCAA 8.3(e) (local only)	Fallout. No person shall cause or permit the emission of particulate matter from any source to be deposited beyond the property under direct control of the owner(s) or operator(s) of the source in sufficient quantity to interfere unreasonably with the use and enjoyment of the property upon which the material is deposited.	None	6.4 6.5
4.5	WAC 173-400-040(4) (state only); ORCAA 8.5(a) (local only)	Odors. Any person who shall cause or allow the generation of any odor from any source which may unreasonably interfere with any other property owner's use and enjoyment of his or her property must use recognized good practice and procedures to reduce these odors to a reasonable minimum.	None	6.4
4.6	ORCAA 8.5 (local only)	Odors. No person shall cause or allow the emission or generation of any odor from any source that unreasonably interferes with another person's use and enjoyment of their property	None	6.4
4.7	WAC 173-400-040(3)(a)	Fugitive Emissions Control. The owner or operator of any emission unit engaging in materials handling, construction, demolition or any other operation which is a source of fugitive emissions: a) If located in an attainment area and not impacting any non-attainment area, shall take reasonable precautions to prevent release of air contaminants from the operation.	None	6.4

4. Facility-wide and General Applicable Requirements (continued)

#	Applicable Requirement Citations	Applicable Requirement Description (for information purposes only)	Reference Method (if applicable)	Required Monitoring Provisions
4.8	WAC 173-400-040(8)(a); ORCAA 8.3(c) (local only)	Fugitive Dust Control. Reasonable and/or appropriate precautions shall be taken to prevent fugitive particulate material from becoming airborne; a) When handling, loading, unloading, transporting, or storing particulate material; or, b) When constructing, altering, repairing or demolishing a building, or its appurtenance, or a road; or, c) From an untreated open area. For the purpose of this requirement, fugitive particulate means particulate material which is generated incidental to an operation, process or procedure and is emitted into the open air from points other than an opening designed for emissions such as a stack or vent.	None	6.5
4.9	WAC 173-400-040(7); ORCAA 7.5 (local only)	Concealment and Masking. Prohibits the installation or use of any device or use of any method that conceals or masks an emission of an air contaminant which would otherwise violate any provision of WAC 173-400 and/or ORCAA Regulations.	None	None
4.10	ORCAA 8.8 (local only)	Maintenance and Repair of Air Pollution Control Equipment and Processes. All air contaminant sources are required to keep any process and/or air pollution control equipment in good operating condition and repair.	None	6.7
4.11	ORCAA 8.2 (local only); WAC 173-400-040(1)	General Standards for Maximum Visual Emissions. (a) In equipment or facilities, including boilers using hogged fuel, regardless of their date of installation, no person shall cause or allow the emission to the outdoor atmosphere, for more than three (3) minutes in any one hour, of a gas stream containing air contaminants which are greater than 20% opacity. (b) Observations shall be made by trained and certified observers or by LIDAR instrumentation. (c) The exceptions to the opacity standard stated in (a) above are as follows: i. Emissions occurring due to soot blowing or grate cleaning may be greater than 20% opacity; providing the operator can demonstrate that soot blowing or grate cleaning will not exceed a total of 15 minutes in any consecutive 8 hours. This practice, except for testing and troubleshooting, is to be scheduled for the same approximate times each day and ORCAA shall be advised of the schedule. ii. When the owner or operator of a source supplies valid data to show that the presence of uncombined water is the only reason for the opacity to exceed 20%.	EPA Method 9	6.1 6.2 6.3
4.12	WAC 173-400-040(6)	Sulfur Dioxide. WAC 173-400-040(6) prohibits emission of a gas containing sulfur dioxide from any emission unit in excess of one thousand ppm of sulfur dioxide on a dry basis, corrected to seven percent oxygen for combustion sources, and based on the average of any period of sixty consecutive minutes in accordance with the reference test method.	EPA Method 6, 6A, 6B, or 6C	6.6

4. Facility-wide and General Applicable Requirements (continued)

#	Applicable Requirement Citations	Applicable Requirement Description (for information purposes only)	Reference Method (if applicable)	Required Monitoring Provisions
4.13	WAC 173-400-050(1); ORCAA 8.3(a) (local only)	General Particulate Standards for Combustion Units. No person shall cause or permit the emissions of particulate matter in excess of 0.23 gram per dry cubic meter at standard conditions (0.1 grain/dscf), except, for an emissions unit combusting wood derived fuels for the production of steam. No person shall allow or permit the emission of particulate matter in excess of 0.46 gram per dry cubic meter at standard conditions (0.20 grain/dscf), as measured by EPA method 5 or approved procedures contained in "Source Test Manual – Procedures For Compliance Testing" state of Washington, Department of Ecology. Measured concentrations shall be adjusted for volumes corrected to 7% oxygen, except when ORCAA determines that an alternate oxygen correction factor is more representative of normal operations.	EPA Method 5 of 40 CFR Part 60, Appendix A.	None
4.14	WAC 173-400-060 ORCAA 8.3(a) (local only)	General Emission Standards for Process Units. No person shall cause or permit the emission of particulate material from any general process operation in excess of 0.23 grams per dry cubic meter at standard conditions (0.1 grain/dscf) of exhaust gas.	EPA Method 5 of 40 CFR Part 60, Appendix A.	6.12
4.15	02NOC234 condition #16	Operations and Maintenance Plan. SPI shall devise, implement, and maintain an operations and maintenance plan for assuring good operation and repair of all air pollution control devices. The plan shall include: a) Inspection and maintenance procedures and schedule; b) Prescribed acceptable ranges for operation based on manufacturer recommendations; c) Section specifying maintenance and calibration of all required monitors used to assure compliance with the terms and conditions in 02NOC234.	None	None
4.16	PSD 02-02 condition 10	Access Requirement. SPI will permit the Environmental Protection Agency, state and local regulatory personnel access to the source upon request for the purpose of compliance assurance inspections.	None	None

5. Emissions Unit Specific Requirements

In addition to the facility-wide and generally applicable requirements specified in Section 4, the following requirements will apply to the specifically indicated emission units.

5.1 Requirements Specific to the Wood Waste Fired Boiler (EU1)

#	Applicable Requirement Citation	Applicable Requirement Description (for information purposes only)	Reference Method (if applicable)	Required Monitoring Provisions
5.1(a)	02NOC234 condition #1	Opacity Limit: Except during startup, shutdown, or malfunction, visible emissions from the wood fired boiler shall not exceed 10% opacity (6-minute average). Opacity shall be monitored by a continuous opacity monitoring system (COMS).	40 CFR 60.48b(a) and 40 CFR 60.48b(e)	6.1 6.2 6.3 6.8
5.1(b)	02NOC234 condition #4	Boiler Ammonia Slip Unit: Emissions of ammonia from the wood fired boiler shall not exceed 50 ppm _{dv} .	BAAQMD ST-1B	6.11 6.13
5.1(c)	02NOC234 condition #6	Hog Fuel Quality: Only clean hog fuel consisting of clean wood waste shall be used.	None	6.9
5.1(d)	PSD 02-02 conditions 1.1 & 1.2	Natural Gas Use: Natural gas may be burned in the wood waste boiler during startup and to maintain good combustion.	None	6.16
5.1(e)	PSD 02-02 conditions 2.1 & 2.2	NO _x Emission Limits: NO _x emissions from the wood waste boiler exhaust stack are limited to a) Not greater than 0.15 lb/MMBtu on a 24-hour average basis b) Not greater than 135 tons per 12 consecutive month period c) Not greater than 0.10 lb/MMBtu per 12 consecutive month averaging period	40 CFR 60.46b(b) – 40 CFR 60.46b(f); 40 CFR Part 60 Appendix A Method 19	6.10 6.14(a) 6.15(a)
5.1(f)	PSD 02-02 condition 3.1	CO Emission Limits: Except during startup or shutdown, CO emissions are limited to a) Not greater than 1200 ppm _{dv} @ 12% CO ₂ or 434 lb/hr on a 1-hour average basis b) Not greater than 600 ppm _{dv} @ 12% CO ₂ or 217 lb/hr on an 8-hour average basis c) Not greater than 300 ppm _{dv} @ 12% CO ₂ or 108 lb/hr on a 24-hour average basis During startup or shutdown CO emissions are limited to not greater than 1500 ppm _{dv} @ 12% CO ₂ on a 1-hour average basis. (Startup and shutdown are defined in Attachment 1.)	40 CFR Part 60 Appendix A Method 19, 40 CFR Part 60 Appendix B, 40 CFR Part 60 Appendix F	6.10 6.14(b)
5.1(g)	PSD 02-02 conditions 4.1-4.3	PM ₁₀ Emission Limits: All PM shall be expressed as PM ₁₀ . PM emissions shall not exceed 0.02 lb/MMBtu on a 24-hour average basis or 27 tons in any twelve consecutive month period.	40 CFR 60.46b(d), 40 CFR Part 60 Appendix A Methods 5, 19, and 202	6.14(c) 6.15(b)
5.1(h)	PSD 02-02 conditions 6.1-6.3	Safe Access and Sampling Ports: SPI shall provide sampling ports that meet the requirements of 40 CFR Part 60 Appendix A Method 1 located after the final control device on its stack for source testing the wood waste boiler and provide safe access in the form of permanent platforms. Other arrangements may be acceptable if approved by Ecology.	None	None

#	Applicable Requirement Citation	Applicable Requirement Description (for information purposes only)	Reference Method (if applicable)	Required Monitoring Provisions
5.1(i)	PSD 02-02 condition 8	Operation and Maintenance Plan: SPI shall devise, implement, and maintain an operation and maintenance plan for the waste wood boiler. The plan shall include: a) Inspection and maintenance procedures and schedule; b) Prescribed acceptable ranges for operation based on manufacturer recommendations; c) Section specifying maintenance and calibration of all required monitors used to assure compliance with the terms and conditions in 02NOC234.	None	None
5.1(j)	40 CFR Part 60 Subpart Db	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	As specified in Subpart Db	As specified in Subpart Db

5.2 Requirements Specific to the Cooling Tower (EU2)

#	Applicable Requirement Citation	Applicable Requirement Description (for information purposes only)	Reference Method (if applicable)	Required Monitoring Provisions
5.2(a)	02NOC234 condition #15	Cooling tower treatment chemicals: Water treatment compounds that contain chromium may not be used in the cooling water.	None	None

5.3 Requirements Specific to the Backup Diesel Generator (EU3)

#	Applicable Requirement Citation	Applicable Requirement Description (for information purposes only)	Reference Method (if applicable)	Required Monitoring Provisions
5.3(a)	02NOC234 condition #12	Generator Operation: Total hours of operation of the emergency generator shall not exceed 100 hours per consecutive twelve month period.	None	6.18
5.3(b)	02NOC 234 condition #13	Diesel Sulfur Content: Only low sulfur (< 0.05% by weight) #2 diesel fuel shall be combusted to power the emergency generator.	None	6.6

6. Compliance Monitoring Conditions

In accordance with WAC 173-401-615(1) and (2) the following monitoring conditions do not apply to IEU's unless the condition specifically states otherwise.

6.1 Opacity Surveys. The permittee shall conduct visual opacity surveys of the facility during daylight hours as follows:

- a) The frequency for conducting the survey shall be daily except:
 - i) When monitoring results from the previous five consecutive days show compliance with applicable opacity limits for all emission units, the survey may be conducted once per week;
 - or,
 - ii) When monitoring results from the previous five consecutive weeks show compliance with applicable opacity limits for all emission units, the survey may be conducted once per month.
- b) Surveys shall be conducted from locations with a clear view of the facility and where the sun is not directly in the observer's eyes. Survey locations shall be at least 15 feet but not more than .25 miles from the facility.
- c) Surveys shall be conducted when the waste wood fired boiler is operating.
- d) Observer certification for plume evaluation is not required to conduct the survey. However, it is necessary that the observer is educated on the general procedures for determining the presence of visible emissions. As a minimum, the observer must be trained and knowledgeable regarding the effects on the visibility of emissions caused by background contrast, position of the sun and amount of ambient lighting, observer position relative to source and sun, and the presence of uncombined water.
- e) The survey shall consist of the boiler stack, ESP, multiclone, and a general scan of the facility for other potential sources of visible emissions.
- f) Each emission unit required to be surveyed according to 6.1(e) shall be observed for a minimum cumulative duration of 15 seconds during the survey.
- g) Any visible emissions other than uncombined water shall be recorded as a positive reading associated with the emission point or stack.
- h) If it is not possible to conduct the survey due to inclement weather conditions, the permittee shall make three attempts during the day to conduct the survey. All attempts to conduct the survey shall be recorded in accordance with Condition 7.3.
- i) In addition to the records required under Condition 7.3, the observer shall record the wind direction, sky condition, sun location with respect to the facility and the survey location, and the time duration of the survey.

[WAC 173-401-615(1)(b)]

6.2 Opacity Reading Required. In accordance with Condition 6.3, the permittee shall verify compliance of any emission unit with respect to applicable opacity limits under the following circumstances:

- a) When visible emissions other than uncombined water are observed during opacity surveys;
- b) When required by ORCAA.

[WAC 173-401-615(1)(b)]

6.3 Opacity Reading Procedures. When required, pursuant to condition 6.2, the permittee shall conduct opacity readings consistent with the appropriate reference test methods as follows:

- a) Certified opacity readings shall be initiated as soon as possible, but not later than 1 hour after the requirement to verify compliance is triggered unless the subject emission unit is not operating, or lack of daylight or weather conditions prevent conducting the testing;
- b) Certified opacity readings may be performed by employees of the major source, a certified contractor or by ORCAA, shall be performed by persons with current EPA Method 9 certification in plume evaluation;
- c) All certified opacity readings shall be performed during periods when the subject emissions unit is operating;
- d) If the subject emissions unit is down for maintenance or not operating, the permittee shall commence compliance verification within one hour after the startup period after the unit comes back on line;
- e) If it is not possible to perform certified opacity readings due to inclement weather conditions or lack of daylight, the permittee shall document the conditions and shall make repeated daily attempts to conduct the testing until it is accomplished;
- f) Compliance verification shall consist of certified opacity readings at 15-second intervals over a minimum period of six consecutive minutes (24 consecutive readings) unless any one reading is greater than 20% opacity in which case the observation period shall be 60 minutes or until a violation is documented.

[WAC 173-401-615(1)(b)]

6.4 Complaint Monitoring. The permittee shall monitor all air quality related complaints directed to the facility as follows:

- a) The permittee shall provide an automatic phone recording system or an onsite contact person available to the general public for filing a complaint whenever the facility is operating.
- b) The phone number for the facility shall be a directory listed phone number and made available to local authorities including the county health department, ORCAA, Ecology, and the local fire district.
- c) The permittee shall maintain a record of air quality related complaints, which shall include, if available or provided, the following information:
 - iii) Description of the complaint.
 - iv) Date and time the alleged impact was first noticed.
 - v) Date and time the alleged impact was last noticed.
 - vi) Location where the alleged impact was experienced.
 - vii) Name and phone number of caller.
 - viii) The permittee's assessment of the complaint.
 - ix) Description of any corrective action taken.

[WAC 173-401-615(1)(b)]

6.5 Fugitive Emissions and Dust Control Monitoring. The permittee shall devise and implement a fugitive emissions control plan that assures that reasonable and appropriate precautions for preventing fugitive emissions and fugitive dust are implemented. The plan shall be made available for inspection by ORCAA upon request and shall include identification and brief description of the precautions for preventing fugitive emissions and fugitive dust considered reasonable.

[WAC 173-401-615(1)(b)]

6.6 Sulfur Dioxide Emissions Monitoring. The permittee shall determine the sulfur contents of fuel used, as received, using ASTM D4294-98, or EPA Method 6010, except that no determination is required for diesel fuel containing less than 2% sulfur by weight, propane, natural gas, or wood-derived fuels.

[WAC 173-401-615(1)(b)]

6.7 Pollution Control Equipment Monitoring. The permittee shall monitor air pollution control technology for the specified parameters according to Table 6.1. The permittee is temporarily exempted from a monitoring requirement of this condition during periods when:

- a) The monitoring equipment is inoperable due to a malfunction of the monitoring equipment, provided the permittee demonstrates to the satisfaction of ORCAA that the malfunction was unavoidable and was being repaired expeditiously; or,
- b) The associated EU is not operating provided the permittee keeps a contemporaneous record of when the EU is not operating.

[WAC 173-401-615(1)(b)]

Table 6.1 Primary Monitoring Parameters for Pollution Control Equipment

Control Technology	Monitoring Parameter	Target Operating Conditions	Averaging Period or Monitoring Frequency	Monitoring Records
Multiclone	Pressure drop	1.5" – 4.0" w.c.	Continuous	Electronic
Electrostatic precipitator	Secondary power (voltage and current)	5 kW ±10%	Hourly	Electronic or hard copy
	Opacity	< 10%	Six-minute	Electronic
Selective non-catalytic reduction	Ammonia use	< 10% tank capacity reduction	Daily	Electronic or hard copy
	NOx from CEMS	See 5.1(f) above	Continuous	Electronic

6.8 Continuous Opacity Monitoring System (COMS). Compliance with the opacity limit in Condition 5.1(b) shall be monitored by a COMS that meets the requirements of 40 CFR 60.48b(a) and 40 CFR 60.48b(e).

[02NOC234 Conditions #1(b) and #2]

6.9 Hog Fuel Quality Monitoring. A quality management plan must be implemented to assure that all hog fuel:

- a) is derived from wood and is of a suitable size and moisture content to sustain adequate combustion;
- b) is free of contamination such as painted or treated wood, petroleum contaminated wood, wood from construction/demolition projects, man-made materials, etc.;
- c) does not contain chloride above the limit established during the hydrogen chloride initial compliance test.

[02NOC234 Condition #7]

6.10 Continuous Emissions Monitoring System (CEMS).

- a) The CEMS for NO_x shall satisfy the requirements contained in 40 CFR 60.48b(b) through 40 CFR 60.48b(f).
- b) The CEMS for CO shall satisfy the requirements contained in 40 CFR, Part 60, Appendix B, Performance Specification 4, and 40 CFR, Part 60, Appendix F, Quality Assurance Procedures.
- c) The Relative Accuracy Test Audit required for each installed CEMS shall be scheduled to occur during simultaneous periods.

[PSD 02-02, Conditions 5.1-5.3]

6.11 Ammonia Slip Monitoring.

- a) Compliance with the ammonia slip limit shall be determined by Bay Area Air Quality Management District Source Test Procedure #1B (BAAQMD ST-1B) or alternative method approved by ORCAA.
- b) The owner or operator shall conduct compliance tests at least once every twelve months.
- c) The owner or operator shall monitor ammonia feed rate and NO_x emissions during the tests.

[02NOC234 Condition #4]

6.12 General Source Testing Procedures and Methods. To demonstrate compliance, Ecology or the authority may conduct or require that a test be conducted of the source in accordance with the following conditions:

- a) **General Test Methods.** Use approved EPA methods from 40 CFR parts 51, 60, 61 and 63 (in effect on May 10, 2004), or approved procedures contained in "*Source Test Manual – Procedures for Compliance Testing*," state of Washington, Department of Ecology, as of July 12, 1990, on file at Ecology. The operator of the source shall be required to provide the necessary platform and sampling ports for Ecology personnel or others to perform a test of an emissions unit. Ecology shall be allowed to obtain a sample from any emissions unit. The operator of the source shall be given an opportunity to observe the sampling and to obtain a sample at the same time. [WAC 173-400-105(4)]
- b) **Appropriate Testing Facilities.** When requested by ORCAA, the permittee is required to provide an appropriate source testing platform and sampling ports. [Local Only: ORCAA 1.5(j)]

6.13 Consistency with Operation and Maintenance Plans. All process parameters identified in the operation and maintenance plan shall be monitored during tests required to determine compliance with the ammonia slip limit.

[02NOC234, Condition #11(d)]

6.14 Compliance with Short-Term Emissions Limits.

- a) **NO_x:** Continual compliance with the 24-hour NO_x emission rate limit shall be monitored through use of a CEMS that meets the requirements of 6.11(a) during all hours of operation. Compliance shall be determined from the arithmetic mean of each 24 continuous hours of NO_x emissions data. [PSD 02-02 Condition 2.5]
- b) **CO:** Continual compliance with the 1-hour, 8-hour, and 24-hour CO emission rate limits shall be monitored through use of a CEMS that meets the requirements of 6.11(b) during all hours of operation. Compliance shall be determined from the arithmetic mean of the

emissions data for the corresponding averaging period for each CO emission concentration limit in 5.1(g). Mass emission rates shall be determined using the appropriate procedures outlined in 40 CFR Part 60 Appendix A Method 19 with indicated calculations modified to be applicable to CO or equivalent method if approved by Ecology in Advance. [PSD 02-02 Condition 3.4]

- c) **PM₁₀**: Compliance with the 24-hour PM₁₀ emission rate limit shall be determined annually by EPA Reference Methods 5 and 202. If more than one source test for PM₁₀ is performed in a 12-month period, at least one source test shall coincide with the Relative Accuracy Test Audit for each installed CEMS. An equivalent test method may be used if approved in advance by Ecology.
 - x) EPA Reference Method 5 shall be conducted in the manner prescribed in 40 CFR 60.46b(d).
 - xi) Compliance shall be demonstrated from the arithmetic mean of not less than three 2-hour test samples.
 - xii) The emission rate expressed in lb/MMBtu shall be determined using the procedure described in 40 CFR 60.46b(d)(6).[PSD 02-02 Condition 4.6]

6.15 Compliance with Annual Emissions Limits.

- a) **NO_x**: Compliance with the annual NO_x emission limit shall be monitored through use of a CEMS that meets the requirements of 6.11(a) during all hours of operation. Mass emission rates shall be determined using the appropriate procedures outlined in 40 CFR Part 60, Appendix A, Method 19 or equivalent method if approved by Ecology in advance. [PSD 02-02 Condition 2.6]
- b) **PM₁₀**: Compliance with the annual PM₁₀ emission limit shall be monitored from the arithmetic mean of the test results from condition 6.15(c) based on monthly average firing rates. Mass emission rates shall be determined using the appropriate procedures outlined in 40 CFR Part 60, Appendix A, Method 19 or equivalent method if approved by Ecology in advance. [PSD 02-02 Condition 4.7]

6.16 Natural Gas Use in Boiler: The permittee shall monitor the times and quantity of natural gas used in the waste wood fired boiler.
[PSD 02-02 Condition 1.3]

6.17 Emergency Generator Operation: Operating time for the emergency generator shall be monitored using an engine hour meter.
[02NOC234 Condition #12]

7. RECORDKEEPING

In accordance with WAC 173-401-615(1) and (2) the following recordkeeping conditions do not apply to IEU's unless the condition specifically states otherwise.

7.1 Retention and Availability of Records: The permittee shall maintain all records required by this permit. All required records shall be retained for at least 5 years from the origination date and shall be available for inspection by ORCAA upon request. [WAC 173-401-615(2)(c)]

7.2 Record of Changes. The permittee shall maintain records describing changes made that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under the permit, and the emissions resulting from those changes. [WAC 173-401-615(2)(b); WAC 173-401-724(5)]

7.3 Monitoring Records. The permittee shall keep records of required monitoring and testing including, where applicable, the following:

- a) The date, location, and time of sampling or measurement;
- b) The date(s) analyses were performed;
- c) The company or entity that performed the analyses;
- d) The analytical techniques or methods used;
- e) The results of analyses; and
- f) The operating conditions existing at the time of sampling or measurement.

[WAC 173-401-615(2)(a)]

7.4 Record of Permit Deviations. The permittee shall maintain a contemporaneous record of all permit deviations. [WAC 173-401-615(3)(b)]

7.5 Availability of Emissions Records. Emission records required by this permit shall be made available to ORCAA upon request. [Local Only: ORCAA 8.11(b)]

7.6 Emissions Records. The permittee shall maintain records of information necessary to substantiate any reported emissions, consistent with the averaging times for the applicable standards. [WAC 173-400-105(1); ORCAA 8.11(a)]

7.7 Unlawful Reproduction or Alteration of Documents. No person shall reproduce or alter, or cause to be reproduced or altered, any order, registration certificate or other paper issued by ORCAA if the purpose of such reproduction or alteration is to evade or violate any applicable requirement. [Local Only: ORCAA 7.3]

7.8 Display of Orders, Certificates and Other Notices. Any order required by ORCAA Regulations shall be available on the premises designated on the order. In the event that ORCAA requires a notice to be displayed, it shall be posted. [Local Only: ORCAA 7.4]

7.9 Record of Complaints. The permittee shall keep a record of air quality related complaints received, the assessment of the validity of each complaint, and what, if any, corrective action was taken in response to the complaint. Records shall include, if available or provided, the following information:

- a) Description of the complaint.
- b) Date and time the alleged impact was first noticed.
- c) Date and time the alleged impact was last noticed.
- d) Location where the alleged impact was experienced.
- e) Name and phone number of caller.
- f) The permittee's assessment of the validity of the complaint.
- g) Description of any corrective action taken.

[WAC 173-401-615(2)(a)]

7.10 Record of Actions Taken to Maintain Air Pollution Control Equipment. The permittee shall keep a record of major maintenance actions taken to maintain air pollution control equipment in good operating condition and repair. Records shall include:

- a) Date and time the action commenced;
- b) Description of the action;
- c) Description of outcome or findings;
- d) Date and time the action was completed;
- e) Name of person or company performing the maintenance; and,
- f) Duration of time the subject equipment was not operational.

[WAC 173-401-615(2)(a)]

7.11 Paperless Records. Instead of paper records, the permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements. [§64.9(b)(2)]

7.12 MACT Applicability Records. For each relevant standard or other applicable requirement under 40 CFR Part 63, which the permittee determines inapplicable, the permittee shall keep record of the applicability determination on site for five years after the determination, or until the source changes its operations to become an affected source, whichever comes first. For the purposes of this condition, a relevant standard is defined as any standard for which:

- a) The source emits or has the potential to emit (without considering controls) one or more hazardous air pollutants regulated by the standard; and,
- b) The source belongs to the source category regulated by the standard.

The record of the applicability determination must be signed by the person making the determination and include an analysis (or other information) that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) shall be sufficiently detailed to allow ORCAA to make a finding about the

source's applicability status with regard to the relevant standard or other requirement. If required, the analysis shall be performed in accordance with requirements established in the relevant subpart for this purpose, and the analysis should be performed in accordance with EPA guidance materials published to assist sources in making applicability determinations under section 112, if any. [40 CFR 63.1(b)(3); 40 CFR 63.10(b)(3)]

7.13 Copies of Required Operation and Maintenance Plans. The permittee shall maintain on site all required operation and maintenance plans for air pollution control equipment. [ORCAA 8.11; PSD 02-02 Condition 8.5]

7.14 Emergency Generator Operation. The following record keeping requirements shall apply to the emergency generator:

- a) Emergency generator operating time shall be recorded on a monthly basis. [02NOC234 Condition #12]
- b) The owner or operator shall maintain records of fuel consumption and quality including purchase receipts and certifications from the provider. [02NOC234 Condition #13]

7.15 Cooling Tower Treatment Chemicals. Material Safety Data Sheets (MSDS) for all water treatment chemicals shall be kept on site. [02NOC234 Condition #15]

7.16 Recordkeeping Requirements (NOC). The owner or operator shall maintain records of all required monitoring, tests, audits, and fuel use. The records shall be maintained on site for at least five years and shall be made available to ORCAA upon request. [02NOC234 Condition #18]

7.17 Natural Gas Consumption. SPI shall maintain records of the times and quantity of natural gas used in the waste wood fired boiler. [PSD 02-02 Condition 1.3]

7.18 Recordkeeping Requirements (PSD). SPI shall maintain monitoring, source test, CEM audit tests, and process records:

- a) At the Aberdeen facility.
- b) For at least five years.
- c) Monitoring and process records that include time and duration of startups and shutdowns of the waste wood fired boiler.
- d) Records of the times and quantity of natural gas used in the waste wood fired boiler.

[PSD 02-02 Conditions 7.4.1 – 7.4.4]

8. REPORTING

In accordance with WAC 173-401-615(1) and (2) the following reporting conditions do not apply to IEU's unless the condition specifically states otherwise.

8.1 Certification of Reports. All reports, including any test results, monitoring results, applications, emissions inventories, equipment malfunction reports or compliance reports, submitted to ORCAA or the U.S. Environmental Protection Agency Region 10 (EPA) under requirements of this permit, shall be certified as being true, accurate, and complete by a responsible official. Such certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete. Provided, however, where a report is sent more frequently than once every six months, the responsible official's certification need only be submitted once every six months, covering all required reporting since the date of the last certification. [WAC 173-401-630(1)]

8.2 Annual Compliance Certification. The permittee shall annually submit to ORCAA and to the U.S. Environmental Protection Agency Administrator, in care of Region 10 of the U.S. Environmental Protection Agency (EPA), an Annual Compliance Certification report which shall certify the status of compliance with respect to all permit conditions during the previous 12-month period. Annual Compliance Certification Reports shall certify the status of compliance continuously over the reporting period, and the reporting period shall not exceed 12 months from the end of the reporting period covered in the previous report. Annual Compliance Certification Reports shall be submitted to ORCAA and EPA no later than 30 days after the end of the reporting period. The reports shall be certified by a responsible official in accordance with Condition 8.1. Annual Compliance Certification reports shall include:

- a) Identification of each term or condition of the permit that is the basis of the certification.
- b) Certification of the status of compliance with each term or condition of the permit and whether compliance was continuous or intermittent over the reporting period.
- c) Identification of the method(s) or other means used by the permittee for determining the compliance status, and whether such methods or other means provide continuous or intermittent data.

[WAC 173-401-630(5)]

8.3 Confidential Information. Records or other information submitted to ORCAA, that are considered by the permittee to be proprietary and confidential, shall be only for the confidential use of ORCAA provided that:

- a) The information relates to processes or production unique to the permittee or are likely to affect adversely the competitive position of the permittee if released to the public or to a competitor; and,
- b) The permittee certifies the proprietary and/or confidential nature of the records or information.

[Local Only: ORCAA 1.6]

8.4 Semi-annual Monitoring Reports. Unless a shorter time period is specified in this permit, a report of any required monitoring shall be submitted to ORCAA at least once every six months (Semi-annual Monitoring Report). Semi-annual Monitoring Reports shall include a summary of all monitoring conducted in accordance with Section 6 of this permit, and shall include the following as applicable:

- a) A statistical summary of results of required monitoring conducted over the reporting period;
- b) Identification and characterization of all instances of deviations from permit requirements;
- c) Summary description of any corrective actions taken to maintain air pollution controls identified in Table 6.1; and
- d) Summary information on the number, duration and cause (including unknown cause, if applicable) of downtime of any monitors required by this permit (other than downtime associated with zero and span or other daily calibration checks, if applicable).

Monitoring reports shall be submitted to ORCAA no later than 30 days after the end of the reporting period and shall be certified by a responsible official in accordance with Condition 8.1. [WAC 173-401-615(3)(a); §64.9(a)]

8.5 Reporting Deviations from Permit Conditions. The permittee shall promptly report any deviations from permit conditions, including those attributable to upset conditions as defined in this permit. The following conditions shall apply:

- a) **Prompt Reporting.** For purposes of this permit, submitting a report “promptly” means the following:
 - i) **Potential Threat to Human Health or Safety:** If the deviation presents a potential threat to human health or safety, “promptly” means as soon as possible but no later than 12 hours after discovery of the deviation;
 - ii) **Other Deviations:** For other deviations, “promptly” means as soon as possible but no later than 30 days after the end of the month during which the deviation was discovered.
- b) **Deviation Report Content.** Permit deviation reports shall describe the probable cause of such deviations, corrective actions taken or planned, and preventive measures taken.
- c) **Reporting Unavoidable Excess Emissions.** The deviation report may include demonstration that excess emissions were unavoidable due to start-up, shutdown or upset conditions consistent with the requirements of Condition 2.22.
- d) **Reporting Deviations due to Emergencies.** The deviation report may include demonstration that excess emissions were due to an emergency, consistent with the requirements of Condition 2.21.

[WAC 173-401-615(3)(b); WAC 173-400-107(3); WAC 173-401-645]

8.6 Notification of Control Equipment Malfunction. ORCAA shall be notified by fax, phone message, e-mail or in writing of malfunctions of pollution control equipment identified in Table 6.1 when repairs cannot be completed within 24 hours. For purposes of this notification, the term “malfunction” shall mean that the control equipment is inoperable, or cannot maintain operation within the prescribed operating conditions specified in Table 6.1. The notification shall be made within two working days from the time the malfunction was discovered and shall include a description of the malfunction and any corrective actions taken or planned. [WAC 173-401-615(3)]

8.7 Reporting of Complaint Received. The permittee shall include a summary of complaints received in semi-annual monitoring reports. [WAC 173-401-615(3)]

8.8 Annual Inventory Report. On an annual basis, the permittee shall submit an inventory of the actual amount of pollutants emitted during the previous calendar year. The inventory shall be submitted to ORCAA within 30 days of receipt of the standard inventory reporting forms, and, when requested by ORCAA, shall be accompanied by associated calculations, data or other information used in calculating the reported emissions. [WAC 173-400-105(1); ORCAA 8.11; 02NOC234 Condition #17]

8.9 Testing Notification and Test Rescheduling.

- a) The permittee shall notify ORCAA in writing at least 30 days prior to any compliance test and provide ORCAA an opportunity to review a test plan. The test plan shall describe the proposed source test methods, operational conditions proposed for the test, and provisions for monitoring source operation during the test. [WAC 173-401-630(1)]
- b) **Rescheduling:** If, after providing written notice of a performance test, there is a delay (due to operational problems, etc.) in conducting the scheduled performance test, the owner or operator of an affected facility shall notify ORCAA as soon as possible of the delay by providing at least seven days prior notice of the rescheduled date of the performance test, or by arranging a rescheduled test date with ORCAA by mutual agreement. [WAC 173-400-105(4)]

8.10 Source Test Reports. Whenever source testing is required, the permittee shall submit test results to ORCAA within 90 days of test completion. The report shall include:

- a) A description of the source and sampling location;
- b) The time and date of the test;
- c) A summary of results, reported in units and for averaging periods consistent with the applicable emission standard;
- d) A description of the test methods and quality assurance procedures used;
- e) The amount of fuel burned and/or raw material processed by the source during the test;
- f) The operating parameters of the source and control equipment during the test; and,
- g) Field data and example calculations.

[WAC 173-401-630(1)]

8.11 NSPS Reporting. Information required to be submitted to the administrator in 40 CFR Part 60 Subparts A and Db shall also be submitted to ORCAA. [02NOC234 Condition #9]

8.12 Ammonia Slip Test Plan. Test plans for compliance testing required to meet Condition 5.1(b) shall be submitted to ORCAA for approval at least 30 days prior to any test. The test plan shall include the test methods, equipment and procedures to be used. Results shall be submitted to ORCAA within 45 days from completion of the test. [02NOC234 Conditions #11(b) and 11(c)]

8.13 PM₁₀ Test Plan. SPI shall submit a test plan to Ecology and ORCAA at least 30 days prior to performance testing to meet Condition 5.1(g). [PSD 02-02 Condition 4.6.5]

8.14 Continuing Performance Monitoring Reports. SPI shall submit continuing performance monitoring reports to Ecology and ORCAA

- a) Continuing performance monitoring reports shall be submitted for each calendar quarter:
 - i) Postmarked not later than one calendar month after the close of each respective calendar quarter.
 - ii) In the report format approved by Ecology.
 - iii) Another reporting schedule may be used if approved by Ecology.
- b) Continuing performance monitoring reports will include but are not limited to:
 - i) Certification by the responsible party for the facility that the relevant equipment was operated and maintained in accordance with the operational parameters and practices developed for the boiler operation and maintenance plan.
 - ii) NO_x, CO, and PM₁₀ emission rates and mass emissions pursuant to conditions 5.1(f) through 5.1(h) from the waste wood fired boiler exhaust stack.
 - iii) The duration and nature of any CEMS down time excluding zero and span checks.
 - iv) Results of any CEMS audits or accuracy checks.

[PSD 02-02 Conditions 7.3.2 and 7.3.3]

8.15 Excess Emissions Reporting. Each occurrence of NO_x monitored emissions, CO monitored emissions, or PM₁₀ emissions measured in excess of the limits in conditions 5.1(f) through 5.1(h) shall be reported in writing to Ecology and ORCAA after the respective exceedance in accordance with WAC 173-400-107(3). Such reports shall, as a minimum include:

- a) The time of the occurrence.
- b) Magnitude of excess from the emission limit.
- c) The duration of the excess.
- d) The probable cause.
- e) Corrective actions taken or planned.
- f) Any other agency contacted.

[PSD 02-02 Condition 7.3.4]

8.16 Reporting of Monitoring and Process Records. SPI shall provide Ecology and ORCAA with monitoring and process records for any period within the past five year archive within ten working days of a request. [PSD 02-02 Condition 7.4.5]

8.17 Format of PSD Required Reporting. Reports and notifications required by SPI's PSD permit shall be delivered to Ecology and ORCAA in written format, or electronic, if approved by Ecology. [PSD 02-02 Condition 7.1]

9. PERMIT SHIELD CONDITIONS

9.1 Permit Shield. Compliance with a permit condition shall be deemed compliance with the applicable requirements upon which that condition is based, as of the date of permit issuance. The permit shield does not apply to any insignificant emissions units or activity designated under WAC 173-401-530. [WAC 173-401-640(1)]

9.2 Inapplicable or Exempt Requirements. The requirements shown in Table 9.1, as of the date of permit issuance, have been determined not to apply to the corresponding emissions units indicated due to either inapplicability of the requirement or an exemption. Commencing the date of permit issuance, the AOP shield shall cover the requirements specified in Table 9.1 with respect to the specific emissions units indicated unless applicability of the requirement is triggered by a future action or emissions increase. [WAC 173-401-640(2)]

9.3 Exclusions. Nothing in this permit shall alter or affect the following:

- a) The provisions of Section 303 of the FCAA (emergency orders), including the authority of the Administrator under that section,
 - b) The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance,
 - c) The applicable requirements of the acid rain program, consistent with section 408(a) of the FCAA,
 - d) The ability of EPA to obtain information from a source pursuant to section 114 of the FCAA, or
 - e) The ability of the permitting authority to establish or revise requirements for the use of reasonably available control technology (RACT) as provided in chapter 252, Laws of 1993.
- [WAC 173-401-640(4)]

Table 9.1 Requirements Determined Inapplicable or Exempt Unless Triggered by Action or Emission Increase

Note: The requirements listed in the following table include only those requirements for which inapplicability must be based on a determination or comparison of the size, age, emissions or other characteristic of an emission unit with respect to applicability criteria and threshold contained in the requirement. All other requirements are considered obviously inapplicable to the facility, and are not included in the table below.

Requirement	Emissions Unit	Exempt or Inapplicable	Brief Description of Requirement	Basis
40 CFR 60 Subpart Da	1	Exempt	Standards of performance for electric utility steam generating units	Applies to fossil fuel fired systems. SPI only uses natural gas during startup and to maintain good combustion.
40 CFR 60 Subpart E	1	Inapplicable	Standards of performance for incinerators.	Only wood and natural gas can be used to fire the boiler, no incineration.
40 CFR 60 Subpart IIII	3	Exempt	Standards of performance for stationary compression ignition internal combustion engines	Installed before July 11, 2005.
40 CFR 60 Subpart KKKK	1	Exempt	Standards of performance for stationary combustion turbines	SPI operates a steam turbine, not a combustion turbine.
40 CFR 63	Facility	Exempt	National emissions standards for hazardous air pollutants	Not a major source of hazardous air pollutants
40 CFR 72 – 78	Facility	Inapplicable	Permits for acid rain program	The facility is not required to obtain such a permit
ORCAA 8.1	Facility	Inapplicable	Residential Wood Heating	The facility is not a residence
ORCAA 8.4	1	Inapplicable	Incineration operation	No incinerator is operated
ORCAA 8.9	Facility	Inapplicable	Burning used oil	No oil burner
WAC 173-400-040(1)(d)	Facility	Inapplicable	Alternative opacity limits	The facility does not have any alternative opacity limits.
WAC 173-400-040(3)(b)	Facility	Inapplicable	Emission unit identified as a significant contributor to nonattainment must use reasonable and available control methods to control emission of contaminants for which the area is designated nonattainment.	No emission units at the facility have been identified as a significant contributor to nonattainment.
WAC 173-400-040(8)(b)	Facility	Inapplicable	Fugitive dust sources identified as significant contributors to PM10 nonattainment must apply RACT.	The facility is not located in a PM10 nonattainment area.
WAC 173-400-050(2) – WAC 173-400-050(5)	1	Inapplicable	Incinerator emission limits	The facility does not have this type of emission unit.
WAC 173-400-070(1)	Facility	Inapplicable	Emission standards for wigwam burners	The facility does not operate a wigwam burner
WAC 173-400-070(3) – WAC 173-400-070(7)	Facility	Inapplicable	Emission standards for certain source categories	The facility does not operate an orchard heater, grain elevator, catalytic cracking unit, or sulfuric acid plant.
WAC 173-400-091	Facility	Inapplicable	Voluntary limits of emissions	No request for voluntary emissions limits below BACT

Requirement	Emissions Unit	Exempt or Inapplicable	Brief Description of Requirement	Basis
WAC 173-433	Facility	Inapplicable	Solid fuel burning devices	This regulation is intended to apply to wood stoves and fireplaces only.
WAC 173-434	1	Inapplicable	Standards for incinerator facilities	The facility does not operate an incinerator
WAC 173-435	Facility	Inapplicable	Emergency episode plan requirements	The facility has not been requested to prepare such a plan.
WAC 173-490	Facility	Inapplicable	Emissions standards for sources emitting VOCs.	Not located in an ozone non-attainment area

Attachment 1

Administrator refers to the Administrator of the United States Environmental Protection Agency (U.S. EPA). Reports and notifications required to be submitted to the Administrator may be sent in care of U.S. EPA Region 10.

Continuous Compliance means collection of all monitoring data required by the permit under the data collection frequency required by the permit, with no deviations, and no other information that indicates deviations, except for unavoidable excess emissions or other operating conditions during which compliance is not required.

Ecology refers to the Washington State Department of Ecology.

ESP stands for electrostatic precipitator

EU stands for "emission unit".

Intermittent Compliance any form of compliance other than continuous compliance.

Malfunction shall mean any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner as determined by ORCAA after review of records and data supplied by the permittee. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

ORCAA Regulation Citations. Citing specific sections of ORCAA Regulations is done in the following manner: ORCAA 4.5(b) stands for Rule 4.5(b) of Olympic Region Clean Air Agency Regulations.

Permit Deviation means a violation of a condition of the permit.

Scan means a short-term observation of the facility such that all emission points are directly observed.

SNCR stands for selective non-catalytic reduction.

Shutdown means the cessation of operation of an affected source. Shutdown of the waste wood fired boiler commences upon the cessation of feed of waste wood to the boiler, ends when there is no longer ignited fuel in the boiler, and shall not exceed a 4-hour continuous period.

Startup means the setting into operation of an affected source. Startup of the waste wood fired boiler commences from a shutdown condition when an ignition flame is first applied to the wood waste mass in the boiler, ends when stable burning is established under good combustion practice, and shall not exceed a 4-hour continuous period.

Attachment 2

Sierra Pacific Industries Aberdeen Cogeneration Facility, located at **301 Hagara Street** in **Aberdeen, Washington**, is a **steam and electricity cogeneration plant**. The facility includes the emissions units and other pollutant emitting activities identified in Table 1 below and insignificant emissions units as defined in Table 2 below. More complete technical descriptions of these units and activities are contained in the associated Sierra Pacific Industries Aberdeen Cogeneration Facility's Technical Support Document.

Emissions Units

Emission Unit ID#	Description	Exhaust Point ID#	Controls
EU1	Waste Wood Fired Boiler: EU1 consists of a spreader-stoker type wood waste boiler custom built by the McBurney Corporation. The boiler is designed to consume 310 MMBtu/hr fuel and produce 160,000 lb/hr steam.	1	Muliclone, electrostatic precipitator, and selective non-catalytic reduction
EU2	Cooling Tower: EU2 consists of a 12,000 gpm maximum induced draft counterflow cooling tower.	NA	No chromium Drift eliminators
EU3	Diesel Fired Emergency Generator: EU3 consists of a diesel-fired 1250 kW backup generator	NA	Low sulfur fuel Limited Operations

Attachment 3

Categorically Exempt, Insignificant Emissions Units Located at Sierra Pacific Industries Aberdeen Cogeneration Facilities

WAC 173-401-532(3)

Lubricating oil storage tanks.

WAC 173-401-532(4)

Storage tanks, reservoirs and pumping and handling stations of any size, limited to soaps, lubricants, hydraulic fluid, vegetable oil, grease, animal fat, aqueous salt solutions or other materials and processes using appropriate lids and covers where there is no generation of objectionable odor or airborne particulate matter.

WAC 173-401-532(5)

Pressurized storage of oxygen, nitrogen, carbon dioxide, air, or inert gases.

WAC 173-401-532(8)

Vents from continuous emissions monitors and other analyzers.

WAC 173-401-532(9)

Vents from rooms, buildings and enclosures that contain permitted emissions units or activities from which local ventilation, controls and separate exhaust are provided.

WAC 173-401-532(33)

Plant upkeep including routine housekeeping, preparation for and painting of structures of equipment, retarring roofs, applying insulation to buildings in accordance with applicable environmental and health and safety requirements and paving or stripping parking lots.

WAC 173-401-532(35)

Cleaning and sweeping of streets and paved surfaces.

WAC 173-401-532(42)

Portable drums and totes.

WAC 173-401-532(46)

Comfort air conditioning or air cooling systems, not used to remove air contaminants from specific equipment.

WAC 173-401-532(47)

Natural draft hoods, natural draft stacks, or natural draft ventilators for sanitary and storm drains, safety valves, and storage tanks subject to size and service limitations expressed elsewhere in this section.

WAC 173-401-532(48)

Natural and forced air vents and stacks for bathroom/toilet facilities.

WAC 173-401-532(49)

Office activities.

WAC 173-401-532(51)

Sampling connections used exclusively to withdraw materials for laboratory analyses and testing.

WAC 173-401-532(61)

Demineralization and oxygen scavenging (deaeration) of water.

WAC 173-401-532(65)

Gas cabinets using only gasses that are not regulated air pollutants.

WAC 173-401-532(74)

Repair and maintenance activities, not involving installation of an emission unit and not increasing potential emissions of a regulated air pollutant.

WAC 173-401-532(77) Batteries and battery charging.
WAC 173-401-532(87) Steam vents and safety relief valves.
WAC 173-401-532(88) Air compressors, pneumatically operated equipment, systems and hand tools.
WAC 173-401-532(89) Steam leaks.
WAC 173-401-532(94) Process water and white water storage tanks.
WAC 173-401-532(96) Clean condensate tanks.
WAC 173-401-532(108) Vacuum systems exhausts.
WAC 173-401-532(121) Water cooling towers processing exclusively noncontact cooling water.

**Insignificant Emissions Units Based on Size or Emissions
Located at Sierra Pacific Industries Aberdeen Cogeneration Facilities**

Insignificant Emission Unit	Location	Justification for IEU Designation	Capacity	Comment
Chemical Lab Operations	Boiler Control Center	WAC 173-401-533(3)(c)	Bench Scale	Deemed insignificant by ORCAA

Valley Bio-Energy
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Appendix F

Health Risk Assessment Summary

**San Joaquin Valley Air Pollution Control District
Risk Management Review
Revised 4-30-2010**

To: Frank DeMaris, AQE – Permit Services
 From: Trevor Joy – Technical Services
 Date: April 30, 2010
 Facility Name: Valley Bio-Energy
 Location: 555 Mariposa Rd in Modesto
 Application #(s): N8095-1-0, -2-0, -3-0, -4-0, -5-0
 Project #: 1094135

A. RMR SUMMARY

RMR Summary			
Categories	Biomass Fired Power Plant (Units 1, 2, 3, 4, 5)	Project Totals	Facility Totals
Prioritization Score	502	502	502
Acute Hazard Index	0.01	0.01	0.01
Chronic Hazard Index	0.05	0.05	0.05
Maximum Individual Cancer Risk (E-6)	2.24*	2.24*	2.24*
T-BACT Required?	Yes		
Special Permit Conditions?	Yes		

*worker adjusted value

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

Unit # 1

PM Emissions shall not exceed 0.0458 lbs/hr and 402 lbs/yr.

Unit # 2

Urban wood waste is approved as fuel so long as there is less than 2% by weight of plastic. Testing for plastic shall be conducted once per year.

PM Emissions shall not exceed 9.65 lbs/hr and 70,430 lbs/yr.

Unit # 3

PM Emissions shall not exceed 0.01 lbs/hr and 2 lbs/yr.

Unit # 4

PM Emissions shall not exceed 0.01 lbs/hr and 5 lbs/yr.

Unit # 5

PM Emissions shall not exceed 0.08 lbs/hr and 730 lbs/yr.

Units # 2 and 5

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

B. RMR REPORT

I. Project Description

Technical Services received a revised request on April 30, 2010 to perform a Risk Management Review and an Ambient Air Quality Analysis for the installation of a new biomass-fired power plant with a 402 MMBtu/hr boiler, fuel receiving and storage, trona receiving and storage, ash storage and loadout, and cooling towers.

II. Analysis

Toxic emissions for the project were calculated using: Biomass Combustors EF spreadsheet for unit 1, Ammonia emissions supplied by the engineer and the Combustors EF spreadsheet for unit 2, No TACs were associated with unit 3, HEARTS "Fly Ash" for the unit 4, and chlorine values supplied by the engineer for unit 5. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905-1, March 2, 2001), risks from the proposed project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEART's database. The prioritization score for the facility was greater than 1.0 (see RMR Summary Table). Therefore, a refined analysis was required and performed. AERMOD was used, with the parameters outlined below and concatenated meteorological data for Modesto 2004 to 2008 to determine the maximum dispersion factor at the nearest residential and business receptors. These dispersion factors were input into the HARP model to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

For the AAQA, Technical Services used the AERMOD model to determine concentrations (acute and chronic).

The following parameters were used for the review:

Analysis Parameters Unit 1 Fuel Receiving and Storage			
Source Type	Area	Location Type	Urban
Release Ht (m)	7.62	Area (m²)	10908
PM Emissions (lbs/hr)	0.0458	PM Emissions (lbs/yr)	402

Analysis Parameters Unit 2 Boiler			
Source Type	Point	Location Type	Urban
Stack Diameter (m)	2.4	Stack Gas Temperature (K)	435
Stack Height (m)	36.6	Stack Gas Velocity (m/sec)	17.0
PM Emissions (lbs/hr)	9.65	PM Emissions (lbs/yr)	70,430
NOx Emissions (lbs/hr)	26.13	NOx Emissions (lbs/yr)	19,999
SOx Emissions (lbs/hr)	4.82	SOx Emissions (lbs/yr)	42,267
CO Emissions (lbs/hr)	18.49	CO Emissions (lbs/yr)	161,987

Analysis Parameters Unit 3 Trona Silo			
Source Type	Area	Location Type	Urban
Release Ht (m)	9.1	Length Side X (m)	22
Length Side Y (m)	7	PM Emissions (lbs/hr)	0.01
PM Emissions (lbs/yr)	2		

Analysis Parameters Unit 4 Fly Ash Receiving and Storage			
Source Type	Area	Location Type	Urban
Release Ht (m)	13.72	Length Side X (m)	7
Length Side Y (m)	7	PM Emissions (lbs/hr)	0.01
PM Emissions (lbs/yr)	5		

Analysis Parameters Unit 5 Cooling Tower			
Source Type	Point	Location Type	Urban
Stack Diameter (m)	8.5	Stack Gas Temperature (K)	298
Stack Height (m)	9.1	Stack Gas Velocity (m/sec)	8.9
PM Emissions (lbs/hr)	0.08	PM Emissions (lbs/yr)	730

Technical Services also performed modeling for criteria pollutants CO, NOx, SOx, and PM₁₀; as well as the RMR.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Values are in $\mu\text{g}/\text{m}^3$

Power Plant	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO _x	Pass	X	X	X	Pass
SO _x	Pass	Pass	X	Pass	Pass
PM ₁₀	X	X	X	Pass	Pass

*Results were taken from the attached PSD spreadsheets.

¹The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

Note: NO₂ values reflect the new 1 Hr standard imposed by EPA on April 12, 2010.

III. Conclusion

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

The acute and chronic indices are below 1.0; and the cancer risk is greater than 1, but less than 10. **In accordance with the District's Risk Management Policy**, the project is approved **with Toxic Best Available Control Technology (T-BACT) for PM10**.

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

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

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Appendix G HAP Emissions

Hazardous Air Pollutant Emission Rates

Compound	CAS No.	Emission Factor	Emission Rate ²	
			(lb/hr)	(lb/yr) ³
Acetaldehyde	75-07-0	2.43E-04	9.77E-02	8.56E+02
Acetophenone	98-86-2	3.23E-09	1.30E-06	1.14E-02
Acrolein	107-02-8	2.63E-05	1.06E-02	9.26E+01
Antimony	7440-36-0	1.16E-05	4.65E-03	4.07E+01
Arsenic	7440-38-2	3.62E-07	1.45E-04	1.27E+00
Benzene	71-43-2	1.50E-03	6.02E-01	5.27E+03
Beryllium	7440-41-7	1.55E-06	6.24E-04	5.46E+00
Bis(2-ethylhexyl)phthalate	117-81-7	4.65E-08	1.87E-05	1.64E-01
Bromomethane	74-83-9	2.80E-05	1.13E-02	9.86E+01
Butanone-2 (MEK)	78-93-3	5.39E-06	2.17E-03	1.90E+01
Cadmium	7440-43-9	1.56E-06	6.29E-04	5.51E+00
Carbon Tetrachloride	56-23-5	4.54E-05	1.83E-02	1.60E+02
Chlorine	7782-50-5	7.92E-04	3.18E-01	2.79E+03
Chlorobenzene	108-90-7	3.32E-05	1.33E-02	1.17E+02
Chloroform	67-66-3	2.75E-05	1.11E-02	9.69E+01
Chloromethane	74-87-3	2.31E-05	9.29E-03	8.13E+01
Chromium, total	7440-47-3	1.12E-06	4.50E-04	3.94E+00
Cobalt	7440-48-4	1.25E-07	5.03E-05	4.40E-01
Dibromoethane-12	106-93-4	5.48E-05	2.20E-02	1.93E+02
1,2-Dichloroethane	107-06-2	2.92E-05	1.17E-02	1.03E+02
Dichloromethane	75-09-2	2.87E-04	1.15E-01	1.01E+03
1,2-Dichloropropane	78-87-5	3.33E-05	1.34E-02	1.17E+02
Dinitrophenol-24	51-28-5	9.33E-08	3.75E-05	3.28E-01
Ethylbenzene	100-41-4	3.13E-05	1.26E-02	1.10E+02
Formaldehyde	50-00-0	9.25E-04	3.72E-01	3.26E+03
Hydrogen chloride ⁴	7647-01-0	4.97E-03	2.00E+00	1.75E+04
Lead	7439-92-1	7.40E-06	2.98E-03	2.61E+01
Manganese	7439-96-5	5.15E-05	2.07E-02	1.81E+02
Mercury	7439-97-6	6.76E-07	2.72E-04	2.38E+00
Naphthalene	91-20-3	7.29E-05	2.93E-02	2.57E+02
Nickel	7440-02-0	1.76E-06	7.06E-04	6.18E+00
Nitrophenol-4	100-02-7	1.71E-07	6.88E-05	6.03E-01
Pentachlorophenol	87-86-5	2.27E-08	9.13E-06	7.99E-02
Phenol	108-95-2	1.25E-05	5.04E-03	4.42E+01
Propanal	123-38-6	3.15E-06	1.27E-03	1.11E+01
Selenium	7782-49-2	1.35E-06	5.43E-04	4.75E+00
Styrene	100-42-5	1.86E-03	7.48E-01	6.55E+03
Tetrachlorodibenzo-p-dioxin, 2,3,7,8	1746-01-6	3.11E-12	1.25E-09	1.10E-05
Tetrachloroethene	127-18-4	3.82E-05	1.54E-02	1.35E+02
Toluene	108-88-3	2.13E-05	8.54E-03	7.48E+01
1,1,1-Trichloroethane	71-55-6	3.07E-05	1.24E-02	1.08E+02
Trichloroethene	79-01-6	3.03E-05	1.22E-02	1.07E+02
2,4,6-Trichlorophenol	88-06-2	1.14E-08	4.56E-06	4.00E-02
Vinyl Chloride	75-01-4	1.84E-05	7.40E-03	6.48E+01
o-Xylene	95-47-6	2.45E-05	9.84E-03	8.62E+01
<i>Max Individual HAP (tons per year)</i>				8.75
<i>Total HAPs (tons per year)</i>				19.79

¹ Emission factors are taken from AP-42 Section 1.6 and source tests on the wood-fired boiler at Sierra Pacific Industries' Lincoln, California facility.

² Based on a maximum heat input rate of 402 MMBtu/hr

³ Based on 8,760 hours of operation per year.

⁴ AP-42 source test ID b08 emission factor for hydrogen chloride was discarded. The source appears to be a municipal solid waste combustor.

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Appendix H QNEC Calculations

The Quarterly Net Emissions Change is used to complete the emission profile screen for the District's PAS database. The QNEC is calculated as follows:

QNEC = PE2 – BE, where:

- QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr
- PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr
- BE = Baseline Emissions for each emissions unit, lb/qtr

Using the values in Sections VII.C.2 and VII.D.4 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

$$PE2_{\text{quarterly}} = PE2_{\text{annual}} \div 4 \text{ quarters/year}$$

$$BE_{\text{quarterly}} = BE_{\text{annual}} \div 4 \text{ quarters/year}$$

Quarterly Net Emissions Increase (QNEC) (lb/qtr)							
Unit		PE2	BE	Quarter 1	Quarter 2	Quarter 3	Quarter 4
N-8095-1-0	NO _x	0	0	0	0	0	0
	SO _x	0	0	0	0	0	0
	PM ₁₀	402	0	100	100	101	101
	CO	0	0	0	0	0	0
	VOC	0	0	0	0	0	0
N-8095-2-0	NO _x	19,999	0	4,999	5,000	5,000	5,000
	SO _x	42,267	0	10,566	10,567	10,567	10,567
	PM ₁₀	28,060	0	7,015	7,015	7,015	7,015
	CO	161,987	0	40,496	40,497	40,497	40,497
	VOC	17,593	0	4,398	4,398	4,398	4,399
N-8095-3-0	NO _x	0	0	0	0	0	0
	SO _x	0	0	0	0	0	0
	PM ₁₀	2	0	0	0	1	1
	CO	0	0	0	0	0	0
	VOC	0	0	0	0	0	0
N-8095-4-0	NO _x	0	0	0	0	0	0
	SO _x	0	0	0	0	0	0
	PM ₁₀	5	0	1	1	1	2
	CO	0	0	0	0	0	0
	VOC	0	0	0	0	0	0
N-8095-5-0	NO _x	0	0	0	0	0	0
	SO _x	0	0	0	0	0	0
	PM ₁₀	730	0	182	182	183	183
	CO	0	0	0	0	0	0
	VOC	0	0	0	0	0	0

Note that for QNEC purposes, it is assumed that units 1, 3, 4, and 5 emit to their full potential, with the remaining potential under the SLC ascribed to unit 2.