

YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT

1947 Galileo Court, Suite 103; Davis, CA 95618

Emission Evaluation and Statement of Basis Addendum

ENGINEER:	Kyle Rohlfing	ATC # <u>C-12-131</u>	
		SIC Code # <u>4911</u>	
		UTM E <u>609.7</u> km	
		UTM N <u>4283.2</u> km	
FACILITY NAME:	Woodland Biomass Power, Ltd.		
LOCATION:	The equipment is located at 1786 East Kentucky Avenue in Woodland. The equipment is not located within 1,000 feet of a K-12 school and is not subject to the requirements of H&S 42301.6		
PROPOSAL:	<p>The applicant is proposing to add creosote-treated railroad ties to the list of acceptable biomass fuels that may be combusted in the boiler along with the natural gas supplemental fuel.</p> <p>Authority to Construct C-09-124 was issued to allow the boiler to combust the creosote-treated railroad ties. The District could not implement this ATC into a Permit to Operate because the initial toxic emissions source test required by the ATC showed that certain toxics were emitted at rates higher than the rates supplied by the applicant which were used to conduct the health risk analysis of C-09-124.</p> <p>The applicant submitted this new application to refine the health risk analysis using data found in the initial toxics emissions source test so that creosote-treated railroad ties may be used as an acceptable fuel source.</p>		
PROCESS:	30 MW biomass boiler for power production		
FLOW DIAGRAM:	See file		
EQUIPMENT:	330 MMBtu/hr Gotaverken circulating fluidized bed boiler, model no. 722-118; total air fan, 700 hp; primary air fan, 400 hp; two (2) 150 hp seal air blowers, 300 hp; recirculating air fan, 60 hp; induced draft fan, 1250 hp		
CONTROL EQUIPMENT:	Baghouse, 6 cell, 342 bags per cell, 156,500 cfm; thermal de-Nox system, variable flow 20,000 gallon NH3 tank; limestone injection		

APPLICATION DATA:

The applicant has emission limits as permitted process limits and reports based on continuous monitor data. The same limits will be retained from the current permit except for reductions in VOC emissions to reflect lower emissions rates required as Best Available Control Technology for toxic air contaminant emissions (T-BACT).

Pollutant	Daily	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual (lbs)	Annual (tons)
CO	1188.0	106,920	108,108	109,296	109,296	371,200	185.60
NOx	631.2	56,808	57,439	58,070	58,070	197,200	98.60
SOx	316.8	28,512	28,829	29,146	29,146	99,000	49.50
PM10	172.8	15,552	15,725	15,898	15,898	54,000	27.00

ASSUMPTIONS:

	<u>Units</u>	<u>Formula Symbol</u>	<u>Reference</u>
Maximum Daily Operation =	24 hours/day	HD	District
Boiler Rating =	330 MMBtu/hr	BR	District
Molar Volume =	385 SCF/mole	MV	District
Exhaust Flow Rate =	99,469 dscfm	SCFM	Source Test 5/31/12

EMISSION FACTORS:

		<u>Units</u>	<u>Formula Symbol</u>	<u>Reference</u>
VOC	0.009	lb/MMBtu	EFvoc	applicant
CO	0.15	lb/MMBtu	EFco	permit limit
NOx	0.08	lb/MMBtu	EFnox	permit limit
SOx	0.04	lb/MMBtu	EFsox	permit limit
PM10 (front and back half)	0.010	gr/dscf	EFtsp	permit limit
PM10 (front half)	0.007	gr/dscf	EFpm	permit limit
NH3	50	ppmv	EFnh3	permit limit

EMISSION CALCULATIONS:

Determine VOC Emissions:

Max Hourly VOC Emissions = BR * EFvoc =	2.97 lb/hr
Max Daily VOC Emissions = HD * BR * EFvoc =	71.3 lb/day
1st Quarter VOC Emissions = HD * BR * EFvoc * 90 days/quarter =	6,415 lb/quarter
2nd Quarter VOC Emissions = HD * BR * EFvoc * 91 days/quarter =	6,486 lb/quarter
3rd Quarter VOC Emissions = HD * BR * EFvoc * 92 days/quarter =	6,558 lb/quarter
4th Quarter VOC Emissions = HD * BR * EFvoc * 92 days/quarter =	6,558 lb/quarter
Max Yearly VOC Emissions = (HD * BR * EFvoc * 365 days/year) =	26,017 lb/year
Max Yearly VOC Emissions = (HD * BR * EFvoc * 365 days/year)*(1 ton/2,000 lb) =	13.01 tons/year

PERMIT LIMITS:	Units	Formula Symbol	Reference
VOC	2.97 lb/hr	Evoc	permit limit
CO	49.50 lb/hr	Eco	permit limit
NOx	26.30 lb/hr	Enox	permit limit
SOx	13.20 lb/hr	Esox	permit limit
TSP	7.20 lb/hr	Etsp	permit limit
PM10	7.20 lb/hr	Epm	permit limit

VOC	71.28 lb/day	Evoc2	permit limit
CO	1188.00 lb/day	Eco2	permit limit
NOx	631.20 lb/day	Enox2	permit limit
SOx	316.80 lb/day	Esox2	permit limit
TSP	172.80 lb/day	Etsp2	permit limit
PM10	172.80 lb/day	Epm2	permit limit

VOC	13.01 ton/yr	Evoc3	permit limit
CO	185.60 ton/yr	Eco3	permit limit
NOx	98.60 ton/yr	Enox3	permit limit
SOx	49.50 ton/yr	Esox3	permit limit
TSP	27.00 ton/yr	Etsp3	permit limit
PM10	27.00 ton/yr	Epm3	permit limit

RULE & REGULATION COMPLIANCE EVALUATION:

District Rule 2.3-Ringelmann

The version of the rule used in this evaluation is the rule adopted on January 13, 2010, and is part of the California State Implementation Plan (SIP).

Rule Requirement #1:

A person shall not discharge into the atmosphere from any single source of emission whatsoever, any air contaminant for a period or periods aggregating more than three (3) minutes in any one (1) hour which is:

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

Streamlining Demonstration: The requirements of the rule can be streamlined by the more descriptive opacity limit of Rule 3.4 (New Source Review).

Streamlined Permit Condition:

For visible opacity purposes, the Permit Holder shall not discharge into the atmosphere from any single source of emissions whatsoever, any air contaminant for a period or periods aggregating more than three (3) minutes in any one (1) hour which is:

- As dark or darker in shade than No. 1 on the Ringelmann Chart; or
- Greater than 20% opacity. [District Rule 3.4] (ATC Condition 4 /Title V Permit Condition II.A.10)

District Rule 2.5-Nuisance

The rule applies to all emission units at the stationary source. The version of the rule used in this evaluation is the rule adopted on October 1, 1971, and is part of the California SIP. The source is currently in compliance with the requirements of the rule.

It should be noted that this permit condition is Federally enforceable because it derives from District Rule 2.5 (Nuisance) that is currently part of the California SIP. The District is taking steps to remove Rule 2.5 from the SIP. Once the U.S. Environmental Protection Agency (EPA) has taken final action to remove District Rule 2.5 from the SIP, this permit condition will become state-enforceable only.

Rule Requirement #1 (Facility Wide Permit Condition):

The Permit Holder shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such persons or the public or which cause to have a natural tendency to cause injury or damage to business or property. [District Rule 2.5] (Title V Permit Condition III.B.1)

District Rule 2.11 - Particulate Matter

The version of the rule used in this evaluation is the rule adopted on January 13, 2010, and is part of the California State Implementation Plan (SIP).

Rule Requirement #1:

<u>Allowable Rate (gr/dscf)</u>	<u>Emission Rate (gr/dscf)</u>	<u>Compliance</u>
0.1	0.010	Yes

Subsuming Demonstration: The emissions of particulate matter will be limited to the evaluated rates under Rule 3.4, New Source Review. The Rule 3.4 requirement of 0.010 gr/dscf will subsume the Rule 2.11 requirement of 0.1 gr/dscf.

Subsuming Permit Conditions:

The PM10 emissions from the boiler operating under P-105-90(a1) shall not exceed 172.8 lb/day, 15,552 lb/1st calendar quarter, 15,725 lb/2nd calendar quarter, 15,898 lb/3rd calendar quarter, 15,898 lb/4th calendar quarter, and 27.00 tons/calendar year. [District Rule 3.4] (ATC Emissions Limits/ Title V Permit Condition II.A.6)

District Rule 2.12 Section A - Sulfur Compounds

The version of the rule used in this evaluation is the rule adopted on January 13, 2010, and is part of the California State Implementation Plan (SIP).

Rule Requirement #1:

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

- a. Sulfur compounds calculated as sulfur dioxide (SO2) 0.2%, by volume at standard conditions.

$$\text{SOx \%} = (\text{SOx lb/day}) * \text{MV} * (\text{lb-mol/64 lb}) * (1 \text{ day/1,440 min}) / \text{SCFM} * 100\% = 0.001 \%$$

<u>Allowable Rate (% SOx as SO2)</u>	<u>Emission Rate (% SOx as SO2)</u>	<u>Compliance</u>
0.2	0.001	Yes

Subsuming Demonstration: The above emission rate was calculated using the daily SOx emission limit for Rule 3.4, New Source Review. The Rule 3.4 requirement of 0.001% will subsume the Rule 2.11 requirement of 0.2%.

Subsuming Permit Condition:

The SOx emissions from the boiler operating under P-105-90(a1) shall not exceed 316.8 lb/day, 28,512 lb/1st calendar quarter, 28,829 lb/2nd calendar quarter, 29,146 lb/3rd calendar quarter, 29,146 lb/4th calendar quarter, and 49.50 tons/calendar year. [District Rule 3.4] (ATC Emissions Limits/ Title V Permit Condition II.A.5)

District Rule 2.16 - Fuel Burning or Power Generation

The rule applies to all fuel burning heat or power generating units operating at the stationary source. The version of the rule used in this evaluation is the rule adopted on October 1, 1971, and is part of the California SIP. The source is currently in compliance with the requirements of the rule.

<u>Pollutant</u>	<u>Allowable</u>	<u>Actual</u>	<u>Compliance</u>
SOx	200 lb/hr	13.2 lb/hr	Yes
NOx	140 lb/hr	26.3 lb/hr	Yes
PM	40 lb/hr	7.2 lb/hr	Yes

Subsuming Demonstration: The above emission rate were calculated using the daily SOx, Nox and PM10 emission limits for Rule 3.4, New Source Review. The Rule 3.4 requirements will subsume the Rule 2.11 requirements.

Subsuming Permit Conditions:

The SOx emissions from the boiler operating under P-105-90(a1) shall not exceed 316.8 lb/day, 28,512 lb/1st calendar quarter, 28,829 lb/2nd calendar quarter, 29,146 lb/3rd calendar quarter, 29,146 lb/4th calendar quarter, and 49.50 tons/calendar year. [District Rule 3.4] (ATC Emissions Limits/ Title V Permit Condition II.A.5)

The NOx emissions from the boiler operating under P-105-90(a1) shall not exceed 631.2 lb/day, 56,808 lb/1st calendar quarter, 57,439 lb/2nd calendar quarter, 58,070 lb/3rd calendar quarter, 58,070 lb/4th calendar quarter, and 98.60 tons/calendar year. [District Rule 3.4] (ATC Emissions Limits/ Title V Permit Condition II.A.4)

The PM10 emissions from the boiler operating under P-105-90(a1) shall not exceed 172.8 lb/day, 15,552 lb/1st calendar quarter, 15,725 lb/2nd calendar quarter, 15,898 lb/3rd calendar quarter, 15,898 lb/4th calendar quarter, and 27.00 tons/calendar year. [District Rule 3.4] (ATC Emissions Limits/ Title V Permit Condition II.A.6)

District Rule 2.17-Circumvention

The rule is applicable to all emission units at the facility. The version of the rule used in this evaluation is the rule adopted on October 1, 1971, and is part of the California SIP. The source is currently in compliance with the requirements of the rule.

Rule Requirement #1 (Facility Wide Permit Condition)

The Permit Holder shall not build, erect, install or use any article, machine, equipment, or other contrivance, the use of which, without resulting in a reduction in the total release of air contaminants to the atmosphere, reduces or conceals an emission which

would otherwise constitute a violation of Division 26, Part 3 and Part 4 of the Health and Safety Code of the State of California or District Rules or Regulations. [District Rule 2.17] (Title V Permit Condition III.C.1)

District Rule 2.19-Particulate Matter Process Emission Rate*

The rule is applicable to all emission units at the facility. The version of the rule used in this evaluation is the rule adopted on October 1, 1971, and is part of the California SIP. The source is currently in compliance with the requirements of the rule.

<u>Pollutant</u>	<u>Allowable Rate**</u>	<u>Potential Rate</u>	<u>Compliance</u>
TSP	35 lb/hr	7.2 lb/hr	Yes

* It is assumed that TSP is equivalent to PM10

** The allowable emissions corresponding to a process rate of 25 tons/hr (from prior evaluation C-09-124)

Subsuming Demonstration: The above emission rate was calculated using the PM10 emission limits for Rule 3.4, New Source Review. The Rule 3.4 requirement will subsume the Rule 2.19 requirement.

Subsuming Permit Conditions:

The PM10 emissions from the boiler operating under P-105-90(a1) shall not exceed 172.8 lb/day, 15,552 lb/1st calendar quarter, 15,725 lb/2nd calendar quarter, 15,898 lb/3rd calendar quarter, 15,898 lb/4th calendar quarter, and 27.00 tons/calendar year. [District Rule 3.4] (ATC Emissions Limits/ Title V Permit Condition II.A.6)

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

This equipment unit is exempt from the provisions of this rule per section 111 because this facility generates electricity for an electric utility.

District Rule 2.43 - Biomass Boilers

The rule is applicable to boilers with rated heat inputs of greater than or equal to 5 MMBtu/hr and which combust biomass as a fuel. The version of the rule used in this evaluation is the rule adopted on November 10, 2010, and is part of the California SIP. The source is currently in compliance with the requirements of the rule.

Rule Requirement #1 (Permit Condition) - Emission Limits

The rule specifies emission limits for nitrogen oxides and carbon monoxide.

Streamlining Demonstration: The boiler is already subject to more stringent emission limits under the authority of Rule 3.4.

Streamlined Permit Condition:

See rule requirements #14 and #15 of Rule 3.4 below

Rule Requirement #2 (Permit Condition) - Start-up Requirements

A curing startup shall not exceed 96 hours in duration and a non-curing startup shall not exceed 24 hours in duration. [District Rule 3.4/C-12-131] (ATC Condition 9/Title V Permit Condition II.B.7)

Rule Requirement #3 (Permit Condition) - Continuous Emission Monitoring System

The rule requires the owner/operator of an affected unit to install, calibrate, maintain, and operate a continuous emission monitoring system for measuring NOx and CO emission concentrations.

Subsuming Demonstration: The boiler is already subject to more extensive emission monitoring requirements under the authority of Rule 3.4.

Subsuming Permit Condition:

See rule requirements #11, #12, and #29 of Rule 3.4 below

Rule Requirement #4 (Permit Condition) - Source Testing

The rule requires relative accuracy test audits at least once every four calendar quarters.

Subsuming Demonstration: The boiler is subject RATA tests and quarterly audits of the CEMS by the requirements of 40 CFR 60 Appendix F.

Subsuming Permit Condition:

See rule requirements #3 and #4 of 40 CFR 60 Appendix F below

Rule Requirement #5 (Permit Condition) - CEMS Operating and Maintenance Plan

The rule requires an operation and maintenance plan for each CEMS.

Subsuming Demonstration: The boiler is subject to requirements of Rule 3.4 and 40 CFR 60 Appendix F which more extensively detail the requirements for a CEMS operation and maintenance plan.

Subsuming Permit Condition:

See rule requirements #12 of Rule 3.4 and #5 of 40 CFR 60 Appendix F below

Rule Requirement #6 (Permit Condition) - Reporting and Recordkeeping

The rule lists requirements for keeping records of startup/shutdown time, total operating hours, type and amount of each biomass fuel burned and exhaust gas CO and NOx concentrations.

Subsuming Demonstration: The boiler is subject to more extensive recordkeeping requirements under the authority of Rule 3.4.

Sudsuming Permit Condition:

See rule requirements #29, #30, #31, and #32 of Rule 3.4 below

District Rule 3.1 - General Permit Requirements

The source is currently in compliance with the rule. The version of the rule used in this evaluation is the rule adopted on February 23, 1994, and is part of the California SIP. For reference, Page 67068 of the Federal Register, Vol. 69, No. 220 documents that the SIP approved version of Rule 3.1 was "deleted without replacement Rule 3.1, paragraphs 403 and 406." No part of the proposed Title V permit has references to either Section 403 (dealing with Denial of Applications) or Section 406 (dealing with Appeals).

Requirement #1 (Facility Wide Permit Condition) - Authority to Construct

No person shall build, erect, alter, or replace any facility, article, machine, equipment, or other contrivance, the use of which may cause the issuance of air contaminants, or the use of which may eliminate or reduce or control the issuance of air contaminants, without first obtaining an authorization to construct from the APCO as specified in Section 401 of District Rule 3.1. [District Rule 3.1, §301.1] (Title V Permit Condition III.D.1)

Requirements #2 & 3 (Facility Wide Permit Conditions) - Permit to Operate

No person shall operate any facility, article, machine, equipment, or other contrivance, for which an authorization to construct is required by District Rules and Regulations without first obtaining a written permit from the APCO. [District Rule 3.1, §302.1] (Title V Permit Condition III.D.2)

No person shall operate any facility, article, machine, equipment, or other contrivance, the use of which may cause the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants, without obtaining a permit from the APCO or the Hearing Board. [District Rule 3.1, §302.2] (Title V Permit Condition III.D.3)

Rule Requirement #4 (Facility Wide Permit Condition) - Transfer of Permits to Operate

The Permits to Operate shall not be transferable, by operation of law or otherwise, from one location to another or from one piece of equipment to another. It shall be the transferee's responsibility to inform the District on assumption of ownership or operating control of any item under a Permit to Operate from the District and for which a Permit to Operate will be required. For any such transfer as hereinabove described, said transferee shall submit an application for authorization in accordance with applicable District Rules. [District Rule 3.1, §304] (Title V Permit Condition III.D.4)

Rule Requirement #5 (Facility Wide Permit Condition) - Renewal of Permits to Operate

All Permits to Operate shall be renewable annually on the individual permit's anniversary date, commencing one year after the date of issuance. The Permit Holder shall pay a fee for the annual permit renewal. If the annual renewal fee is not paid by the specified due date, the District shall assess a penalty of not more than 50% of the fee due. Non-payment of renewal fees is grounds for permit cancellation. [District Rule 3.1, §305 and District Rule 4.1, §303 and §401] (Title V Permit Condition III.D.5)

Rule Requirement #6 (Facility Wide Permit Condition) - Conditional Approval of Permits to Operate

Commencing work or operation under any Permits to Operate shall be deemed acceptance of all of the conditions so specified. [District Rule 3.1, §402] (Title V Permit Condition III.D.6)

Rule Requirement #7 (Facility Wide Permit Condition) - Permit to Operate Information

The Permit Holder shall submit an annual throughput/production report at the end of each calendar year for each Permit to Operate. These reports are due no later than March 31 for the previous year. This report must include actual operating hours and actual amounts of materials processed (for materials that have process limits listed on the Permit to Operate). Each type of material and each type of process must be listed separately. [District Rule 3.1, §405.1] (Title V Permit Condition III.D.7)

Requirement #8 (Facility Wide Permit Condition) - Breakdown, Malfunction, or Upset Notification

The owner or operator of any facility, article, machine, equipment, or other contrivance for which a permit to operate is in effect shall notify the District office whenever a breakdown, malfunction, or operational upset condition exists which would tend to increase emissions of air pollutants or whenever any operating condition contrary to any provision of the permit to operate exists. Such notice shall be given to the District no later than four hours after occurrence during regular workday hours or no later than two hours of the District workday following an occurrence not during regular District workday hours. The notice shall provide the District information as to causes and corrective action being taken, with a schedule for return to required operating conditions. [District Rule 3.1, §405.3] (Title V Permit Condition III.D.8)

Requirement #9 (Facility Wide Permit Condition) - Excess Emission Notification

The Permit Holder shall report all excess emissions to the District within ninety-six (96) hours of the occurrence of excess emissions. [District Rule 3.1, §405.4] (Title V Permit Condition III.D.9)

Rule Requirement #10 (Facility Wide Permit Condition) - Posting of Permits to Operate

The Permit Holder shall firmly affix all Permits to Operate, an approved facsimile, or other approved identification bearing the permit

number upon the facility, article, machine, equipment, or other contrivance in such a manner as to be clearly visible and accessible. In the event that the facility, article, machine, equipment, or other contrivance is so constructed or operated that the Permit to Operate cannot be so placed, the Permit to Operate shall be mounted so as to be clearly visible in an accessible place within twenty (25) feet of the facility, article, machine, equipment, or other contrivance, or maintained readily available at all times on the operating premises. [District Rule 3.1, §408] (Title V Permit Condition III.D.10)

District Rule 3.4-New Source Review

PROPOSED EMISSION SUMMARY FOR NEW OR MODIFIED PERMIT

	<u>Daily</u>	<u>Yearly</u>	
VOC	71.3 lb	13.01 tons	Use for annual billing
CO	1188.0 lb	185.60 tons	Use for annual billing
NOx	631.2 lb	98.60 tons	Use for annual billing
SOx	316.8 lb	49.50 tons	Use for annual billing
PM10	172.8 lb	27.00 tons	Use for annual billing

	<u>Quarterly</u>			
	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
VOC (lb)	6,415	6,486	6,558	6,558
CO (lb)	106,920	108,108	109,296	109,296
NOx (lb)	56,808	57,439	58,070	58,070
SOx (lb)	28,512	28,829	29,146	29,146
PM10 (lb)	15,552	15,725	15,898	15,898

Previous quarterly potential to emit for modified permit*

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
VOC (lb)	37,800	38,220	38,640	38,640
CO (lb)	106,920	108,108	109,296	109,296
NOx (lb)	56,808	57,439	58,070	58,070
SOx (lb)	28,512	28,829	29,146	29,146
PM10 (lb)	15,552	15,725	15,898	15,898

* From PTO P-105-90(t)

Historic potential emissions for modified permit*

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
VOC (lb)	37,800	38,220	38,640	38,640
CO (lb)	106,920	108,108	109,296	109,296
NOx (lb)	56,808	57,439	58,070	58,070
SOx (lb)	28,512	28,829	29,146	29,146
PM10 (lb)	15,552	15,725	15,898	15,898

* Offsets are continuously provided in accordance with California Health and Safety Code Section 41605.5. Therefore, per Rule 3.4, Section 220, the historic potential emissions are equal to the potential to emit prior to modification.

<u>Pollutant</u>	<u>Trigger</u> (lb/day)	<u>BACT</u> <u>Proposed</u> (lb/day)	<u>Quarterly Increase</u>	<u>BACT</u>
VOC	10	71	No	No
CO	250	1188	No	No
NOx	10	631	No	No
SOx	80	317	No	No
PM10	80	173	No	No

OFFSETS

Quarterly permitted emissions for other permits at the stationary source*

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
VOC (lb)	7,138	7,209	7,281	7,281
CO (lb)	108,644	109,832	111,020	111,020
NOx (lb)	63,157	63,788	64,419	64,419
SOx (lb)	28,593	28,910	29,227	29,227
PM10 (lb)	25,134	25,400	25,664	25,364

* See attached quarterly PTE determination

Quarterly permitted emissions for the stationary source including proposed emissions

	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
VOC (lb)	13,553	13,695	13,839	13,839
CO (lb)	215,564	217,940	220,316	220,316
NOx (lb)	119,965	121,227	122,489	122,489
SOx (lb)	57,105	57,739	58,373	58,373
PM10 (lb)	40,686	41,125	41,562	41,262

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

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

MAJOR MODIFICATION

Facility Total Potential to Emit*

13.70 TPY VOC
187.33 TPY CO
103.37 TPY NOx
49.54 TPY SOx
36.66 TPY PM10

Major Source Thresholds

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

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

Last five year emission aggregate*

0.44 TPY VOC
1.15 TPY CO
2.12 TPY NOx
0.00 TPY SOx
0.49 TPY PM10

Major Modification Thresholds

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

* See attached 5 year determination

Result: The proposed modification is not a major modification

PUBLIC NOTICE

"Increase in historic potential to emit"

-31,385 lb VOC/quarter
0 lb CO/quarter
0 lb NOx/quarter
0 lb SOx/quarter
0 lb PM10/quarter

Exemption level for notification

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

Result: Public notice is not required

1. Requirement:

The VOC emissions from the boiler operating under P-105-90(a2) shall not exceed 71.3 lb/day, 6,415 lb/1st calendar quarter, 6,486 lb/2nd calendar quarter, 6,558 lb/3rd calendar quarter, 6,558 lb/4th calendar quarter, and 13.01 tons/calendar year. [District Rule 3.4/C-12-131] (Title V Condition II.A.2)

2. Requirement:

The CO emissions from the boiler operating under P-105-90(a2) shall not exceed 1,188.0 lb/day, 106,920 lb/1st calendar quarter, 108,108 lb/2nd calendar quarter, 109,296 lb/3rd calendar quarter, 109,296 lb/4th calendar quarter, and 185.60 tons/calendar year. [District Rule 3.4/C-12-131] (Title V Condition II.A.3)

3. Requirement:

The NOx emissions from the boiler operating under P-105-90(a2) shall not exceed 631.2 lb/day, 56,808 lb/1st calendar quarter, 57,439 lb/2nd calendar quarter, 58,070 lb/3rd calendar quarter, 58,070 lb/4th calendar quarter, and 98.60 tons/calendar year. [District Rule 3.4/C-12-131] (Title V Condition II.A.4)

4. Requirement:

The SOx emissions from the boiler operating under P-105-90(a2) shall not exceed 316.8 lb/day, 28,512 lb/1st calendar quarter, 28,829 lb/2nd calendar quarter, 29,146 lb/3rd calendar quarter, 29,146 lb/4th calendar quarter, and 49.50 tons/calendar year. [District Rule 3.4/C-12-131] (Title V Condition II.A.5)

5. Requirement:

The PM10 emissions from the boiler operating under P-105-90(a2) shall not exceed 172.8 lb/day, 15,552 lb/1st calendar quarter, 15,725 lb/2nd calendar quarter, 15,898 lb/3rd calendar quarter, 15,898 lb/4th calendar quarter, and 27.00 tons/calendar year. [District Rule 3.4/C-12-131] (Title V Condition II.A.6)

6. Requirement:

For visible opacity purposes, the Permit Holder shall not discharge into the atmosphere from any single source of emissions whatsoever, any air contaminant for a period or periods aggregating more than three (3) minutes in any one (1) hour which is:

- a. As dark or darker than No. 1 on the Ringelmann Chart; or
- b. Greater than 20% opacity. [District Rule 3.4/C-12-131] (ATC Condition 4/Title V Permit Condition II.A.10)

7. Requirement:

The boiler shall only be fired on biomass fuels or supplemental fuel. Biomass fuels shall be limited to:

- a. Sawmill residue;
- b. Forest residue;
- c. Urban wood (defined as clean, chipped material derived from construction and demolition materials, pallets, crates, boxes, and tree trimmings). This fuel shall not contain pressure treated wood (except as listed in section e below) and shall not contain compounds listed in CCR 66261.24(a)(2)(A) in amounts exceeding the TTLC values;
- d. Agricultural residues (defined as organic plant-based material generated by agricultural operations). Agricultural residues include but are not limited to: grasses, reject seed, corn cobs; orchard and vineyard prunings (including from orchard removals); prune, peach and olive pits; coffee and cocoa beans; almond shells and hulls; walnut shells; and rice hulls; or
- e. Railroad Ties (only creosote treated). This fuel shall not be a hazardous waste according to the definition of CCR 66261.24. [District Rule 3.4/C-12-131] (ATC Condition 6/Title V Permit Condition II.B.10)

8. Requirement:

The creosote treated railroad ties shall not exceed 25% (by weight) of the total biomass fuel burned as determined on a daily basis. [District Rule 3.4/C-12-131] (ATC Condition 7/Title V Permit Condition II.B.12)

9. Requirement:

Natural gas shall be the only supplementary fuel for the boiler. The use of natural gas shall be limited to 250 MMBtu/hr. Offset credits shall be used for any emissions generated by the combustion of natural gas. [District Rule 3.4/C-12-131] (ATC Condition 9/Title V Permit Condition II.B.11)

10. Requirement:

A gauge shall be maintained to indicate the differential pressure across the baghouse bags. The baghouse bags shall be cleaned or replaced before the differential pressure reaches the critical pressure, as determined by the manufacturer of the bags. [District Rule 3.4/C-12-131] (ATC Condition 11/Title V Permit Condition II.B.8)

11. Requirement:

The Permit Holder shall calibrate, maintain, and operate a continuous emission monitoring system (CEMS) for O2, CO, SO2, NOx, Opacity, and Volumetric Flow. [District Rule 3.4/C-12-131] (ATC Condition 12/Title V Permit Condition II.C.1)

12. Requirement:

A quality assurance/quality control (QC) program for the CEMS shall be maintained. As a minimum, the QC program must include written procedures which should describe in detail, complete, step-by-step procedures and operations for each of the following activities:

- a. Calibrations of CEMS;
- b. Calibration Drift (CD) determination and adjustment of CEMS;
- c. Preventive Maintenance of CEMS (including spare parts inventory);
- d. Data recording, calculations, and reporting procedures;
- e. Accuracy audit procedures including sampling and analysis methods; and
- f. Program for corrective action for malfunctioning CEMS. [District Rule 3.4/C-12-131] (ATC Condition 14/Title V Permit Condition II.C.2)

13. Requirement:

The Permit Holder shall operate the fluidized bed combustion system in a manner such that the exhaust stack emissions are less than the PERMITTED EMISSION LIMITS (daily, quarterly and annual), as determined by the CEMS. [District Rule 3.4/C-12-131] (ATC Condition 15/Title V Permit Condition II.B.13)

14. Requirement:

Except during periods of start-up or shut-down, the Permit Holder shall operate the fluidized bed combustion system in a manner such that the exhaust stack emissions are less than the following values, as determined either by the average value of three one-hour source test runs and based upon the measured heat input during the source test runs, or as measured by the CEMS: [District Rule 3.4, Section 409.1]

VOC (as methane) 0.009 lb/MMBtu;

CO 0.15 lb/MMBtu;

NOx (as NO2) 0.08 lb/MMBtu;

SOx (as SO2) 0.04 lb/MMBtu;

PM10 (front and back half) 0.010 gr/dscf (referenced to 12% CO2);

PM10 (front half) 0.007 gr/dscf (referenced to 12% CO2); and
 Ammonia slip 50 parts per million by volume dry (ppmvd). [District Rule 3.4/C-12-131] (ATC Condition 16/Title V Permit Condition II.A.7)

15. Requirement:

Except during periods of start-up or shut-down, the Permit Holder shall operate the fluidized bed combustion system in a manner such that the exhaust stack emissions are less than the following values, as determined either by the average value of three one-hour source test runs or as measured by the CEMS:

- VOC (as methane) 3.0 lb/hr;
- CO 49.5 lb/hr;
- NOx (as NO2) 26.3 lb/hr;
- SOx (as SO2) 13.2 lb/hr;
- PM10 (front and back half) 7.2 lb/hr; and
- PM10 (front half) 5.0 lb/hr. [District Rule 3.4/C-12-131] (ATC Condition 17/Title V Permit Condition II.A.8)

16. Requirement:

The Permit Holder shall fully offset all actual PM10 emissions from the entire facility, on a calendar quarter basis, by diverting qualified agricultural biomass from being burned in the field. [District Rule 3.4/C-12-131] (ATC Condition 20/Title V Permit Condition II.B.9)

17. Requirement:

The Permit Holder shall obtain all qualified agricultural biomass material (offset material) from open field burning in the following priorities:

- a. within 15 miles of the facility;
- b. within the Yolo-Solano AQMD; and
- c. from counties within the Sacramento Air Basin. [District Rule 3.4/C-12-131] (ATC Condition 21/Title V Permit Condition II.B.18)

18. Requirement:

The amount of PM10 credits required from the boiler are calculated as follows:

$$E = (Sa/Sp) * h * ER$$

where E = emission credits required

Sa = hourly average recorded steam flow for the calendar quarter

Sp = hourly maximum steam production as determined during source testing, or 255,000 lbs/hour, whichever is less

h = hours of operation for the calendar quarter

ER = emission rate (lb/hour - average of three runs) at maximum boiler firing rate from most recent source test. [District Rule 3.4/C-12-131] (ATC Condition 22/Title V Permit Condition II.B.14)

19. Requirement:

The amount of PM10 credits generated are calculated as follows:

$$EC = \text{Summation } [1/DFi * Ai * EFi]$$

where EC = emission credits generated in pounds per calendar quarter

DFi = distance factor

Ai = amount of each type of qualified agricultural biomass material, in tons per quarter (field condition)

EFi = emission factor, in pounds of pollutant (P) per ton of qualified agricultural biomass material (in field condition moisture) open burned. [District Rule 3.4/C-12-131] (ATC Condition 23/Title V Permit Condition II.B.15)

20. Requirement:

The Distance Factor (DF) shall be 1.2 for agricultural waste diverted from open burning within a 15 mile radius of the source claiming offsets, and 2.0 for agricultural waste diverted from open burning 15 miles or more from the source claiming offsets. [District Rule 3.4/C-12-131] (ATC Condition 24/Title V Permit Condition II.B.16)

21. Requirement:

The Emission Factors (EF) are as follows:

Fuel Type	Emission Factor* (lb/ton)
	PM10
Rice straw	6.3
Wheat straw	10.6
Almond prunings	7.0
Apricot prunings	5.9
Cherry prunings	7.9
Grape prunings	4.9
Peach prunings	5.9
Pear prunings	8.8
Prune prunings	2.9
Walnut prunings	4.2
Other prunings	7.8

*Given in field condition moisture. [District Rule 3.4/C-12-131] (ATC Condition 25/Title V Permit Condition II.B.17)

22. Requirement:

The Permit Holder shall install and maintain such facilities as are necessary for sampling and testing purposes. The number, size, and location of sampling ports shall be in accordance with Air Resources Board Test Method 1 or EPA Test Methods. The location and access to the sampling platform shall be in accordance with the General Industry Safety Orders of the State of California. [District Rule 3.4/C-12-131] (ATC Condition 26/Title V Permit Condition II.C.3)

23. Requirement:

The Permit Holder shall perform an initial source test to determine compliance with the emission limitations of arsenic, hexavalent chromium, polychlorinated dibenzodioxins, and polychlorinated dibenzofurans approved by the District for this permit. [District Rule 3.4/C-12-131] (ATC only condition)

24. Requirement:

Toxic Air Contaminant emission rates from the boiler shall not exceed the following amounts approved by the District for this permit. [District Rule 3.4/C-12-131] (ATC only condition)

Pollutant	Maximum Emissions	
	(lb/hour)	(lb/year)
Arsenic	5.52E-03	46.37
Hexavalent Chromium	1.60E-03	13.18
Total Polychlorinated Dibenzodioxins	2.99E-07	2.51E-03
Total Polychlorinated Dibenzofurans	3.31E-07	2.78E-03

25. Requirement:

Source testing for Toxic Air Contaminants shall be conducted using the test methods approved by the District. [District Rule 3.4/C-12-131] (ATC only condition)

26. Requirement:

The Permit Holder shall perform a source test at least once every 12 consecutive calendar months in order to demonstrate compliance with the following. The District reserves the right to require the permit holder to demonstrate compliance with additional parameters in order to address or ascertain compliance with the requirements of this permit:

- a. VOC concentration (lb/MMBtu) and emission rate (lb/hour);
- b. CO concentration (lb/MMBtu) and emission rate (lb/hour);
- c. NOx concentration (lb/MMBtu) and emission rate (lb/hour);
- d. SOx concentration (lb/MMBtu) and emission rate (lb/hour);
- e. PM10 (front and back half) concentration (gr/dscf) and emission rate (lb/hour);
- f. PM10 (front half) concentration (gr/dscf) and emission rate (lb/hour);
- g. NH3 concentration (ppmvd);
- h. Oxygen and Carbon Dioxide concentration (%);
- i. Exhaust stack gas flow rate (dscfm);
- j. Measured heat input rate (MMBtu/hr); and
- k. The higher heating value (dry basis) of the biomass fuel. [District Rule 3.4/C-12-131] (ATC Condition 30/Title V Permit Condition II.C.4)

27. Requirement:

Source testing shall be conducted using the following test methods. Alternative test methods may be used if approved in advance by the District.

- a. VOC - EPA method 18, 25, or 25A,
- b. CO - EPA method 10,
- c. NOx (as NO2) - EPA method 7E,
- d. SOx (as SO2) - EPA method 6,
- e. PM10 (front and back half, adjusted for ammonia salts) - EPA method 5 with impinger analysis and South Coast AQMD Method 5.2,
- f. Stack gas oxygen and carbon dioxide - EPA method 3 or 3A,
- g. Flow rate - EPA methods 1 through 4,
- h. NH3 - Bay Area Air Quality Management District (BAAQMD) Method ST-1B,
- i. HHV - ASTM Method D 2015 or E 711. [District Rule 3.4/C-12-131] (ATC Condition 31/Title V Permit Condition II.C.5)

28. Requirement:

The District must be notified prior to any compliance source test, and a source test plan must be submitted for approval 30 days prior to testing. The results of the source test shall be submitted to the District within 60 days of the test date. [District Rule 3.4/C-12-131] (ATC Condition 37/Title V Permit Condition II.C.6)

29. Requirement:

The Permit Holder shall maintain records of the following information for each day the boiler is operated. The records shall be updated monthly and submitted to the District upon request.

- a. Calendar date;
- b. The opacity measurements made;
- c. The average hourly nitrogen oxides (expressed as NO2) emission rate (lb/MMBtu) measured;
- d. The average daily nitrogen oxides (expressed as NO2) and CO emission rates (lb/hour) measured;
- e. The 30-day average nitrogen oxides emission rates (lb/hour and lb/MMBtu) calculated at the end of each boiler operating day from the measured hourly nitrogen oxide emission rates for the preceding 30 boiler operating days;
- f. Identification of the boiler operating days when the calculated 30-day average nitrogen oxides emission rates are in excess of

the nitrogen oxide emission limitations of this permit, with the reasons for such excess emissions as well as a description of corrective actions taken;

- g. Identification of the boiler operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken;
- h. Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data;
- i. Identification of "F" factor used for calculations, method of determination, and type of fuel combusted;
- j. Identification of the times when the pollutant concentration exceeded full span of the CEMS;
- k. Description of any modifications to the CEMS that could affect the ability of the CEMS to comply with 40 CFR Part 60 Appendix B, PERFORMANCE SPECIFICATIONS 2 or 3;
- l. Results of daily CEMS drift tests and quarterly accuracy assessments as required under 40 CFR Part 60 appendix F, Procedure 1;
- m. Time and duration of boiler start-up and shutdown events; and
- n. Time and duration of equipment and/or control equipment malfunction. [District Rule 3.4/C-12-131] (ATC Condition 51/Title V Permit Condition II.D.13)

30. Requirement:

The Permit Holder shall submit to the District a written report for each calendar quarter, within 30 days of the end of the calendar quarter, which includes the following:

- a. The date, time intervals, and magnitude of excess permitted emissions or exceedance in opacity computed in accordance with 40 CFR Part 60.13(h);
- b. The date, time intervals, and operating parameters of the baghouse when operating outside the indicated permitted limits;
- c. The nature and cause of the excess emissions, exceedance in opacity or control equipment operation deviation, and corrective actions taken;
- d. The time and date of each period during which the continuous monitoring equipment was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; and
- e. A negative declaration when no excess emissions, exceedance in opacity or control equipment operation deviation occurred, if applicable. [District Rule 3.4/C-12-131] (ATC Condition 53/Title V Permit Condition II.D.14)

31. Requirement:

The Permit Holder shall maintain the following records:

- a. Daily, quarterly, and annual hours of operation,
- b. The date and time of each occurrence, duration, and type of any start-up or shutdown event,
- c. Emission measurements from all source testing and fuel analyses,
- d. Equipment breakdowns or malfunctions,
- e. Daily, quarterly, and annual records of the measured cumulative CO, NO_x, and SO_x mass emissions,
- f. Daily, quarterly, and annual records of the calculated (using the measured steam per period and the emission concentration from the previous source test) cumulative VOC, and PM₁₀ mass emissions,
- g. Any emissions in excess of the PERMITTED EMISSION LIMITS section as recorded by the CEM or source test data,
- h. All records from the CEMS, including performance testing, evaluations, calibrations, checks, maintenance, adjustments, and any period of non-operation of any CEM. [District Rule 3.4/C-12-131] (ATC Condition 55/Title V Permit Condition II.D.10)

32. Requirement:

All records shall be kept for a minimum of five years and made available to the District upon request. [District Rule 3.4/C-12-131] (ATC Condition 56/Title V Permit Condition II.D.11)

33. Requirement:

Mass emissions in excess of the daily PERMITTED EMISSION LIMITS shall be reported to the District within 96 hours after such occurrence. Such violations shall be subject to the appropriate enforcement action. [District Rule 3.4/C-12-131] (ATC Condition 57/Title V Permit Condition II.C.7)

34. Requirement:

The Permit Holder shall establish a program (subject to District review and approval) for sampling and testing railroad ties to confirm they are not hazardous waste. The plan shall be updated as necessary, or as required by the District, and any changes to the plan shall be approved by the District prior to implementation. [District Rule 3.4/C-12-131] (ATC Condition 8/Title V Permit Condition II.C.8)

District Rule 3.5-Emission Reduction Credits

This rule provides the administrative mechanism for quantifying, adjusting, and certifying surplus emission reductions.

Rule Requirement #1 - Records

The permit holder shall maintain a daily log of all biomass received by type, origin, certified weight, and date. Records shall include certifications that any creditable biomass has historically been openly burned in the Sacramento air basin. [District Rule 3.5/C-12-131] (ATC Condition 54/Title V Permit Condition II.D.9)

District Rule 3.8-Federal Operating Permits

This rule implements the requirements of Title V of the Federal Clean Air Act (CAA) as amended in 1990 for permits to operate. Title V provides for the establishment of operating permit programs for sources which emit regulated air pollutants, including attainment and non attainment pollutants at or above the major source levels. As requested by the source, ATC C-12-131 will be processed under the Enhanced New Source Review provisions of District Rule 3.4, Section 404 (see application). This emission

evaluation will serve as the Statement of Basis documenting the proposed modifications to the federal operating permit.

Rule Requirement #1 - Minor Permit Modification

The District has determined that the proposed modifications to the permitted equipment and permit conditions are considered a minor modification since they do not meet the definition of either significant modifications (Section 222) or administrative modifications (Section 203). Specifically, the changes are not considered significant modifications since the proposed modifications to the federally-enforceable conditions do not involve any modifications that result in: the greater than de minimis increase in actual emissions of hazardous air pollutants; significant changes to monitoring conditions; relaxation of reporting or recordkeeping conditions; a permit condition that allows the source to avoid an applicable federal requirement; a case-by-case determination of any emission standard; or a source-specific determination for ambient impacts or visibility analysis. The proposed modifications do not qualify as administrative permit amendments since the amendments do not correct typographical errors or an administrative change; require more frequent monitoring or reporting conditions; transfer ownership or operational control of the facility; or incorporate into the federal permit the conditions of a federally-enforceable preconstruction permit.

Rule Requirement #2 - Notification and Review of Proposed Decision

Per the requirements of Section 409.2, the District's proposed decision will be noticed to the U.S. EPA and CARB within five (5) days of issuing the ATC. Per convention, the District will provide both agencies copies of the emission evaluation and proposed permits.

Rule Requirement #3 (Facility Wide Permit Condition) - Right of Entry

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

- a. Inspection of the stationary source, including equipment, work practices, operations, and emissions-related activity;
- b. Inspection and duplication of records required by the permit to operate; and
- c. Source sampling or other monitoring activities. [District Rule 3.8, §302.10] (Title V Condition IV.A.1)

Rule Requirements #4 through #9 (Facility Wide Permit Conditions) - Compliance with Permit Conditions

The Permit Holder shall comply with all Title V permit conditions. [District Rule 3.8, §302.11(a)] (Title V Condition IV.B.1)

The permit does not convey property rights or exclusive privilege of any sort. [District Rule 3.8, §302.11(b)] (Title V Condition IV.B.2)

Non-compliance with any permit condition is grounds for permit termination, revocation and reissuance, modification, enforcement action, or denial of permit renewal. [District Rule 3.8, §302.11(c)] (Title V Condition IV.B.3)

The Permit Holder shall not use the "need to halt or reduce a permitted activity in order to maintain compliance" as a defense for non-compliance with any permit condition. [District Rule 3.8, §302.11(d)] (Title V Condition IV.B.4)

A pending permit action or notification of anticipated non-compliance does not stay any permit condition. [District Rule 3.8, §302.11(e)] (Title V Condition IV.B.5)

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

- a. Compliance with the permit; or
- b. Whether or not cause exists for a permit or enforcement action. [District Rule 3.8, §302.11(f)] (Title V Condition IV.B.6)

Rule Requirements #10 (Facility Wide Permit Conditions) - Emergency Provisions

Within two (2) weeks of an emergency event, the owner or operator shall submit to the District a properly signed contemporaneous log or other relevant evidence demonstrating that:

- a. An emergency occurred;
- b. The Permit Holder can identify the cause(s) of the emergency;
- c. The facility was being properly operated at the time of the emergency;
- d. All steps were taken to minimize the emissions resulting from the emergency;
- e. Within two (2) working days of the emergency event, the Permit Holder provided the District with a description of the emergency and any mitigating or corrective actions taken; and

In any enforcement proceeding, the Permit Holder has the burden of proof for establishing that an emergency occurred. [District Rule 3.8, §302.12(b)] (Title V Condition IV.C.1)

Rule Requirement #11 (Facility Wide Permit Condition) - Severability

If any provision, clause, sentence, paragraph, section or part of these conditions for any reason is judged to be unconstitutional or invalid, such judgment shall not affect or invalidate the remainder of these conditions. [District Rule 3.8, §302.13] (Title V Condition IV.D.1)

Rule Requirements #12 through #14 (Facility Wide Permit Conditions) - Compliance Certification

The compliance certification shall identify the basis for each permit term or condition (e.g., specify the emissions limitation, standard, or work practice) and a means of monitoring compliance with the term or condition consistent with Sections 302.5, 302.6, and 302.7 of Rule 3.8. [District Rule 3.8, §302.14(b)] (Title V Condition IV.E.2)

The compliance certification shall include a statement of the compliance status, whether compliance was continuous or intermittent,

and method(s) used to determine compliance for the current time period and over the entire reporting period. [District Rule 3.8, §302.14(c)] (Title V Condition IV.E.3)

The compliance certification shall include any additional inspection, monitoring, or entry requirement that may be promulgated pursuant to Sections 114(a) and 504(b) of the Federal CAA. [District Rule 3.8, §302.14(d)] (Title V Condition IV.E.4)

Rule Requirement #15 (Facility Wide Permit Condition) - Permit Life

The Title V permit shall expire five (5) years from the date of issuance. Title V permit expiration terminates the stationary source's right to operate unless a timely and complete Title V permit application for renewal has been submitted. [District Rule 3.8, §302.15] (Title V Condition IV.F.1)

Rule Requirement #16 (Facility Wide Permit Condition) - Payment of Fees

An owner or operator shall pay the appropriate Title V permit fees on schedule. If fees are not paid on schedule, the permit is forfeited. Operation without a permit subjects the source to potential enforcement action by the District and the U.S. EPA pursuant to Section 502(a) of the CAA. [District Rule 3.8, §302.16] (Title V Condition IV.G.1)

Rule Requirement #17 (Facility Wide Permit Condition) - Permit Revision Exemption

No permit revision shall be required under any approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for in the permit. [District Rule 3.8, §302.22] (Title V Condition IV.H.1)

Rule Requirements #18 through #20 (Facility Wide Permit Conditions) - Application Requirements

An owner or operator shall submit a standard District application for renewal of the Title V permit, no earlier than eighteen (18) months and no later than six (6) months before the expiration date of the current permit to operate. [District Rule 3.8, §402.2] (Title V Condition IV.I.1)

An owner or operator shall submit a standard District application for each emissions unit affected by a proposed permit revision that qualifies as a significant Title V permit modification. The application shall be submitted after obtaining any required preconstruction permits. Upon request by the APCO, the owner or operator shall submit copies of the latest preconstruction permit for each affected emissions unit. The emissions unit(s) shall not commence operation until the APCO approves the permit revision. [District Rule 3.8, §402.3] (Title V Condition IV.I.2)

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

- a. A description of the proposed permit revision, any change in emissions, and additional applicable federal requirements that will apply;
- b. Proposed permit terms and conditions; and
- c. A certification by a responsible official that the permit revision meets criteria for use of minor permit modification procedures and a request that such procedures be used. [District Rule 3.8, §402.4] (Title V Condition IV.I.3)

Rule Requirement #21 (Facility Wide Permit Condition) - Permit Reopening for Cause

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

- a. The need to correct a material mistake or inaccurate statement;
- b. The need to revise or revoke a permit to operate to assure compliance with applicable federal requirements;
- c. The need to incorporate any new, revised, or additional applicable federal requirements, if the remaining authorized life of the permit is three (3) years or greater, no later than 18 months after the promulgation of such requirement (where less than three (3) years remain in the authorized life of the permit, the APCO shall incorporate the requirements into the permit to operate upon renewal); or
- d. Additional requirements promulgated pursuant to Title IV as they become applicable to any acid rain unit governed by the permit. [District Rule 3.8, §413.1] (Title V Condition IV.J.1)

Rule Requirement #22 (Facility Wide Permit Condition) - Monitoring, Testing and Analysis

The affected equipment is not subject to additional periodic monitoring or testing requirements. Therefore, no additional monitoring, testing, and analysis conditions are required.

Permit Condition

No permit condition is required.

Rule Requirements #23 and #24 (Facility Wide Permit Condition) - Recordkeeping

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

- (i). Date, place, and time of sampling;
- (ii). Operating conditions at the time of sampling;
- (iii). Date, place, and method of analysis; and
- (iv). Results of the analysis. [District Rule 3.8, §302.6(a)] (Title V Condition IV.K.1)

The Permit Holder shall retain records of all required monitoring data and support information for a period of at least five (5) years from the date of sample collection, measurement, report, or application. [District Rule 3.8, §302.6(b)] (Title V Condition IV.K.2)

Rule Requirements #25 through #27 (Facility Wide Permit Condition) - Reporting Requirements

Any deviation from permit requirements, including that attributable to upset conditions (as defined in the permit), shall be promptly reported to the APCO. For the purpose of this condition prompt means as soon as reasonably possible, but no later than 10 days after detection. [District Rule 3.8, §302.7(a)] (Title V Condition IV.L.1)

All reports of deviation from permit requirements shall include the probable cause of the deviation and any preventive or corrective action taken. [District Rule 3.8, §302.7(c)] (Title V Condition IV.L.3)

Each monitoring report shall be accompanied by a written statement from the responsible official that certifies the truth, accuracy, and completeness of the report. [District Rule 3.8, §302.7(e)] (Title V Condition IV.L.4)

Rule Requirement #28 (Facility Wide Permit Condition) - Reporting Requirements

Section 302.14 requires that every twelve (12) months the Responsible Official submit an accurate and complete compliance certification to the U.S. EPA and the District.

Subsuming Demonstration: The requirements of the rule have been subsumed with the requirements of Rule 3.4 which establish explicit certification periods and submittal deadlines.

Subsuming Permit Condition:

The responsible official shall submit a compliance certification to the U.S. EPA and the APCO every twelve (12) months unless required more frequently by an applicable requirement. The twelve (12) month period shall be January 1 through December 31, and shall be submitted by January 30 following the reporting period, unless otherwise approved in writing by the District. All compliance reports and other documents required to be submitted to the District by the responsible official shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. [District Rule 3.4, §409 and District Rule 3.8, §302.14(a)] (Title V Condition IV.E.1)

Rule Requirement #29 (Facility Wide Permit Condition) - Reporting Requirements

The SIP approved rule requires that every six (6) months the Responsible Official submit an accurate and complete semi-annual monitoring report to the U.S. EPA and the District.

Subsuming Demonstration: The requirements of the rule have been streamlined with the requirements of Rule 3.4 which establish explicit monitoring periods and submittal deadlines.

Subsuming Permit Condition:

A semi-annual monitoring report shall be submitted at least every six (6) consecutive months and shall identify any deviation from permit requirements, including that previously reported to the APCO pursuant to Section 302.7(a) of District Rule 3.8. The six (6) month periods shall be January 1 through June 30 and July 1 through December 31. The reports shall be submitted by July 30 and January 30 following each reporting period, respectively, unless otherwise approved in writing by the District. [District Rule 3.4, §409 and District Rule 3.8, §302.7(b)] (Title V Condition IV.L.2)

District Rule 3.20-Ozone Transport Mitigation

Annual permitted emissions for the stationary source including proposed emissions

VOC (lb)	26,900	lbs
NOx (lb)	201,433	lbs

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

VOC (lb)	503	lbs
NOx (lb)	5,291	lbs

* From PTOs P-51-94(t), P-52-94(t) for emergency engines

Post-project Stationary Source Potential to Emit (SSPE)

VOC (lb)	26,397	lbs
NOx (lb)	196,142	lbs

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

Pre-project Stationary Source Potential to Emit (SSPE)

VOC (lb)	132,080	lbs
NOx (lb)	201,433	lbs

Quantity of offsets required by Rule 3.4

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

Quantity of Mitigation required by Rule 3.20

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

District Rule 3.23-Acid Deposition Control

This source is exempt from this rule per section 102 of the rule. Section 102 refers to the applicability in 40 CFR Part 72. Per section 72.6(b)(5), the facility is exempt if they are a qualifying facility that had a qualifying power purchase commitment to sell at least 15% of the total planned net output capacity and has an installed net output capacity not exceeding 130% of the planned net output capacity.

The source is a qualifying facility under section 72.2, which points to 16 USC 796 (Federal Power Act). The source meets the title 16, section 796 definition of qualifying facility under section (17)(A) and (17)(C) because it uses biomass as a primary fuel and has a capacity less than 80 MW.

Per section 72.2, the source had a qualifying power purchase commitment that was in effect on 11/15/90 that met the requirements of the definition (see file).

40 CFR, Part 60, Subpart A - General Provisions

This subpart provides general monitoring, recordkeeping, performance, and compliance requirements for sources that are subject to New Source Performance Standards (NSPS). The rule applies to this emissions unit. The source is currently in compliance with this subpart.

Rule Requirement #1 (Permit Condition) - Startup, Shutdown, and Malfunction records

Subpart 60.7(b) requires that the owner/operator maintain records of any startup, shutdown, or malfunction in the operation of an affected facility and associated control equipment and any periods during which a continuous monitoring system is inoperative.

Streamlining Demonstration: The requirements of the rule have been streamlined with additional recordkeeping requirements of Rule 3.4.

Streamlined Permit Condition:

See rule requirement #31 of Rule 3.4 above.

Rule Requirement #2 (Permit Condition) - Reporting Excess Emissions and Continuous Monitoring Inoperative Periods

Subpart 60.7(c) requires that the owner/operator required to install a continuous monitoring device submit reports of excess emissions and periods when the continuous monitoring system is inoperative.

Streamlining Demonstration: The requirements of the rule have been streamlined with the more stringent reporting requirements of Rule 3.1 and Rule 3.4.

Streamlined Permit Condition:

See rule requirements #9 of Rule 3.1 and #30 of Rule 3.4 above

Rule Requirement #3 (Permit Condition) - Reporting Excess Emissions

Subpart 60.7(d)(2) requires that the owner/operator submit reports of excess emissions if the total duration of excess emissions for the reporting period is 1 percent or greater of the total operating time in the reporting period or if the monitoring system downtime is 5 percent or greater of the total operating time for the reporting period.

Streamlining Demonstration: The requirements of the rule have been streamlined with the more stringent reporting requirements of Rule 3.4 which require reporting regardless of the duration of excess emissions.

Streamlined Permit Condition:

See rule requirements #30 of Rule 3.4 above

Rule Requirement #4 (Permit Condition) - CEMS Zero and Span Calibration

Subpart 60.13(d)(1) requires that an affected CEMS system be adjusted if its daily zero or span drift values are found to be outside of the allowed tolerance of 40 CFR Part 60 - Appendix B, Specification 2.

Streamlining Demonstration: The requirements of Subpart 60.13(d)(1) can be streamlined with the requirements of Appendix B, Specification 2.

Streamlined Permit Conditions:

The owner/operator shall check the zero and span calibration drifts at least once daily (24-hour) in accordance with a written procedure. [40 CFR 60.13(d)(1)] (ATC Condition 46/Title V Permit Condition II.C.10)

The zero and span NO_x calibrations shall be adjusted whenever the daily zero drift or the daily span drift deviates from the reference value of the calibration gas by more than 5.0% of the span value. [40 CFR 60.13(d)(1)] (ATC Condition 47/Title V Permit Condition II.C.11)

Rule Requirement #5 (Permit Condition) - COMS Calibration

For the continuous opacity monitoring system minimum procedures must include an automated method for producing a simulated zero opacity condition and an upscale opacity condition using a certified neutral density filter or other related technique to produce a known obstruction of the light beam. Such procedures must provide a system check of all active analyzer internal optics with power or curvature, all active electronic circuitry including the light source and photodetector assembly, and electronic or electro-mechanical systems and hardware and or software used during normal measurement operation. [40 CFR 60.13(d)(2)] (ATC Condition 41/Title V Permit Condition II.C.13)

Rule Requirement #6 (Permit Condition) - CEMS Continuous Operation

The continuous monitoring systems shall be in continuous operation except for system breakdowns, repairs, calibration checks, and zero and span adjustments. [40 CFR 60.13(e)] (ATC Condition 13/Title V Permit Condition II.C.9)

Rule Requirement #7 (Permit Condition) - COMS Operating Cycle

Each COMS shall complete a minimum of one (1) cycle of sampling and analyzing for each successive 10 second period and one (1) cycle of data recording for each successive 6 minute period. [40 CFR 60.13(e)(1)] (ATC Condition 42/Title V Permit Condition II.C.14)

Rule Requirement #8 (Permit Condition) - CEMS Operating Cycle

Each CEMS shall complete a minimum of one (1) cycle of operation (sampling, analyzing, and data recording) for each successive fifteen (15) minute period. [40 CFR 60.13(e)(2)] (ATC Condition 44/Title V Permit Condition II.C.15)

Rule Requirement #9 (Permit Condition) - Data Reduction

All COMS data shall be reduced to 6-minute averages which shall be calculated from 36 or more data points equally spaced over each 6-minute period. All CEMS data shall be reduced to 1-hour averages. [40 CFR 60.13(h)(1)] (ATC Condition 43/Title V Permit Condition II.C.16)

Rule Requirement #10 (Permit Condition) - CEMS Averaging

All valid data points shall be used to calculate the hourly average. At least one valid data point in each of the 15-minute quadrants of the hour is required to calculate the hourly average. For any operating hour in which required maintenance or quality-assurance activities are performed a minimum of two valid data points separated by at least 15 minutes is required to calculate the hourly average, or at least one valid data point if the unit operates in only one quadrant of the hour. All data for an hour in which a daily calibration error check is failed shall be invalidated unless a subsequent calibration error test is passed in the same hour and the requirements for valid data points are met. Data recorded during periods of monitoring system breakdown, repair, calibration checks, and zero and span adjustments shall not be included in the data averages. [40 CFR 60.13(h)(2)] (ATC Condition 48/Title V Permit Condition II.C.17)

Rule Requirement #11 (Permit Condition) - Recording Excess Emissions

All excess emissions shall be converted into lb/MMBtu (for NO_x and particulate matter) and % (for opacity). After conversion the data may be rounded to the same number of significant digits used to specify the applicable emission limit. [40 CFR 60.13(h)(3)] (ATC Condition 50/Title V Permit Condition II.C.18)

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

This subpart contains emission standards and monitoring requirements for particulate matter, sulfur dioxide, and nitrogen oxides for industrial, commercial, and institutional steam generating units. The facility is subject to this regulation because construction commenced after June 19, 1984 and it has a rated heat input capacity greater than 29 MW (100 MMBtu/hr.)

Rule Requirement #1 (Permit Condition) - Emission Standard for Particulate Matter

Subpart 60.43b(c)(1) requires that the emissions of particulate matter not exceed 0.10 lb/MMBtu heat input.

Subsuming Demonstration: The requirements of the rule have been subsumed by a Rule 3.4 permit condition which establish a more stringent limit on particulate matter emissions.

Subsuming Permit Condition:

See rule requirements #14 and #15 of Rule 3.4 above.

Rule Requirement #2 (Permit Condition) - Emission Standard for Visible Emissions

Subpart 60.43b(f) requires that visible emissions not exceed 20% opacity except for one 6-minute period per hour of not more than 27 percent opacity.

Streamlining Demonstration: The requirements of the rule have been streamlined with the exception from compliance for periods of startup, shutdown, or malfunction granted by Subpart 60.43b(g).

Streamlined Permit Condition:

For in-stack opacity purposes, except during periods of startup, shutdown, and malfunction, the source shall not cause to be

discharged into the atmosphere any gases that exhibit greater than 20% opacity (6-minute average), except for one 6-minute period per hour of not more than 27% opacity. [40 CFR 60.43b(f) and (g)] (ATC Condition 5/Title V Permit Condition II.A.9)

Rule Requirement #3(Permit Condition) - Emission Standard for Nitrogen Oxides

Subpart 60.44b(d) requires that the emissions of nitrogen oxides from an affect facility that simultaneously combusts natural gas with wood not exceed 0.30 lb/MMBtu heat input.

Streamlining Demonstration: The requirements of the rule have been streamlined with the exception from compliance with a more stringent emission limit for periods of startup and shutdown stated in rule requirement #15 of Rule 3.4 (see above).

Streamlined Permit Condition:

At all times including periods of startup, shutdown, and malfunction, the Permit Holder shall operate the fluidized bed combustion system in a manner such that the exhaust stack emissions are less than the following values, as determined by the CEMS system.

Nox (as NO₂) 0.30 lb/MMBtu (30 day rolling average) [40 CFR 60.44b(d)] (ATC Condition 18/Title V Permit Condition II.A.11)

Rule Requirement #4(Permit Condition) - Compliance with Particulate Matter Emissions Standards and Opacity Limits

Subpart 60.46b(a) specifies that particulate matter emission standards and opacity limits apply at all time except during periods of startup, shutdown, or malfunction.

Subsuming Demonstration: The requirements of the rule have been subsumed by a Rule 3.4 permit condition which establish more stringent limits on particulate matter emissions and opacity limits.

Subsuming Permit Condition:

See rule requirements #6, #14, and #15 of Rule 3.4 above.

Rule Requirement #5(Permit Condition) - Particulate Matter Emissions Determination

Subpart 60.46b(d) requires ongoing testing to determine compliance with particulate matter emission limits and opacity limits.

Subsuming Demonstration: The requirements of the rule have been subsumed by Rule 3.4 permit conditions which establish a more stringent requirement for regular source testing and require continuous opacity monitoring.

Subsuming Permit Condition:

See rule requirements #11, #26, and #27 of Rule 3.4 above.

Rule Requirement #6(Permit Condition) - Nitrogen Oxides Emissions Determination

Subpart 60.46b(e) specifies requirements to determine compliance with nitrogen oxides emission limits.

Subsuming Demonstration: The requirements of the rule have been subsumed by Rule 3.4 permit conditions which requires annual third-party testing and maintaining a continuous emissions monitoring system to demonstrate compliance with NO_x emission limits.

Subsuming Permit Condition:

See rule requirements #11, #26 and #27 of Rule 3.4 above.

Rule Requirement #7(Permit Condition) - Nitrogen Oxides Rolling Average

The facility shall determine compliance with the nitrogen oxides standards on a continuous basis through the use of a 30-day rolling average emission rate. A new 30-day rolling average emission rate is calculated each steam generating unit operating day as the average of all of the hourly nitrogen oxides emission data for the preceding 30 steam generating unit operating days. [40 CFR 60.46b(e)(3)] (ATC Condition 19/Title V Permit Condition II.C.19)

Rule Requirement #8(Permit Condition) - Opacity Monitoring

Subpart 60.48b(a) specifies the requirements for a facility subject to an opacity standard under Subpart 60.43b to install, calibrate, maintain, and operate a continuous opacity monitoring system (COMS).

Subsuming Demonstration: The requirements of the rule have been subsumed by Rule 3.4 permit conditions which requires operation and maintenance of a continuous opacity monitoring system according to a quality assurance/quality control program.

Subsuming Permit Condition:

See rule requirements #11 and #12 of Rule 3.4 above.

Rule Requirement #9(Permit Condition) - Opacity Monitoring System Specification

The span value for the continuous monitoring system for measuring opacity shall be between 60 and 80 percent. [40 CFR 60.48b(e)(1)] (ATC Condition 40/Title V Permit Condition II.C.12)

Rule Requirement #10(Permit Condition) - Nitrogen Oxides Emissions Monitoring

Subpart 60.48b(b)(1) and 60.48b(e)(3) specify the requirements for a facility subject to an NO_x standard under Subpart 60.44b to install, calibrate, maintain, and operate a continuous emissions monitoring system (CEMS).

Subsuming Demonstration: The requirements of the rule have been subsumed by Rule 3.4 permit conditions which requires operation and maintenance of a continuous emissions monitoring system according to a quality assurance/quality control program.

Subsuming Permit Condition:

See rule requirements #11 and #12 of Rule 3.4 above.

Rule Requirement #11(Permit Condition) - Nitrogen Oxides Monitoring System Operation Availability

The continuous monitoring system for nitrogen oxides shall be operated and data recorded during all periods of operation of the facility, except for continuous monitoring system breakdowns and repairs. Data is recorded during calibration checks, and zero and span adjustments. [40 CFR 60.48b(c)] (ATC Condition 38/Title V Permit Condition II.C.20)

Rule Requirement #12(Permit Condition) - Nitrogen Oxides Monitoring System Data Handling

The 1-hour average nitrogen oxides emission rates measured by the continuous nitrogen oxides monitor shall be expressed in lb/million Btu heat input and shall be used to calculate the average emissions rates. The 1-hour averages shall be calculated using the data points required under section 60.13(b). At least two data points must be used to calculate each 1-hour average. [40 CFR 60.48b(d)] (ATC Condition 39/Title V Permit Condition II.C.21)

Rule Requirement #13(Permit Condition) - Nitrogen Oxides Monitoring System Specification

The span value for the continuous monitoring system for measuring nitrogen oxides shall be between 1.5 times the applicable emissions standard level and the span value given in the applicable regulation (500 ppm). [40 CFR 60.48b(e)(2)] (ATC Condition 45/Title V Permit Condition II.C.22)

Rule Requirement #14(Permit Condition) - Nitrogen Oxides Monitoring System Specification

When nitrogen oxides emissions data are not obtained because of continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, emission data will be obtained by using standby monitoring systems, Method 7, Method 7A, or other approved reference methods to provide emission data for a minimum of 75 percent of the operating hours in each steam generating unit operating day, in at least 22 out of 30 successive steam generating unit operating days. [40 CFR 60.48b(f)] (ATC Condition 49/Title V Permit Condition II.C.23)

Rule Requirement #15(Permit Condition) - Fuel Consumption Monitoring

The owner/operator of the facility shall 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. 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. [40 CFR Part 60.49b(d)] (ATC Condition 51/Title V Permit Condition II.D.12)

Rule Requirement #16(Permit Condition) - Recordkeeping

Subpart 60.49b(f) and 60.49b(g) specify requirements for maintaining records to demonstrate compliance with opacity limits and NO_x emissions standards.

Streamlining Demonstration: The requirements of the rule have been streamlined with additional Rule 3.4 recordkeeping conditions.

Streamlined Permit Condition:

See rule requirement #29 of Rule 3.4 above

Rule Requirement #17(Permit Condition) - Reporting Excess Emissions

Subpart 60.49b(h) specifies requirements for reporting excess emissions.

Streamlining Demonstration: The requirements of the rule have been streamlined with additional Rule 3.1 and Rule 3.4 reporting requirements.

Streamlined Permit Condition:

See rule requirements #9 of Rule 3.1 and #30 of Rule 3.4 above

Rule Requirement #18(Permit Condition) - Nitrogen Oxides Monitoring System Reports

Subpart 60.49b(i) specifies requirements for reporting NO_x emissions and CEMS performance data.

Streamlining Demonstration: The requirements of the rule have been streamlined with additional Rule 3.4 reporting requirements.

Streamlined Permit Condition:

See rule requirement #29 of Rule 3.4 above

Rule Requirement #19(Permit Condition) - Record Retention Period

Subpart 60.49b(o) specifies that the owner/operator of an affected facility maintain required records for a period of 2 years following the data of such records.

Subsuming Demonstration: The requirements of the rule have been subsumed by a Rule 3.4 permit condition which requires that records be kept for a minimum of 5 years and made available for inspection upon request.

Subsuming Permit Condition:

See rule requirement #32 of Rule 3.4 above.

Rule Requirement #20(Permit Condition) - Electronic Submission of Records

Subpart 60.49b(v) allows an owner/operator of an affected facility to submit the reports required by the subpart electronically.

Streamlining Demonstration: The requirements of the rule have been streamlined by a Rule 3.4 permit condition which requires that written reports be submitted.

Streamlined Permit Condition:

See rule requirement #30 of Rule 3.4 above.

Rule Requirement #21(Permit Condition) - Reporting Period

Subpart 60.49b(w) specifies that the reporting period for reports required under the subpart is each 6 month period.

Streamlining Demonstration: The requirements of the rule have been streamlined by a Rule 3.4 permit condition which requires that reports be submitted for every calendar quarter.

Streamlined Permit Condition:

See rule requirement #30 of Rule 3.4 above.

40 CFR, Part 60, Appendix F, Procedure 1 - Quality Assurance Requirements for Gas Continuous Emission Monitoring Systems Used for Compliance Determination

This procedure is used to evaluate the effectiveness of quality control and quality assurance procedures and the quality of data produced by any CEMS that is used for determining compliance with emission standards on a continuous basis.

Rule Requirement #1(Permit Condition) - Out-of-Control Determination

If either the zero (or low-level) or high-level calibration drift (CD) result exceeds twice the applicable drift specification for five, consecutive daily periods, the CEMS is out-of-control. If either the zero (or low-level) or high-level CD result exceeds four times the applicable drift specification during any CD check, the CEMS is out-of-control. If the CEMS is out-of-control, take necessary action. Following corrective action, repeat the CD checks. [40 CFR Part 60, Appendix F, Procedure 1, 4.3] (ATC Condition 32/Title V Permit Condition II.C.24)

Rule Requirement #2(Permit Condition) - Out-of-Control Data

During the period that the CEMS is out-of-control, the CEMS data may not be used in calculating emission compliance nor be counted towards meeting minimum data availability as required and described in the applicable subpart. [40 CFR Part 60, Appendix F, Procedure 1, 4.3.2] (ATC Condition 33/Title V Permit Condition II.C.25)

Rule Requirement #3(Permit Condition) - CEMS Audit

Each CEMS must be audited at least once each calendar quarter. Successive quarterly audits shall occur no closer than 2 months. [40 CFR Part 60, Appendix F, Procedure 1, 5.1] (ATC Condition 34/Title V Permit Condition II.C.26)

Rule Requirement #4(Permit Condition) - RATA Requirements

A relative accuracy test audit (RATA) must be conducted at least once every four calendar quarters. The RATA shall be conducted in accordance with the test procedure in the applicable performance specification. [40 CFR Part 60, Appendix F, Procedure 1, 5.1.1] (ATC Condition 35/Title V Permit Condition II.C.27)

Rule Requirement #5(Permit Condition) - Excessive Inaccuracies

Whenever excessive inaccuracies occur for two consecutive quarters, the source owner or operator must revise the QC procedures or modify or replace the CEMS. [40 CFR Part 60, Appendix F, Procedure 1, 5.3] (ATC Condition 36/Title V Permit Condition II.C.28)

40 CFR Part 63, Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters

This subpart contains emission standards and monitoring requirements for particulate matter, carbon monoxide, hydrogen chloride, and mercury for industrial, commercial, and institutional boilers. The facility is subject to this regulation. The biomass boiler of Woodland Biomass Power, Ltd. is an existing source and the date for compliance with this regulation is January 31, 2016. The District will address the requirements of this regulation in the next renewal of the facility's Title V permit.

40 CFR Part 64 - Continuous Assurance Monitoring (CAM)

The compliance assurance monitoring plan for this source was initially completed in 2003. No significant changes have been made to the plan since that time. There will be no changes made at this time since the criteria pollutant emission levels are not changing, nor is the control equipment.

District Risk Management Plan and Risk Assessment Guidelines

The evaluation of Authority to Construct application C-09-124 included a health risk assessment for the inclusion of creosote-

treated railroad ties in the mixture of fuel for the biomass boiler. Subsequent toxic emissions testing showed emissions rates of certain toxics that would result in higher annual emissions than the values used in the health risk assessment. A new health risk assessment is required in order for creosote-treated railroad ties to remain a possible fuel source. The RMPRAG requires that any new or modified emission unit satisfy Toxic-Best Available Control Technology (T-BACT), if its individual cancer risk is calculated to be between 1 and 10 in a million, or if its calculated hazardous index (acute or chronic) is greater than 1. The RMPRAG also considers any application or project having a total cancer risk above 10 in a million, unapproveable.

Hazardous Air Pollutant	CAS #	Maximum Emissions		Screening Level	Less than Screening Level	Emission Data Source
		(lb/hr)	(lb/year)	(lb/year)	(Yes/No)	
1,1,1-Trichloroethane	71-55-6	1.02E-01	857.30	61,800	yes	ATC C-09-124 ^a
1,2-Dichloropropane	78-87-5	1.09E-02	91.48	n/a	n/a	AP-42 ^b
2,4-Dinitrophenol	51-28-5	5.94E-05	0.50	n/a	n/a	AP-42
2,4,6-Trichlorophenol	88-06-2	7.26E-06	0.06	n/a	n/a	AP-42
4-Nitrophenol	100-02-7	3.63E-05	0.30	n/a	n/a	AP-42
Acenaphthalene	208-96-8	3.74E-02	314.00	n/a	n/a	Mendota Biomass ^c
Acenaphthene	83-32-9	2.26E-04	1.90	n/a	n/a	Mendota Biomass
Acetaldehyde	75-07-0	5.68E-02	477.00	72	no	Mendota Biomass
Acetophenone	98-86-2	1.06E-06	0.01	n/a	n/a	AP-42
Acrolein	107-02-8	1.32E+00	11,088.00	3.9	no	AP-42
Anthracene	120-12-7	1.70E-03	14.30	n/a	n/a	Mendota Biomass
Antimony	7440-36-0	2.61E-03	21.90	n/a	n/a	AP-42
Arsenic	7440-38-2	5.52E-03	46.37	0.024	no	150% 2012 Test Avg ^d
Benzene	71-43-2	4.15E-01	3,486.00	6.7	no	2012 Test Avg ^e
Benzo(b)fluoranthene	205-99-2	4.41E-04	3.70	0.043	no	SJVAPCD ^f
Benzo(k)fluoranthene	207-08-9	4.41E-04	3.70	0.043	no	SJVAPCD
Benzo-a-Anthracene	56-55-3	4.41E-04	3.70	0.043	no	SJVAPCD
Benzo-a-pyrene	50-32-8	4.41E-04	3.70	0.043	no	SJVAPCD
Benzo-ghi-perylene	191-24-2	4.41E-04	3.70	n/a	n/a	SJVAPCD
Beryllium	7440-41-7	7.92E-05	0.67	0.015	no	SJVAPCD
Cadmium	7440-43-9	2.88E-04	2.42	0.046	no	2012 Test Avg
Carbon Tetrachloride	56-23-5	1.49E-02	124.74	4.6	no	AP-42
Chlorine	7782-50-5	2.61E-01	2,189.88	1,370	no	AP-42
Chlorobenzene	108-90-7	1.09E-02	91.48	13,500	yes	AP-42
Chloroform	67-66-3	9.24E-03	77.62	36	no	AP-42
Chrysene	218-01-9	4.41E-04	3.70	n/a	n/a	SJVAPCD
Cobalt	7440-48-4	2.15E-03	18.02	n/a	n/a	AP-42
Copper	7440-50-8	1.12E-01	944.33	463	no	ATC C-09-124
Dibenzo-ah-Anthracene	53-70-3	4.41E-04	3.70	0.043	no	SJVAPCD
Di(2-ethylhexyl) phthalate	117-81-7	1.55E-05	0.13	81	yes	AP-42
Ethylbenzene	100-41-4	1.02E-02	85.93	193,000	yes	AP-42
Ethylene Dichloride	107-06-2	9.57E-03	80.39	9.7	no	AP-42
Fluoranthene	206-44-0	6.96E-03	58.50	n/a	n/a	Mendota Biomass
Fluorene	86-73-7	2.44E-03	20.48	n/a	n/a	ATC C-09-124
Formaldehyde	50-00-0	1.45E+00	12,196.80	33	no	AP-42
Hexavalent Chromium	18540-29-9	1.60E-03	13.18	0.0014	no	SJVAPCD
Hydrogen Chloride	7647-01-0	6.27E+00	52,668.00	1,350	no	AP-42
Indeno-123-cd-pyrene	193-39-5	4.41E-04	3.70	0.043	no	SJVAPCD
Lead	7439-92-1	2.49E-02	209.16	29	no	2012 Test Avg
Manganese	7439-96-5	3.10E-01	2,604.00	77	no	ATC C-09-124
Mercury	7439-97-6	5.60E-02	472.75	57.9	no	ATC C-09-124
Methyl Ethyl Ketone	78-93-3	1.78E-03	14.97	149,000	yes	AP-42
Methyl Bromide	74-83-9	4.95E-03	41.58	1,160	yes	AP-42
Methyl Chloride	74-87-3	7.59E-03	63.76	n/a	n/a	AP-42
Methylene Chloride	75-09-2	9.50E-02	798.00	190	no	ATC C-09-124
Naphthalene	91-20-3	2.63E-01	2,210.00	n/a	n/a	SJVAPCD
Nickel	7440-02-0	1.65E-03	13.86	0.73	no	SJVAPCD
Pentachlorophenol	87-86-5	1.68E-05	0.14	42	yes	AP-42
Phenanthrene	85-01-8	1.67E-02	140.00	n/a	n/a	Mendota Biomass
Phenol	108-95-2	1.68E-02	141.37	8,690	yes	AP-42
Phosphorus	7723-14-0	8.91E-03	74.84	13.9	no	AP-42
Propionaldehyde	123-38-6	2.01E-02	169.09	n/a	n/a	AP-42
Pyrene	129-00-0	7.26E-03	61.00	n/a	n/a	2012 Test Avg
Selenium	7782-49-2	8.93E-02	750.29	96.5	no	ATC C-09-124
Styrene	100-42-5	6.27E-01	5,266.80	135,000	yes	AP-42
Toluene	108-88-3	2.50E-01	2,102.69	38,600	yes	ATC C-09-124
Total Chromium	7440-47-3	2.10E-02	172.99	n/a	n/a	ATC C-09-124

Trichloroethylene	79-01-6	9.90E-03	83.16	97	yes	AP-42
Vinyl Chloride	75-01-4	1.99E-02	167.24	2.5	no	SJVAPCD
Xylenes	1330-20-7	5.90E-03	49.30	5.79E+04	yes	SJVAPCD
Zinc	7440-66-6	4.50E-01	3,780.00	6760	yes	ATC C-09-124
Total PAH	multiple	1.91E-01	1,600.00	n/a	n/a	Mendota Biomass
Total PCB	multiple	2.26E-04	1.90	0.007	no	SJVAPCD
Total PCDD	multiple	2.99E-07	2.51E-03	1.20E-06	no	150% 2012 Test Avg
Total PCDF	multiple	3.31E-07	2.78E-03	1.20E-06	no	150% 2012 Test Avg

^a Emissions proposed by the applicant in Authority to Construct application C-09-124

^b EPA AP-42 Compilation of Air Pollutant Emission Factors, fifth edition

^c Emission factors from San Joaquin Valley APCD for Mendota Biomass Power, Ltd. (see attached)

^d Emissions measured in 2012 toxic emissions source test required by C-09-124 (adjusted to 150% of values measured)

^e Emissions measured in 2012 toxic emissions source test required by C-09-124

^f San Joaquin Valley APCD factors taken from 1999 CARB report on toxic emission factors (see attached)

Because the emissions of several pollutants are above their respective prioritization level, a health risk assessment was performed for this project. The dispersion modeling and health risks were evaluated using CARB's Hotspots Analysis Reporting Program (HARP) which accounts for the site's specific parameters (e.g. stack height, stack location, meteorological data, etc.). The health risks are summarized below.

Summary of Health Risk Analysis:

The District modeled the health risks using the site specific data and is using the highest risk values for actually exposed receptors to demonstrate compliance with the RMPRAG requirements. The residential receptor's cancer risk has been modeled over a 70 year period, while the worksite receptor's risk has been modeled over 46 years. The HARP results are summarized below.

Receptor Type	Receptor No.	Acute Hazard Index (unitless)	Chronic Hazard Index (unitless)	Individual Cancer Risk (per million)
Worksite	1439	0.175	0.208	2.25
Residential	3931	0.175	0.413	6.18

The acute and chronic hazard indexes were each calculated to be less than 1, however the individual cancer risk was calculated to be higher than 1 in a million and T-BACT is required. Per T-BACT determination 30-1, T-BACT for the biomass boiler combusting creosote treated railroad ties is a VOC emission rate of 0.009 lb/MMBtu and a PM10 emission rate of 0.010 gr/dscf (referenced to 12% CO2).

COMMENTS: The application does not trigger BACT, offsets, or mitigation credits.

RECOMMENDATIONS: Perform the regulatory notice.

Engineer: *Kyle Rohlfing*

Date: 6/18/13

Reviewed by: *Frank P. ...*

Date: 6/20/2013

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YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT
 1007 Galileo Court, Suite 1000, Davis, CA 95618

New Source Review

Quarterly Potential To Emit Determination

NSR Version 8/13/63

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

Engineer: Kyle Rohling
Facility Name: Woodland Biomass
Location: 1786 Kentucky Avenue; Woodland

SIC Code # 4911

ATC's C-12-131
PTO's

DATE: 12/11/2001
PREVIOUS DATE: 02/14/2011
CURRENT DATE: 03/06/2013

Process Description	Current Permits	VOC Emissions				CO Emissions				NOx Emissions				SOx Emissions				PM10 Emissions								
		QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)	QTR 1 (lbs)	QTR 2 (lbs)	QTR 3 (lbs)	QTR 4 (lbs)	Annual (TPY)					
Circulating fluidized bed boiler	C-09-1724 C-12-131	37,800 6,415	38,220 6,498	38,640 6,558	38,940 6,558	13,01	108,020	108,108	109,208	109,208	185,80	56,808	57,438	58,070	58,070	215,612	28,612	28,628	29,148	29,148	115,552	16,725	16,725	16,888	16,888	68,500
Screening of sand	P-31-94(t)	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Rice hull receiving, storage, shipping	P-34-94(t)	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Hydrated lime storage and mixing	P-50-94(t)	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Fuel material receiving, processing, and storage (excluding rice hulls)	P-61-98(a1)	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Cooling tower	P-74-94(t)	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Hydrated lime receiving and storage	P-50-99(t)	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Flyash loadout and transfer	P-81-89(t)	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Clay/limestone receiving and storage	P-52-89(t)	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Sand receiving and storage	P-63-89(t)	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0.00	0	0	0	0	0.00
Diesel IC engine power generator	P-12-11	220	220	220	220	0.44	573	573	573	573	1.15	1,058	1,058	1,058	1,058	2,112	28,513	28,513	29,147	29,147	115,771	16,725	16,725	16,888	16,888	68,500
PRE-PROJECT SSPE (lbs)		38,020	38,440	38,860	38,860	132,080	107,463	108,681	109,890	109,890	373,500	67,868	68,497	69,126	69,126	201,433	28,513	28,513	29,147	29,147	115,771	16,725	16,725	16,888	16,888	68,500
POST-PROJECT SSPE (lbs)		6,635	6,708	6,778	6,778	26,900	900	900	900	900	3,600	57,886	58,467	59,128	59,128	201,433	28,513	28,513	29,147	29,147	115,771	16,725	16,725	16,888	16,888	68,500
Emergency IC Engine (890 BHP)	P-51-94(t)	110	110	110	110	0.20	281	281	281	281	0.45	4,137	4,137	4,137	4,137	2,07	63	63	63	63	253	33	33	33	33	133
Emergency IC Engine (185 BHP)	P-52-94(t)	38,223	38,043	38,363	38,363	0.26	106,644	106,832	111,020	111,020	187,33	63,157	63,788	64,419	64,419	103,37	28,503	28,513	29,147	29,227	115,771	16,725	16,725	16,888	16,888	68,500
PRE-PROJECT TOTAL PTE ¹		7,138	7,209	7,281	7,281	13,70	108,644	109,832	111,020	111,020	187,33	63,157	63,788	64,419	64,419	103,37	28,503	28,513	29,227	29,227	115,771	16,725	16,725	16,888	16,888	68,500
POST-PROJECT TOTAL PTE ²		6,635	6,708	6,778	6,778	26,900	900	900	900	900	3,600	57,886	58,467	59,128	59,128	201,433	28,513	28,513	29,147	29,147	115,771	16,725	16,725	16,888	16,888	68,500

¹ Per the requirements of Rule 3.20, the facility's pre- and post-project Stationary Source Potential to Emit (SSPE) calculations do not include any emissions from permitted emergency equipment.

² The facility's pre- and post-project Total Potential to Emit (PTE) calculations include all permitted equipment operating at the site.

Post-Project Stationary Source Potential to Emit (SSPE)

	Quarter #1 (lbs)	Quarter #2 (lbs)	Quarter #3 (lbs)	Quarter #4 (lbs)	Yearly (lbs)
VOC	6,635	6,708	6,778	6,778	26,900
CO	107,483	108,681	109,889	109,889	373,500
NOx	57,866	58,487	59,128	59,128	201,433
SOx	28,513	28,830	29,147	29,147	99,000
PM10	24,771	25,037	25,301	25,001	72,960

MITIGATION THRESHOLDS

	(lb/year)
Annual	20,000
Above	-
Above	20,000

SSPE Comparison to Rule 3.20 Triggers

	Annual
Above	-
Above	Above

Post-Project Total Quarterly Potential to Emit (PTE)

	Quarter #1 (lbs)	Quarter #2 (lbs)	Quarter #3 (lbs)	Quarter #4 (lbs)	Yearly (tons)
VOC	7,138	7,209	7,281	7,281	13,70
CO	108,644	109,832	111,020	111,020	187,33
NOx	63,157	63,788	64,419	64,419	103,37
SOx	28,513	28,910	29,227	28,227	49,54
PM10	25,134	25,400	25,664	25,364	96,66

OFFSET THRESHOLDS

	Yearly (lbs/day)
Yearly	7,500
Above	49,500
Above	7,500
Above	13,650
Above	13,650

PTE Comparison to NSR Triggers

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

COMMENTS: This quarterly PTE evaluation was updated for ATC C-12-131.

KR
 Kyle Rohling
 Date: 6/20/2013

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

New Source Review
Last Five Year Activity

Evaluator: Kyle Rohlfing

SIC Code # 4911

Facility Name: Woodland Biomass Power Ltd.

Date of Initial Determination: 11/8/2002

Location: 1786 East Kentucky Avenue, Woodland

Date of Previous Determination: 10/21/2010

Date of Current Determination: 3/26/2013

Process	Issued Permits	Date PTO Issued	ATC	Date ATC Issued	VOC (tpy)	CO (tpy)	NOx (tpy)	SOx (tpy)	PM10 (tpy)
Rice Hull Receiving and Storage	P-34-94(t)	5/2/1994	-	-	0.00	0.00	0.00	0.00	0.40
Diesel Emergency Genset Engine	P-51-94(t)	7/19/1994	-	-	0.02	0.45	2.07	0.03	0.14
Diesel Emergency Fire Engine	P-52-94(t)	7/19/1994	-	-	0.05	0.13	0.58	0.01	0.04
Cooling Tower	P-74-94(t)	9/30/1994	-	-	0.00	0.00	0.00	0.00	0.01
Screening of Boiler Sand for Reuse	P-31-94(t)	2/26/1996	-	-	0.00	0.00	0.00	0.00	0.47
Hydrated Lime Storage and Mixing	P-50-94(t)	2/26/1996	-	-	0.00	0.00	0.00	0.00	0.03
Fuel Material Receiving and Processing	P-61-89(t)	2/26/1996	-	-	0.00	0.00	0.00	0.00	10.43
Hydrated Lime/Sodium Bicarbonate	P-90-89(t)	2/26/1996	-	-	0.00	0.00	0.00	0.00	0.01
Clay/Limestone Receiving and Storage	P-92-89(t)	2/26/1996	-	-	0.00	0.00	0.00	0.00	0.01
Sand Receiving and Storage	P-93-89(t)	2/26/1996	-	-	0.00	0.00	0.00	0.00	0.01
Biomass Boiler	P-105-90(a)	5/29/2002	C-00-19	4/30/2002	0.00	0.00	0.00	0.00	0.00
Flyash Out-Loading	P-91-89(a1)	1/3/2003	C-02-119	12/12/2002	0.00	0.00	0.00	0.00	1.37
Fuel Material Receiving and Processing	P-61-89(1)	12/3/2010	C-08-234	5/19/2009	0.00	0.00	0.00	0.00	0.00
Biomass Boiler	P-105-90(a1)	-	C-09-124	2/25/2011	0.00	0.00	0.00	0.00	0.00
Portable Wood Grinder	P-12-11	11/29/2011	C-10-67	5/24/2011	0.44	1.15	2.12	0.00	0.49
Biomass Boiler	P-105-90(a1)	-	C-12-131	pending	0.00	0.00	0.00	0.00	0.00
TOTAL *					0.44	1.15	2.12	0.00	0.49

*Conservatively, emission decreases are not included in the aggregate emission total.

COMMENTS: These permits are sorted by the ATC issue date. According to Rule 3.4, Section 221, a major modification is calculated based on all creditable increases and decreases from the source over the period of five consecutive years before the application, including the calendar year of the most recent application. The applicable period ranges from November 2007 through November 2012.

Engineer: Kyle Rohlfing

Date: 4/22/13

Reviewed by: Frank DeWain

Date: 6/20/2013

T-BACT DETERMINATION 30-1

Emission Unit: Biomass Boiler
Rating: 330 MMBtu/hr

Facility Name: Woodland Biomass Power, Ltd.
Mailing Address: P.O. Box 1560
Woodland, CA 95776

Contact Name: Maynard Adams
Telephone: (530) 661-6095

Engineer: Kyle Rohlfing
Date: March 28, 2013

Application #: C-12-131

I. Proposal: The applicant is proposing to modify P-105-90(t) to include creosote treated railroad ties as a component of fuel for the biomass boiler.

II. Applicability: A health risk analysis for the proposed emissions for the biomass boiler indicates an individual cancer risk of 6.18 in a million for the residential receptor given maximum exposure.

Toxic Best Available Control Technology (T-BACT)

Per the District Risk Management Plan and Risk Assessment Guidelines (RMPRAG), T-BACT is triggered for each new or modified emissions unit with an individual cancer risk greater than 1 in a million or a hazard index (acute or chronic) greater than 1. As calculated in emission evaluation C-12-131, the cancer risk for a nearby residential receptor has been calculated to be greater than 1 in a million. As such, the District's RMPRAG requires that the District perform a T-BACT determination.

Since T-BACT requirements are developed in the same manner as BACT, this determination will evaluate the control methods using the criteria pollutant most closely related to the HAPs which trigger T-BACT. As indicated below, T-BACT will be considered equivalent to BACT for Volatile Organic Compound (VOC) and particulate matter equal to or less than ten microns of aerodynamic diameter (PM10) emissions from this class and category of operation.

III. T-BACT for VOC:

A. Identify All Control Technologies

- 1) 0.009 lb/MMBtu¹
- 2) 0.027 lb/MMBtu²
- 3) 0.05 lb/MMBtu³

B. Eliminate technologically infeasible options:

All of the options are technologically feasible.

C. Rank remaining control technologies by control effectiveness

Control Technology	Overall Efficiency	Achieved in Practice (Yes/No)
Option 1	N/A	No
Option 2	N/A	Yes
Option 3	N/A	Yes

D. Cost effective analysis:

The applicant is proposing the use of the highest ranked option, therefore a cost effective analysis is not required.

E. Select T-BACT:

T-BACT is satisfied with a VOC emission rate of 0.009 lb/MMBtu for the biomass boiler.

IV. T-BACT for PM10:

A. Identify All Control Technologies

- 1) 0.024 lb/MMBtu⁴
- 2) 0.045 lb/MMBtu⁵

B. Eliminate technologically infeasible options:

All of the options are technologically feasible.

C. Rank remaining control technologies by control effectiveness

¹ VOC emission rate limit proposed by applicant and cited as technologically feasible in the most recent BACT determination from San Joaquin Valley APCD

² Achieved-in-Practice BACT for wood fired boilers listed in Bay Area AQMD BACT Guideline 17.9.1

³ VOC emission rate limit of existing Permit to Operate P-105-90(t)

⁴ PM10 emission rate equivalent to limit of existing Permit to Operate P-105-90(t) and cited as technologically feasible in the most recent BACT determination from San Joaquin Valley APCD

⁵ PM10 standard of San Joaquin Valley APCD – rescinded BACT Guideline 1.3.2

T-BACT Determination 30-1
Woodland Biomass Power, Ltd.

Control Technology	Overall Efficiency	Achieved in Practice (Yes/No)
Option 1	N/A	Yes
Option 2	N/A	Yes

D. Cost effective analysis:

The applicant is proposing the use of the highest ranked option, therefore a cost effective analysis is not required.

E. Select T-BACT:

T-BACT is satisfied with a PM10 emission rate of 0.024 lb/MMBtu for the biomass boiler which the District has determined is equivalent to the existing permit limit of 0.01 gr/dscf (referenced to 12% CO2).

SiteParameters

SITE PARAMETERS

DEPOSITION

Deposition rate (m/s) 0.02

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE

HUMAN INGESTION

Fraction of ingested leafy vegetable
 from home grown source 0.15
 Fraction of ingested exposed vegetable
 from home grown source 0.15
 Fraction of ingested protected vegetable
 from home grown source 0.15
 Fraction of ingested root vegetable
 from home grown source 0.15

PIGS, CHICKENS AND EGGS

HUMAN INGESTION

Fraction of ingested pig
 from home grown source 1
 Fraction of ingested chicken
 from home grown source 1
 Fraction of ingested egg
 from home grown source 1

ANIMALS' FEED

Fraction of pigs' feed
 from home grown crop 0.1
 Fraction of chickens' feed
 from home grown crop 0.05

SOIL INGESTION

Fraction of pigs' feed
 eaten off the ground 0.1
 Fraction of chickens' feed
 eaten off the ground 0.05

PIG FEED COMPOSITION

Fraction of feed that is
 exposed vegetable 0.25
 Fraction of feed that is
 leafy vegetable 0.25
 Fraction of feed that is
 protected vegetable 0.25
 Fraction of feed that is
 root vegetable 0.25

CHICKEN FEED COMPOSITION

	SiteParameters
Fraction of feed that is exposed vegetable	0.25
Fraction of feed that is leafy vegetable	0.25
Fraction of feed that is protected vegetable	0.25
Fraction of feed that is root vegetable	0.25

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK

*** Pathway enabled ***

Rep_Can_70yr_DerOEH_Rec3931_AllSrc_AllCh_ByRec_ByChem_DosePath_Site
This file:
F:\ENGINEER\Software\HARP\HARP\Projects\2012\C12131\Rep_Can_70yr_DerOEH_Rec3931_AllSrc_AllCh_ByRec_ByChem_DosePath_Site.txt

Created by HARP Version 1.4f Build 23.11.01
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 5/28/2013 1:53:49 PM

EXCEPTION REPORT
(there have been no changes or exceptions)

INPUT FILES:

Source-Receptor file:
F:\ENGINEER\Software\HARP\HARP\Projects\2012\C12131\C12131.SRC
Averaging period adjustment factors file: not applicable
Emission rates file: database
Site parameters file:
F:\ENGINEER\Software\HARP\HARP\Projects\2012\C12131\SITE.sit

Coordinate system: UTM NAD83

Screening mode is OFF

Exposure duration: 70 year (adult resident)
Analysis method: Derived (OEHHA) Method
Health effect: Cancer Risk
Receptor(s): 3931
Sources(s): All
Chemicals(s): All

SITE PARAMETERS

DEPOSITION

Deposition rate (m/s) 0.02

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE

HUMAN INGESTION

Fraction of ingested leafy vegetable
from home grown source 0.15
Fraction of ingested exposed vegetable
from home grown source 0.15
Fraction of ingested protected vegetable
from home grown source 0.15
Fraction of ingested root vegetable
from home grown source 0.15

PIGS, CHICKENS AND EGGS

Rep_Can_70yr_DerOEH_Rec3931_AllSrc_AllCh_ByRec_ByChem_DosePath_Site

HUMAN INGESTION

Fraction of ingested pig from home grown source	1
Fraction of ingested chicken from home grown source	1
Fraction of ingested egg from home grown source	1

ANIMALS' FEED

Fraction of pigs' feed from home grown crop	0.1
Fraction of chickens' feed from home grown crop	0.05

SOIL INGESTION

Fraction of pigs' feed eaten off the ground	0.1
Fraction of chickens' feed eaten off the ground	0.05

PIG FEED COMPOSITION

Fraction of feed that is exposed vegetable	0.25
Fraction of feed that is leafy vegetable	0.25
Fraction of feed that is protected vegetable	0.25
Fraction of feed that is root vegetable	0.25

CHICKEN FEED COMPOSITION

Fraction of feed that is exposed vegetable	0.25
Fraction of feed that is leafy vegetable	0.25
Fraction of feed that is protected vegetable	0.25
Fraction of feed that is root vegetable	0.25

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK

*** Pathway enabled ***

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME
			BACKGROUND (ug/m ³)
0001	43104	VOC	Volatile Organic Compounds
			0.000E+00
0002	50000	Formaldehyde	Formaldehyde
			0.000E+00
0003	50328	B[a]P	Benzo[a]pyrene
			Page 2

Rep_Can_70yr_DerOEH_Rec3931_AllSrc_AllCh_ByRec_ByChem_DosePath_Site

0004	53703	D[a,h]anthracen	Dibenz[a,h]anthracene	0.000E+00
0005	56553	B[a]anthracene	Benz[a]anthracene	0.000E+00
0006	71432	Benzene	Benzene	0.000E+00
0007	71556	1,1,1-TCA	Methyl chloroform {1,1,1-Trichloroethane}	0.000E+00
0008	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0009	75092	Methylene Chlor	Methylene chloride {Dichloromethane}	0.000E+00
0010	83329	Acenaphthene	Acenaphthene	0.000E+00
0011	85018	Phenanthrene	Phenanthrene	0.000E+00
0012	86737	Fluorene	Fluorene	0.000E+00
0013	91203	Naphthalene	Naphthalene	0.000E+00
0014	108883	Toluene	Toluene	0.000E+00
0015	120127	Anthracene	Anthracene	0.000E+00
0016	129000	Pyrene	Pyrene	0.000E+00
0017	191242	B[g,h,i]perylen	Benzo[g,h,i]perylene	0.000E+00
0018	193395	In[1,2,3-cd]pyr	Indeno[1,2,3-cd]pyrene	0.000E+00
0019	205992	B[b]fluoranthen	Benzo[b]fluoranthene	0.000E+00
0020	206440	Fluoranthene	Fluoranthene	0.000E+00
0021	207089	B[k]fluoranthen	Benzo[k]fluoranthene	0.000E+00
0022	208968	Acenaphthylene	Acenaphthylene	0.000E+00
0023	218019	Chrysene	Chrysene	0.000E+00
0024	1336363	PCBs	PCBs {Polychlorinated biphenyls}	0.000E+00
0025	7439921	Lead	Lead	0.000E+00
0026	7439965	Manganese	Manganese	0.000E+00
0027	7439976	Mercury	Mercury	0.000E+00
0028	7440382	Arsenic	Arsenic	0.000E+00
0029	7440417	Beryllium	Beryllium	0.000E+00
0030	7440439	Cadmium	Cadmium	0.000E+00
0031	7440473	Chromium	Chromium	0.000E+00
0032	7440508	Copper	Copper	0.000E+00
0033	7440666	Zinc	Zinc	0.000E+00
0034	7782492	Selenium	Selenium	0.000E+00

Rep_Can	70yr_Der	OEH_Rec	3931_AllSrc	AllCh_ByRec	ByChem_Dose	Path_Site
0035	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00		
0036	1086	Dioxins-w/o	Dioxins, total, w/o individ. isomers reported	0.000E+00		
{PCDDs}	[Treat as 2378TCDD for HRA]					
0037	1150	PAHs-w/	PAHs, total, with individ. components also reported	0.000E+00		
0038	11101	PM	Particulate Matter	0.000E+00		
0039	42101	CO	Carbon Monoxide	0.000E+00		
0040	42401	SOX	Oxides of sulfur	0.000E+00		
0041	7647010	HCl	Hydrochloric acid	0.000E+00		
0042	7440020	Nickel	Nickel	0.000E+00		
0043	75014	vinyl chloride	vinyl chloride	0.000E+00		
0044	1330207	xylenes	xylenes (mixed)	0.000E+00		
0045	1080	DiBenFurans(Cl)	Dibenzofurans (chlorinated) {PCDFs} [Treated as	0.000E+00		
2378TCDD for HRA]						
0046	98862	Acetophenone	Acetophenone	0.000E+00		
0047	117817	Di2-EthHxPhthal	Di(2-ethylhexyl) phthalate	0.000E+00		
0048	74839	Methyl Bromide	Methyl bromide {Bromomethane}	0.000E+00		
0049	78933	MEK	Methyl ethyl ketone {2-Butanone}	0.000E+00		
0050	56235	CCl4	Carbon tetrachloride	0.000E+00		
0051	107062	EDC	Ethylene dichloride {EDC}	0.000E+00		
0052	78875	1,2-DiClPropane	1,2-Dichloropropane	0.000E+00		
0053	51285	2,4-DiNPhenol	2,4-Dinitrophenol	0.000E+00		
0054	108907	Chlorobenzn	Chlorobenzene	0.000E+00		
0055	67663	Chloroform	Chloroform	0.000E+00		
0056	7782505	Chlorine	Chlorine	0.000E+00		
0057	74873	Methyl chloride	Methyl chloride {Chloromethane}	0.000E+00		
0058	100414	Ethyl Benzene	Ethyl benzene	0.000E+00		
0059	100027	4-Nitrophenol	4-Nitrophenol	0.000E+00		
0060	87865	PCP	Pentachlorophenol	0.000E+00		
0061	108952	Phenol	Phenol	0.000E+00		
0062	123386	Propionaldehyde	Propionaldehyde	0.000E+00		
0063	100425	Styrene	Styrene	0.000E+00		
0064	79016	TCE	Trichloroethylene	0.000E+00		
0065	88062	2,4,6TriClPhenl	2,4,6-Trichlorophenol	0.000E+00		
0066	7440360	Antimony	Antimony	0.000E+00		

Rep_Can_70yr_DerOEH_Rec3931_Allsrc_AllCh_ByRec_ByChem_DosePath_Site

0067	7440484	Cobalt	0.000E+00 Cobalt
0068	7723140	Phosphorus	0.000E+00 Phosphorus
0069	107028	Acrolein	0.000E+00 Acrolein
0070	42603	NOX	0.000E+00 Oxides of Nitrogen

CHEMICAL HEALTH VALUES

CHEM	CAS	ABBREVIATION	CancerPF(Inh) ChronicREL (mg/kg-d) ⁻¹	CancerPF(Oral) AcuteREL (mg/kg-d) ⁻¹	CancerPF(Oral) (mg/kg-d) ⁻¹	ug/m ³
ChronicREL (Inh)		ChronicREL (Oral)				
mg/kg-d		ug/m ³				
0001	43104	VOC	*	*	*	*
	*					
0002	50000	Formaldehyde	2.10E-02		*	9.00E+00
	*		5.50E+01			
0003	50328	B[a]P	3.90E+00		1.20E+01	*
	*					
0004	53703	D[a,h]anthracen	4.10E+00		4.10E+00	*
	*					
0005	56553	B[a]anthracene	3.90E-01		1.20E+00	*
	*					
0006	71432	Benzene	1.00E-01		*	6.00E+01
	*		1.30E+03			
0007	71556	1,1,1-TCA	*		*	1.00E+03
	*		6.80E+04			
0008	75070	Acetaldehyde	1.00E-02		*	1.40E+02
	*		4.70E+02			
0009	75092	Methylene Chlor	3.50E-03		*	4.00E+02
	*		1.40E+04			
0010	83329	Acenaphthene	*		*	*
	*					
0011	85018	Phenanthrene	*		*	*
	*					
0012	86737	Fluorene	*		*	*
	*					
0013	91203	Naphthalene	1.20E-01		*	9.00E+00
	*					
0014	108883	Toluene	*		*	3.00E+02
	*		3.70E+04			
0015	120127	Anthracene	*		*	*
	*					
0016	129000	Pyrene	*		*	*
	*					
0017	191242	B[g,h,i]perylene	*		*	*
	*					
0018	193395	In[1,2,3-cd]pyr	3.90E-01		1.20E+00	*
	*					
0019	205992	B[b]fluoranthen	3.90E-01		1.20E+00	*
	*					
0020	206440	Fluoranthene	*		*	*
	*					
0021	207089	B[k]fluoranthen	3.90E-01		1.20E+00	*
	*					
0022	208968	Acenaphthylene	*		*	*
	*					
0023	218019	Chrysene	3.90E-02		1.20E-01	*
	*					
0024	1336363	PCBS	2.00E+00		2.00E+00	*

Rep_Can_70yr_DerOEH_Rec3931_AllSrc_AllCh_ByRec_ByChem_DosePath_Site

0025	7439921	Lead	4.20E-02	8.50E-03	*
0026	7439965	Manganese	*	*	9.00E-02
0027	7439976	Mercury	*	*	3.00E-02
0028	7440382	Arsenic	1.20E+01	1.50E+00	1.50E-02
0029	7440417	Beryllium	8.40E+00	*	7.00E-03
0030	7440439	Cadmium	1.50E+01	*	2.00E-02
0031	7440473	Chromium	*	*	*
0032	7440508	Copper	*	*	*
0033	7440666	Zinc	*	*	*
0034	7782492	Selenium	*	*	2.00E+01
0035	18540299	Cr(VI)	5.10E+02	*	2.00E-01
0036	1086	Dioxins-w/o	1.30E+05	1.30E+05	4.00E-05
0037	1150	PAHs-w/	*	*	*
0038	11101	PM	*	*	*
0039	42101	CO	*	*	*
0040	42401	SOX	*	*	*
0041	7647010	HCl	*	*	9.00E+00
0042	7440020	Nickel	9.10E-01	*	1.40E-02
0043	75014	Vinyl chloride	2.70E-01	*	*
0044	1330207	Xylenes	*	*	7.00E+02
0045	1080	DiBenFurans(Cl)	1.30E+05	1.30E+05	4.00E-05
0046	98862	Acetophenone	*	*	*
0047	117817	Di2-EthHxPhthal	8.40E-03	8.40E-03	*
0048	74839	Methyl Bromide	*	*	5.00E+00
0049	78933	MEK	*	*	*
0050	56235	CCl4	1.50E-01	*	4.00E+01
0051	107062	EDC	7.20E-02	*	4.00E+02
0052	78875	1,2-DiClPropane	6.30E-02	*	*
0053	51285	2,4-DiNPhenoI	*	*	*
0054	108907	Chlorobenzn	*	*	1.00E+03
0055	67663	Chloroform	1.90E-02	*	3.00E+02

	Rep_Can_70yr_DerOEH_Rec3931_AllSrc_AllCh_ByRec_ByChem_DosePath_Site				
0056	7782505	Chlorine	*	*	2.00E-01
	*		2.10E+02		
0057	74873	Methyl Chloride	*	*	*
	*				
0058	100414	Ethyl Benzene	8.70E-03	*	2.00E+03
	*				
0059	100027	4-Nitrophenol	*	*	*
	*				
0060	87865	PCP	1.80E-02	*	*
	*				
0061	108952	Phenol	*	*	2.00E+02
	*		5.80E+03		
0062	123386	Propionaldehyde	*	*	*
	*				
0063	100425	Styrene	*	*	9.00E+02
	*		2.10E+04		
0064	79016	TCE	7.00E-03	*	6.00E+02
	*				
0065	88062	2,4,6-Triclorophenol	7.00E-02	*	*
	*				
0066	7440360	Antimony	*	*	*
	*				
0067	7440484	Cobalt	*	*	*
	*				
0068	7723140	Phosphorus	*	*	*
	*				
0069	107028	Acrolein	*	*	3.50E-01
	*		2.50E+00		
0070	42603	NOX	*	*	*
	*				

EMISSIONS DATA SOURCE: Emission rates loaded from database
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=257 DEV=1 PRO=1 STK=1 NAME=WOODLAND BIOMASS
POWER, LTD STACK 1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m ³)	AVRG (lbs/yr)
43104	VOC	1	0	65.6
17.5				
50000	Formaldehyde	1	0	12196.8
1.452				
50328	B[a]P	1	0	3.7
0.0004405				
53703	D[a,h]anthracen	1	0	3.7
0.0004405				
56553	B[a]anthracene	1	0	3.7
0.0004405				
71432	Benzene	1	0	3486
0.415				
71556	1,1,1-TCA	1	0	857.3
0.1021				
75070	Acetaldehyde	1	0	477
0.0568				
75092	Methylene Chlor	1	0	798
0.095				
83329	Acenaphthene	1	0	1.9
0.0002262				
85018	Phenanthrene	1	0	140
0.01667				
86737	Fluorene	1	0	20.48
0.00244				

Rep_Can	70yr_DerOEH_Rec3931_AllSrc_AllCh_ByRec_ByChem_DosePath_Site			
91203	Naphthalene	1	0	2210
0.2631				
108883	Toluene	1	0	2102.69
0.25				
120127	Anthracene	1	0	14.3
0.0017				
129000	Pyrene	1	0	61
0.00726				
191242	B[g,h,i]perylene	1	0	3.7
0.0004405				
193395	In[1,2,3-cd]pyr	1	0	3.7
0.0004405				
205992	B[b]fluoranthene	1	0	3.7
0.0004405				
206440	Fluoranthene	1	0	58.5
0.00696				
207089	B[k]fluoranthene	1	0	3.7
0.0004405				
208968	Acenaphthylene	1	0	314
0.0374				
218019	Chrysene	1	0	3.7
0.000441				
1336363	PCBs	1	0	1.9
0.0002262				
7439921	Lead	1	0	209.16
0.0249				
7439965	Manganese	1	0	2604
0.31				
7439976	Mercury	1	0	472.75
0.056				
7440382	Arsenic	1	0	46.365
0.00552				
7440417	Beryllium	1	0	0.665
0.0000792				
7440439	Cadmium	1	0	2.42
0.000288				
7440473	Chromium	1	0	172.99
0.021				
7440508	Copper	1	0	944.33
0.112				
7440666	Zinc	1	0	3780
0.45				
7782492	Selenium	1	0	750.29
0.089				
18540299	Cr(VI)	1	0	13.18
0.00157				
1086	Dioxins-w/o	1	0	0.00522
0.000000621				
1150	PAHs-w/	1	0	1600
0.191				
11101	PM	1	0	27
7.2				
42101	CO	1	0	185.6
49.5				
42401	SOX	1	0	49.5
13.2				
7647010	HCl	1	0	52668
6.27				
7440020	Nickel	1	0	13.86
0.00165				
75014	Vinyl Chloride	1	0	167.244
0.01991				
1330207	xylenes	1	0	49.3

Rep_Can_70yr_DerOEH_Rec3931_AllSrc_AllCh_ByRec_ByChem_DosePath_Site

0.0059								
1080	DiBenFurans(Cl)	1	0	0.00878				
0.0000010455								
98862	Acetophenone	1	0	0.00887				
0.000001056								
117817	Di2-EthHxPhthal	1	0	0.13				
0.00001551								
74839	Methyl Bromide	1	0	41.58				
0.00495								
78933	MEK	1	0	14.9688				
0.001782								
56235	CCl4	1	0	124.74				
0.01485								
107062	EDC	1	0	80.388				
0.00957								
78875	1,2-DiClPropane	1	0	91.476				
0.01089								
51285	2,4-DiNPhenol	1	0	0.499				
0.0000594								
108907	Chlorobenzn	1	0	91.476				
0.01089								
67663	Chloroform	1	0	77.616				
0.00924								
7782505	Chlorine	1	0	2189.88				
0.2607								
74873	Methyl Chloride	1	0	63.756				
0.00759								
100414	Ethyl Benzene	1	0	85.932				
0.01023								
100027	4-Nitrophenol	1	0	0.30492				
0.0000363								
87865	PCP	1	0	0.141372				
0.00001683								
108952	Phenol	1	0	141.372				
0.01683								
123386	Propionaldehyde	1	0	169.092				
0.02013								
100425	Styrene	1	0	5266.8				
0.627								
79016	TCE	1	0	83.16				
0.0099								
88062	2,4,6TriClPhenl	1	0	0.060984				
0.00000726								
7440360	Antimony	1	0	21.8988				
0.002607								
7440484	Cobalt	1	0	18.018				
0.002145								
7723140	Phosphorus	1	0	74.844				
0.00891								
107028	Acrolein	1	0	11088				
1.32								
42603	NOX	1	0	98.6				
26.3								

CANCER RISK REPORT

DOMINANT CHEM BEEF 0001	PATHWAYS, Receptor 3931				MOTHER	FISH	WATER	VEG	DAIRY
	INHAL CHICK	DERM PIG	SOIL EGG						
-	-	-	-	-	-	-	-	-	-
0002	YES	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

Rep_Can_70yr_DerOEH_Rec3931_AllSrc_AllCh_ByRec_ByChem_DosePath_Site

0003	-	-	YES	-	-	-	-	YES	-
0004	-	-	YES	-	-	-	-	YES	-
0005	-	-	YES	-	-	-	-	YES	-
0006	YES	-	-	-	-	-	-	-	-
0007	-	-	-	-	-	-	-	-	-
0008	YES	-	-	-	-	-	-	-	-
0009	YES	-	-	-	-	-	-	-	-
0010	-	-	-	-	-	-	-	-	-
0011	-	-	-	-	-	-	-	-	-
0012	-	-	-	-	-	-	-	-	-
0013	YES	-	-	-	-	-	-	-	-
0014	-	-	-	-	-	-	-	-	-
0015	-	-	-	-	-	-	-	-	-
0016	-	-	-	-	-	-	-	-	-
0017	-	-	-	-	-	-	-	-	-
0018	-	-	YES	-	-	-	-	YES	-
0019	-	-	YES	-	-	-	-	YES	-
0020	-	-	-	-	-	-	-	-	-
0021	-	-	YES	-	-	-	-	YES	-
0022	-	-	-	-	-	-	-	-	-
0023	-	-	YES	-	-	-	-	YES	-
0024	-	-	-	-	YES	-	-	YES	-
0025	-	-	-	YES	-	-	-	YES	-
0026	-	-	-	-	-	-	-	-	-
0027	-	-	-	-	-	-	-	-	-
0028	-	-	YES	-	-	-	-	YES	-
0029	YES	-	-	-	-	-	-	-	-
0030	YES	-	-	-	-	-	-	-	-
0031	-	-	-	-	-	-	-	-	-
0032	-	-	-	-	-	-	-	-	-
0033	-	-	-	-	-	-	-	-	-
0034	-	-	-	-	-	-	-	-	-

Rep_Can_70yr_DerOEH_Rec3931_AllSrc_AllCh_ByRec_ByChem_DosePath_Site

0035	YES	-	-	-	-	-	-	-	-
0036	-	YES	-	-	YES	-	-	-	-
0037	-	-	-	-	-	-	-	-	-
0038	-	-	-	-	-	-	-	-	-
0039	-	-	-	-	-	-	-	-	-
0040	-	-	-	-	-	-	-	-	-
0041	-	-	-	-	-	-	-	-	-
0042	YES	-	-	-	-	-	-	-	-
0043	YES	-	-	-	-	-	-	-	-
0044	-	-	-	-	-	-	-	-	-
0045	-	YES	-	-	YES	-	-	-	-
0046	-	-	-	-	-	-	-	-	-
0047	YES	-	-	-	-	-	-	YES	-
0048	-	-	-	-	-	-	-	-	-
0049	-	-	-	-	-	-	-	-	-
0050	YES	-	-	-	-	-	-	-	-
0051	YES	-	-	-	-	-	-	-	-
0052	YES	-	-	-	-	-	-	-	-
0053	-	-	-	-	-	-	-	-	-
0054	-	-	-	-	-	-	-	-	-
0055	YES	-	-	-	-	-	-	-	-
0056	-	-	-	-	-	-	-	-	-
0057	-	-	-	-	-	-	-	-	-
0058	YES	-	-	-	-	-	-	-	-
0059	-	-	-	-	-	-	-	-	-
0060	YES	-	-	-	-	-	-	-	-
0061	-	-	-	-	-	-	-	-	-
0062	-	-	-	-	-	-	-	-	-
0063	-	-	-	-	-	-	-	-	-
0064	YES	-	-	-	-	-	-	-	-
0065	YES	-	-	-	-	-	-	-	-

Rep_Can_70yr_DerOEH_Rec3931_AllSrc_AllCh_ByRec_ByChem_DosePath_Site

0066	-	-	-	-	-	-	-	-	-
0067	-	-	-	-	-	-	-	-	-
0068	-	-	-	-	-	-	-	-	-
0069	-	-	-	-	-	-	-	-	-
0070	-	-	-	-	-	-	-	-	-

DERIVED DOSE BY PATHWAY (mg/(kg-d) FOR CANCER CALCULATIONS, RECEPTOR 3931)									
CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	
BEEF	CHICK	PIG	EGG						
0001	0.00E+00								
0002	2.57E-06	0.00E+00							
0003	5.37E-10	2.32E-09	3.47E-10	0.00E+00	0.00E+00	0.00E+00	8.49E-09	0.00E+00	0.00E+00
0004	5.37E-10	2.32E-09	3.47E-10	0.00E+00	0.00E+00	0.00E+00	8.49E-09	0.00E+00	0.00E+00
0005	5.37E-10	2.32E-09	3.47E-10	0.00E+00	0.00E+00	0.00E+00	8.49E-09	0.00E+00	0.00E+00
0006	7.33E-07	0.00E+00							
0007	1.24E-07	0.00E+00							
0008	1.00E-07	0.00E+00							
0009	1.68E-07	0.00E+00							
0010	2.76E-10	0.00E+00							
0011	2.03E-08	0.00E+00							
0012	2.97E-09	0.00E+00							
0013	4.65E-07	0.00E+00							
0014	3.05E-07	0.00E+00							
0015	2.07E-09	0.00E+00							
0016	8.85E-09	0.00E+00							
0017	5.37E-10	0.00E+00							
0018	5.37E-10	2.32E-09	3.47E-10	0.00E+00	0.00E+00	0.00E+00	8.49E-09	0.00E+00	0.00E+00
0019	5.37E-10	2.32E-09	3.47E-10	0.00E+00	0.00E+00	0.00E+00	8.49E-09	0.00E+00	0.00E+00
0020	8.49E-09	0.00E+00							
0021	5.37E-10	2.32E-09	3.47E-10	0.00E+00	0.00E+00	0.00E+00	8.49E-09	0.00E+00	0.00E+00
0022	4.55E-08	0.00E+00							
0023	5.37E-10	2.32E-09	3.47E-10	0.00E+00	0.00E+00	0.00E+00	8.49E-09	0.00E+00	0.00E+00
0024	2.76E-10	1.22E-10	2.88E-10	2.79E-09	0.00E+00	0.00E+00	4.36E-09	0.00E+00	0.00E+00
0025	3.03E-08	9.56E-09	3.15E-07	0.00E+00	0.00E+00	0.00E+00	6.48E-07	0.00E+00	0.00E+00

Rep_Can_70yr_DerOEH_Rec3931_AllSrc_AllCh_ByRec_ByChem_DosePath_Site

0.00E+00	1.04E-12	6.65E-11	1.28E-12						
0026	3.78E-07	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0027	6.86E-08	2.16E-07	7.12E-07	0.00E+00	0.00E+00	0.00E+00	2.68E-06	0.00E+00	0.00E+00
0.00E+00	4.22E-10	2.02E-08	5.20E-10						
0028	6.73E-09	1.44E-07	6.99E-08	0.00E+00	0.00E+00	0.00E+00	1.32E-07	0.00E+00	0.00E+00
0.00E+00	1.12E-12	7.27E-11	1.39E-12						
0029	1.40E-10	3.04E-11	1.00E-09	0.00E+00	0.00E+00	0.00E+00	4.89E-10	0.00E+00	0.00E+00
0.00E+00	7.86E-15	5.13E-13	9.69E-15						
0030	5.09E-10	1.11E-11	3.65E-09	0.00E+00	0.00E+00	0.00E+00	1.01E-08	0.00E+00	0.00E+00
0.00E+00	3.53E-14	1.77E-12	4.36E-14						
0031	2.51E-08	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0032	1.37E-07	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0033	5.48E-07	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0034	1.09E-07	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0035	2.77E-09	6.03E-10	1.99E-08	0.00E+00	0.00E+00	0.00E+00	9.54E-09	0.00E+00	0.00E+00
0.00E+00	1.43E-12	9.35E-11	1.76E-12						
0036	7.57E-13	3.19E-12	1.33E-12	4.02E-12	0.00E+00	0.00E+00	6.22E-13	0.00E+00	0.00E+00
0.00E+00	1.00E-14	6.38E-13	1.23E-14						
0037	0.00E+00								
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0038	0.00E+00								
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0039	0.00E+00								
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0040	0.00E+00								
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0041	7.64E-06	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0042	2.92E-09	2.53E-09	2.09E-08	0.00E+00	0.00E+00	0.00E+00	2.43E-08	0.00E+00	0.00E+00
0.00E+00	4.49E-13	2.60E-11	5.54E-13						
0043	3.52E-08	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0044	7.15E-09	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0045	1.27E-12	5.36E-12	2.24E-12	6.77E-12	0.00E+00	0.00E+00	1.05E-12	0.00E+00	0.00E+00
0.00E+00	1.68E-14	1.07E-12	2.08E-14						
0046	1.29E-12	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0047	2.73E-11	1.54E-13	5.08E-13	0.00E+00	0.00E+00	0.00E+00	3.04E-10	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0048	6.03E-09	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0049	2.17E-09	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0050	2.62E-08	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0051	1.69E-08	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0052	1.92E-08	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0053	7.24E-11	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0054	1.33E-08	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0055	1.63E-08	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						
0056	3.18E-07	0.00E+00							
0.00E+00	0.00E+00	0.00E+00	0.00E+00						

Rep_Can_70yr_DerOEH_Rec3931_AllSrc_AllCh_ByRec_ByChem_DosePath_Site

0057	9.25E-09	0.00E+00							
0058	1.81E-08	0.00E+00							
0059	4.42E-11	0.00E+00							
0060	2.97E-11	0.00E+00							
0061	2.05E-08	0.00E+00							
0062	2.45E-08	0.00E+00							
0063	7.64E-07	0.00E+00							
0064	1.75E-08	0.00E+00							
0065	1.28E-11	0.00E+00							
0066	3.18E-09	0.00E+00							
0067	2.61E-09	0.00E+00							
0068	1.09E-08	0.00E+00							
0069	1.61E-06	0.00E+00							
0070	0.00E+00								

DERIVED CANCER RISK, RECEPTOR 3931

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY
BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL		
0001	0.00E+00							
0002	5.39E-08	0.00E+00						
0003	2.09E-09	2.78E-08	4.17E-09	0.00E+00	0.00E+00	0.00E+00	1.02E-07	0.00E+00
0004	2.20E-09	9.51E-09	1.42E-09	0.00E+00	0.00E+00	0.00E+00	3.48E-08	0.00E+00
0005	2.09E-10	2.78E-09	4.17E-10	0.00E+00	0.00E+00	0.00E+00	1.02E-08	0.00E+00
0006	7.33E-08	0.00E+00						
0007	0.00E+00							
0008	1.00E-09	0.00E+00						
0009	5.88E-10	0.00E+00						
0010	0.00E+00							
0011	0.00E+00							
0012	0.00E+00							
0013	5.58E-08	0.00E+00						
0014	0.00E+00							
0015	0.00E+00							
0016	0.00E+00							

Rep_Can_70yr_DerOEH_Rec3931_AllSrc_AllCh_ByRec_ByChem_DosePath_Site

0.00E+00									
0017	0.00E+00								
0.00E+00									
0018	2.09E-10	2.78E-09	4.17E-10	0.00E+00	0.00E+00	0.00E+00	1.02E-08	0.00E+00	0.00E+00
0.00E+00	5.08E-13	2.14E-11	6.26E-13	2.26E-11	1.34E-08	1.36E-08	0.00E+00	0.00E+00	0.00E+00
0019	2.09E-10	2.78E-09	4.17E-10	0.00E+00	0.00E+00	0.00E+00	1.02E-08	0.00E+00	0.00E+00
0.00E+00	5.08E-13	2.14E-11	6.26E-13	2.26E-11	1.34E-08	1.36E-08	0.00E+00	0.00E+00	0.00E+00
0020	0.00E+00								
0.00E+00									
0021	2.09E-10	2.78E-09	4.17E-10	0.00E+00	0.00E+00	0.00E+00	1.02E-08	0.00E+00	0.00E+00
0.00E+00	5.08E-13	2.14E-11	6.26E-13	2.26E-11	1.34E-08	1.36E-08	0.00E+00	0.00E+00	0.00E+00
0022	0.00E+00								
0.00E+00									
0023	2.09E-11	2.78E-10	4.17E-11	0.00E+00	0.00E+00	0.00E+00	1.02E-09	0.00E+00	0.00E+00
0.00E+00	5.08E-14	2.14E-12	6.26E-14	2.26E-12	1.34E-09	1.36E-09	0.00E+00	0.00E+00	0.00E+00
0024	5.51E-10	2.45E-10	5.76E-10	5.58E-09	0.00E+00	0.00E+00	8.72E-09	0.00E+00	0.00E+00
0.00E+00	7.02E-13	3.17E-11	8.65E-13	3.33E-11	1.52E-08	1.57E-08	0.00E+00	0.00E+00	0.00E+00
0025	1.27E-09	8.13E-11	2.68E-09	0.00E+00	0.00E+00	0.00E+00	5.51E-09	0.00E+00	0.00E+00
0.00E+00	8.84E-15	5.65E-13	1.09E-14	5.85E-13	8.27E-09	9.55E-09	0.00E+00	0.00E+00	0.00E+00
0026	0.00E+00								
0.00E+00									
0027	0.00E+00								
0.00E+00									
0028	8.07E-08	2.15E-07	1.05E-07	0.00E+00	0.00E+00	0.00E+00	1.98E-07	0.00E+00	0.00E+00
0.00E+00	1.69E-12	1.09E-10	2.08E-12	1.13E-10	5.18E-07	5.99E-07	0.00E+00	0.00E+00	0.00E+00
0029	1.18E-09	0.00E+00							
0.00E+00	1.18E-09	0.00E+00	0.00E+00						
0030	7.64E-09	0.00E+00							
0.00E+00	7.64E-09	0.00E+00	0.00E+00						
0031	0.00E+00								
0.00E+00									
0032	0.00E+00								
0.00E+00									
0033	0.00E+00								
0.00E+00									
0034	0.00E+00								
0.00E+00									
0035	1.41E-06	0.00E+00							
0.00E+00	1.41E-06	0.00E+00	0.00E+00						
0036	9.84E-08	4.14E-07	1.73E-07	5.23E-07	0.00E+00	0.00E+00	8.09E-08	0.00E+00	0.00E+00
0.00E+00	1.30E-09	8.29E-08	1.60E-09	8.58E-08	1.28E-06	1.38E-06	0.00E+00	0.00E+00	0.00E+00
0037	0.00E+00								
0.00E+00									
0038	0.00E+00								
0.00E+00									
0039	0.00E+00								
0.00E+00									
0040	0.00E+00								
0.00E+00									
0041	0.00E+00								
0.00E+00									
0042	2.65E-09	0.00E+00							
0.00E+00	2.65E-09	0.00E+00	0.00E+00						
0043	9.50E-09	0.00E+00							
0.00E+00	9.50E-09	0.00E+00	0.00E+00						
0044	0.00E+00								
0.00E+00									
0045	1.66E-07	6.97E-07	2.92E-07	8.80E-07	0.00E+00	0.00E+00	1.36E-07	0.00E+00	0.00E+00
0.00E+00	2.19E-09	1.39E-07	2.70E-09	1.44E-07	2.15E-06	2.31E-06	0.00E+00	0.00E+00	0.00E+00
0046	0.00E+00								
0.00E+00									
0047	2.30E-13	1.30E-15	4.27E-15	0.00E+00	0.00E+00	0.00E+00	2.55E-12	0.00E+00	0.00E+00
0.00E+00	2.56E-12	2.79E-12	0.00E+00						

Rep_Can_70yr_DeroEH_Rec3931_AllSrc_AllCh_ByRec_ByChem_DosePath_Site

0048	0.00E+00								
0049	0.00E+00								
0050	3.94E-09	0.00E+00							
0051	1.22E-09	0.00E+00							
0052	1.21E-09	0.00E+00							
0053	0.00E+00								
0054	0.00E+00								
0055	3.10E-10	0.00E+00							
0056	0.00E+00								
0057	0.00E+00								
0058	1.57E-10	0.00E+00							
0059	0.00E+00								
0060	5.35E-13	0.00E+00							
0061	0.00E+00								
0062	0.00E+00								
0063	0.00E+00								
0064	1.22E-10	0.00E+00							
0065	8.98E-13	0.00E+00							
0066	0.00E+00								
0067	0.00E+00								
0068	0.00E+00								
0069	0.00E+00								
0070	0.00E+00								
SUM	1.98E-06	1.38E-06	5.80E-07	1.41E-06	0.00E+00	0.00E+00	6.07E-07	0.00E+00	0.00E+00
	0.00E+00	3.50E-09	2.23E-07	4.32E-09	2.31E-07	4.20E-06	6.18E-06		

ResidentialRisk

FILE: F:\ENGINEER\Software\HARP\HARP\Projects\2012\C12131\ResidentialRisk.txt

EXCEPTION REPORT

(there have been no changes or exceptions)

RECEPTORS WITH HIGHEST CANCER RISK

REC	TYPE	CANCER	CHRONIC	ACUTE	UTME	UTMN	ZONE
1439	GRID	1.16E-05	4.13E-01	1.24E-01	610887	4284638	10
1499	GRID	1.16E-05	4.12E-01	1.32E-01	610687	4284438	10
1500	GRID	1.15E-05	4.07E-01	1.25E-01	610887	4284438	10
1438	GRID	1.14E-05	4.04E-01	1.28E-01	610687	4284638	10
1560	GRID	1.13E-05	4.00E-01	1.34E-01	610687	4284238	10
1379	GRID	1.13E-05	4.01E-01	1.14E-01	611087	4284838	10
1378	GRID	1.13E-05	4.02E-01	1.17E-01	610887	4284838	10
1440	GRID	1.12E-05	3.97E-01	1.16E-01	611087	4284638	10
1318	GRID	1.10E-05	3.90E-01	1.07E-01	611087	4285038	10
1498	GRID	1.09E-05	3.86E-01	1.34E-01	610487	4284438	10
1377	GRID	1.09E-05	3.87E-01	1.20E-01	610687	4284838	10
1317	GRID	1.08E-05	3.85E-01	1.12E-01	610887	4285038	10
1319	GRID	1.08E-05	3.83E-01	1.05E-01	611287	4285038	10
1559	GRID	1.08E-05	3.85E-01	1.38E-01	610487	4284238	10
1380	GRID	1.07E-05	3.79E-01	1.08E-01	611287	4284838	10
1258	GRID	1.05E-05	3.74E-01	9.92E-02	611287	4285238	10
1257	GRID	1.05E-05	3.74E-01	1.01E-01	611087	4285238	10
1437	GRID	1.04E-05	3.71E-01	1.27E-01	610487	4284638	10
1501	GRID	1.03E-05	3.64E-01	1.22E-01	611087	4284438	10
1561	GRID	1.03E-05	3.67E-01	1.33E-01	610887	4284238	10

RECEPTORS WITH HIGHEST CHRONIC HI

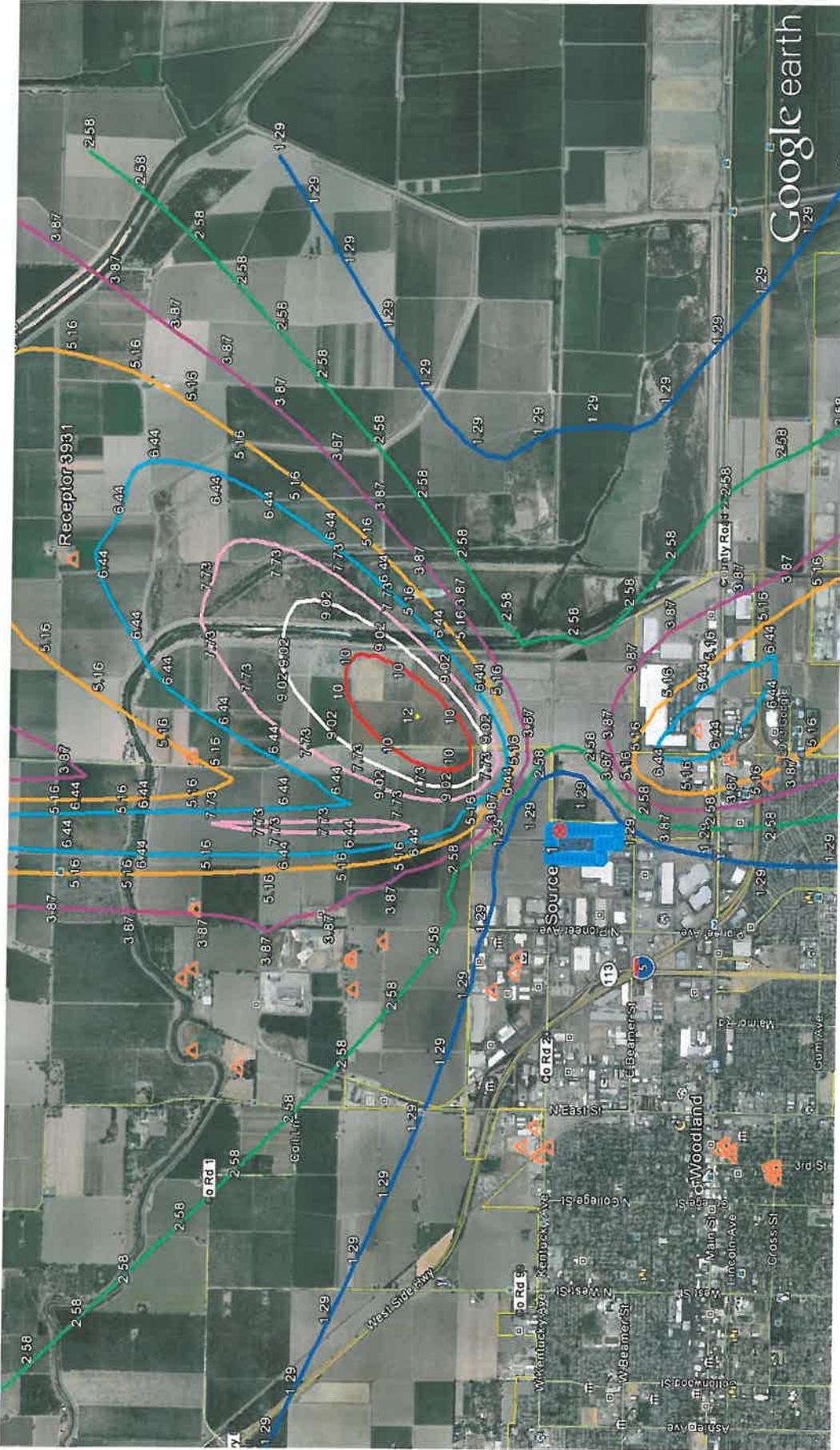
REC	TYPE	CANCER	CHRONIC	ACUTE	UTME	UTMN	ZONE
1439	GRID	1.16E-05	4.13E-01	1.24E-01	610887	4284638	10
1499	GRID	1.16E-05	4.12E-01	1.32E-01	610687	4284438	10
1500	GRID	1.15E-05	4.07E-01	1.25E-01	610887	4284438	10
1438	GRID	1.14E-05	4.04E-01	1.28E-01	610687	4284638	10
1378	GRID	1.13E-05	4.02E-01	1.17E-01	610887	4284838	10
1379	GRID	1.13E-05	4.01E-01	1.14E-01	611087	4284838	10
1560	GRID	1.13E-05	4.00E-01	1.34E-01	610687	4284238	10
1440	GRID	1.12E-05	3.97E-01	1.16E-01	611087	4284638	10
1318	GRID	1.10E-05	3.90E-01	1.07E-01	611087	4285038	10
1377	GRID	1.09E-05	3.87E-01	1.20E-01	610687	4284838	10
1498	GRID	1.09E-05	3.86E-01	1.34E-01	610487	4284438	10
1559	GRID	1.08E-05	3.85E-01	1.38E-01	610487	4284238	10
1317	GRID	1.08E-05	3.85E-01	1.12E-01	610887	4285038	10
1319	GRID	1.08E-05	3.83E-01	1.05E-01	611287	4285038	10
1380	GRID	1.07E-05	3.79E-01	1.08E-01	611287	4284838	10
1258	GRID	1.05E-05	3.74E-01	9.92E-02	611287	4285238	10
1257	GRID	1.05E-05	3.74E-01	1.01E-01	611087	4285238	10
1437	GRID	1.04E-05	3.71E-01	1.27E-01	610487	4284638	10
1561	GRID	1.03E-05	3.67E-01	1.33E-01	610887	4284238	10
1256	GRID	1.03E-05	3.65E-01	1.02E-01	610887	4285238	10

RECEPTORS WITH HIGHEST ACUTE HI

REC	TYPE	CANCER	CHRONIC	ACUTE	UTME	UTMN	ZONE
1864	GRID	1.87E-06	6.66E-02	1.75E-01	610487	4283238	10
1925	GRID	2.17E-06	7.70E-02	1.74E-01	610487	4283038	10
1677	GRID	1.33E-06	4.73E-02	1.74E-01	609687	4283838	10
1678	GRID	2.71E-06	9.64E-02	1.74E-01	609887	4283838	10
2044	GRID	7.96E-07	2.83E-02	1.72E-01	609887	4282638	10
1803	GRID	2.47E-06	8.79E-02	1.71E-01	610487	4283438	10
2043	GRID	3.41E-07	1.21E-02	1.71E-01	609687	4282638	10
1741	GRID	3.55E-06	1.26E-01	1.69E-01	610287	4283638	10
3839	BOUNDARY	6.32E-07	2.24E-02	1.69E-01	609899	4282683	10

ResidentialRisk						
3838	BOUNDARY	6.12E-07	2.17E-02	1.68E-01	609894	4282683 10
1679	GRID	4.27E-06	1.52E-01	1.68E-01	610087	4283838 10
2045	GRID	2.11E-06	7.50E-02	1.66E-01	610087	4282638 10
3837	BOUNDARY	5.75E-07	2.04E-02	1.66E-01	609884	4282683 10
3840	BOUNDARY	5.84E-07	2.07E-02	1.66E-01	609899	4282693 10
1981	GRID	9.49E-08	3.37E-03	1.65E-01	609487	4282838 10
3832	BOUNDARY	4.30E-07	1.53E-02	1.64E-01	609834	4282683 10
3831	BOUNDARY	4.07E-07	1.45E-02	1.64E-01	609824	4282683 10
3830	BOUNDARY	3.87E-07	1.37E-02	1.63E-01	609814	4282683 10
3841	BOUNDARY	5.37E-07	1.91E-02	1.62E-01	609899	4282703 10
3836	BOUNDARY	5.41E-07	1.92E-02	1.62E-01	609874	4282683 10

Residential Cancer Risk



WorksiteRisk

FILE: F:\ENGINEER\Software\HARP\HARP\Projects\2012\C12131\worksiteRisk.txt

EXCEPTION REPORT

(there have been no changes or exceptions)

RECEPTORS WITH HIGHEST CANCER RISK

REC	TYPE	CANCER	CHRONIC	ACUTE	UTME	UTMN	ZONE
1439	GRID	2.25E-06	2.08E-01	1.24E-01	610887	4284638	10
1499	GRID	2.24E-06	2.08E-01	1.32E-01	610687	4284438	10
1500	GRID	2.21E-06	2.06E-01	1.25E-01	610887	4284438	10
1438	GRID	2.20E-06	2.04E-01	1.28E-01	610687	4284638	10
1378	GRID	2.19E-06	2.03E-01	1.17E-01	610887	4284838	10
1379	GRID	2.18E-06	2.02E-01	1.14E-01	611087	4284838	10
1560	GRID	2.18E-06	2.02E-01	1.34E-01	610687	4284238	10
1440	GRID	2.16E-06	2.00E-01	1.16E-01	611087	4284638	10
1318	GRID	2.12E-06	1.97E-01	1.07E-01	611087	4285038	10
1377	GRID	2.11E-06	1.95E-01	1.20E-01	610687	4284838	10
1317	GRID	2.10E-06	1.95E-01	1.12E-01	610887	4285038	10
1498	GRID	2.10E-06	1.95E-01	1.34E-01	610487	4284438	10
1559	GRID	2.10E-06	1.94E-01	1.38E-01	610487	4284238	10
1319	GRID	2.08E-06	1.93E-01	1.05E-01	611287	4285038	10
1380	GRID	2.06E-06	1.91E-01	1.08E-01	611287	4284838	10
1257	GRID	2.03E-06	1.89E-01	1.01E-01	611087	4285238	10
1258	GRID	2.03E-06	1.89E-01	9.92E-02	611287	4285238	10
1437	GRID	2.02E-06	1.87E-01	1.27E-01	610487	4284638	10
1561	GRID	2.00E-06	1.85E-01	1.33E-01	610887	4284238	10
1256	GRID	1.99E-06	1.84E-01	1.02E-01	610887	4285238	10

RECEPTORS WITH HIGHEST CHRONIC HI

REC	TYPE	CANCER	CHRONIC	ACUTE	UTME	UTMN	ZONE
1439	GRID	2.25E-06	2.08E-01	1.24E-01	610887	4284638	10
1499	GRID	2.24E-06	2.08E-01	1.32E-01	610687	4284438	10
1500	GRID	2.21E-06	2.06E-01	1.25E-01	610887	4284438	10
1438	GRID	2.20E-06	2.04E-01	1.28E-01	610687	4284638	10
1378	GRID	2.19E-06	2.03E-01	1.17E-01	610887	4284838	10
1560	GRID	2.18E-06	2.02E-01	1.34E-01	610687	4284238	10
1379	GRID	2.18E-06	2.02E-01	1.14E-01	611087	4284838	10
1440	GRID	2.16E-06	2.00E-01	1.16E-01	611087	4284638	10
1318	GRID	2.12E-06	1.97E-01	1.07E-01	611087	4285038	10
1317	GRID	2.10E-06	1.95E-01	1.12E-01	610887	4285038	10
1377	GRID	2.11E-06	1.95E-01	1.20E-01	610687	4284838	10
1498	GRID	2.10E-06	1.95E-01	1.34E-01	610487	4284438	10
1559	GRID	2.10E-06	1.94E-01	1.38E-01	610487	4284238	10
1319	GRID	2.08E-06	1.93E-01	1.05E-01	611287	4285038	10
1380	GRID	2.06E-06	1.91E-01	1.08E-01	611287	4284838	10
1257	GRID	2.03E-06	1.89E-01	1.01E-01	611087	4285238	10
1258	GRID	2.03E-06	1.89E-01	9.92E-02	611287	4285238	10
1437	GRID	2.02E-06	1.87E-01	1.27E-01	610487	4284638	10
1561	GRID	2.00E-06	1.85E-01	1.33E-01	610887	4284238	10
1256	GRID	1.99E-06	1.84E-01	1.02E-01	610887	4285238	10

RECEPTORS WITH HIGHEST ACUTE HI

REC	TYPE	CANCER	CHRONIC	ACUTE	UTME	UTMN	ZONE
1864	GRID	3.62E-07	3.36E-02	1.75E-01	610487	4283238	10
1677	GRID	2.57E-07	2.39E-02	1.74E-01	609687	4283838	10
1925	GRID	4.19E-07	3.89E-02	1.74E-01	610487	4283038	10
1678	GRID	5.25E-07	4.87E-02	1.74E-01	609887	4283838	10
2044	GRID	1.54E-07	1.43E-02	1.72E-01	609887	4282638	10
2043	GRID	6.60E-08	6.13E-03	1.71E-01	609687	4282638	10
1803	GRID	4.78E-07	4.44E-02	1.71E-01	610487	4283438	10
3839	BOUNDARY	1.22E-07	1.13E-02	1.69E-01	609899	4282683	10
1741	GRID	6.86E-07	6.37E-02	1.69E-01	610287	4283638	10

							worksiteRisk	
1679	GRID	8.25E-07	7.66E-02	1.68E-01	610087	4283838	10	
3838	BOUNDARY	1.18E-07	1.10E-02	1.68E-01	609894	4282683	10	
2045	GRID	4.08E-07	3.79E-02	1.66E-01	610087	4282638	10	
3840	BOUNDARY	1.13E-07	1.05E-02	1.66E-01	609899	4282693	10	
3837	BOUNDARY	1.11E-07	1.03E-02	1.66E-01	609884	4282683	10	
1981	GRID	1.84E-08	1.70E-03	1.65E-01	609487	4282838	10	
3832	BOUNDARY	8.31E-08	7.71E-03	1.64E-01	609834	4282683	10	
3831	BOUNDARY	7.88E-08	7.31E-03	1.64E-01	609824	4282683	10	
3830	BOUNDARY	7.48E-08	6.94E-03	1.63E-01	609814	4282683	10	
3833	BOUNDARY	8.79E-08	8.15E-03	1.62E-01	609844	4282683	10	
3841	BOUNDARY	1.04E-07	9.64E-03	1.62E-01	609899	4282703	10	

Facility: Woodland Biomass Power, Ltd.
 ID #: 00257
 Project #: C-12-131

Emissions - Biomass Combustor

Process Rate Tons/hr Tons/yr

CAS Number	Emissions	EF	lbs/hr	g/sec	lbs/yr	g/sec
1080	Total PCDF	9.01E-09	0.00E+00	0.00E+00	2.78E-03	4.00E-08
1086	Total PCDD	8.14E-09	0.00E+00	0.00E+00	2.51E-03	3.61E-08
1150	Total PAH	5.21E-03	0.00E+00	0.00E+00	1.60E+03	2.31E-02
42401	Sulfur Dioxide	1.39E-02	0.00E+00	0.00E+00	4.28E+03	6.16E-02
42603	Nitrogen Dioxide	1.03E+00	0.00E+00	0.00E+00	3.17E+05	4.57E+00
50000	Formaldehyde	1.33E-02	0.00E+00	0.00E+00	4.10E+03	5.90E-02
53703	Dibenzo [a,h] Anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
56553	Benz [a] anthracene	7.10E-07	0.00E+00	0.00E+00	2.19E-01	3.15E-06
71432	Benzene	1.77E-03	0.00E+00	0.00E+00	5.45E+02	7.85E-03
75070	Acetaldehyde	1.55E-03	0.00E+00	0.00E+00	4.77E+02	6.87E-03
83329	Acenaphthene	6.16E-06	0.00E+00	0.00E+00	1.90E+00	2.73E-05
85018	Phenanthrene	4.54E-04	0.00E+00	0.00E+00	1.40E+02	2.01E-03
86737	Fluorene	5.49E-05	0.00E+00	0.00E+00	1.69E+01	2.43E-04
91203	Napthalene	3.24E-03	0.00E+00	0.00E+00	9.98E+02	1.44E-02
91576	2 Methyl-Napthalene	5.49E-05	0.00E+00	0.00E+00	1.69E+01	2.43E-04
100414	Ethylbenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
107028	Acrolein	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
108883	Toluene	2.93E-04	0.00E+00	0.00E+00	9.02E+01	1.30E-03
120127	Anthracene	4.63E-05	0.00E+00	0.00E+00	1.43E+01	2.05E-04
129000	Pyrene	1.41E-04	0.00E+00	0.00E+00	4.34E+01	6.25E-04
191242	Benzo [g,h,i] perylene	4.50E-08	0.00E+00	0.00E+00	1.39E-02	2.00E-07
193395	Indeno [1,2,3-cd] pyrene	1.73E-08	0.00E+00	0.00E+00	5.33E-03	7.67E-08
205992	Benzo [b] fluoranthene	7.59E-08	0.00E+00	0.00E+00	2.34E-02	3.37E-07
206440	Fluoranthene	1.90E-04	0.00E+00	0.00E+00	5.85E+01	8.43E-04
207089	Benzo [k] Fluoranthene	3.12E-08	0.00E+00	0.00E+00	9.61E-03	1.38E-07
208968	PAH Acenaphthylene	1.02E-03	0.00E+00	0.00E+00	3.14E+02	4.52E-03
218019	Chrysene	9.63E-07	0.00E+00	0.00E+00	2.97E-01	4.27E-06
1313275	Molybdenum	1.48E-04	0.00E+00	0.00E+00	4.56E+01	6.56E-04
1336363	Total PCB	4.33E-07	0.00E+00	0.00E+00	1.33E-01	1.92E-06
7439921	Lead	5.54E-05	0.00E+00	0.00E+00	1.71E+01	2.46E-04
7439965	Manganese	4.99E-03	0.00E+00	0.00E+00	1.54E+03	2.21E-02
7439976	Mercury	2.87E-07	0.00E+00	0.00E+00	8.84E-02	1.27E-06
7440020	Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7440224	Silver	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7440280	Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7440360	Antimony	1.02E-06	0.00E+00	0.00E+00	3.14E-01	4.52E-06
7440382	Arsenic	2.32E-06	0.00E+00	0.00E+00	7.15E-01	1.03E-05
7440393	Barium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7440417	Beryllium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7440439	Cadmium	2.54E-05	0.00E+00	0.00E+00	7.82E+00	1.13E-04
7440473	Chromium	6.51E-06	0.00E+00	0.00E+00	2.01E+00	2.89E-05
7440484	Cobalt	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7440508	Copper	1.93E-05	0.00E+00	0.00E+00	5.94E+00	8.56E-05
7440622	Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7440666	Zinc	1.89E-04	0.00E+00	0.00E+00	5.82E+01	8.38E-04
7723140	Phosphorus	4.08E-04	0.00E+00	0.00E+00	1.26E+02	1.81E-03
7782492	Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
18540299	Hex Chrome	1.85E-06	0.00E+00	0.00E+00	5.70E-01	8.21E-06
19408743	123789 HxCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
34465468	Total HxCDD	1.68E-09	0.00E+00	0.00E+00	5.17E-04	7.45E-09
35822469	1234678 HpCDD	1.23E-10	0.00E+00	0.00E+00	3.79E-05	5.46E-10
39227286	123478 HxCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
40321764	12378 PeCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
51207319	2378 TCDF	1.28E-10	0.00E+00	0.00E+00	3.94E-05	5.68E-10
55673897	1234789 HpCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
57117314	23478 PeCDF	7.09E-11	0.00E+00	0.00E+00	2.18E-05	3.14E-10
57117416	12378 PeCDF	4.40E-11	0.00E+00	0.00E+00	1.36E-05	1.95E-10
57117449	123678 HxCDF	2.34E-11	0.00E+00	0.00E+00	7.21E-06	1.04E-10
57653857	123678 HxCDD	2.18E-11	0.00E+00	0.00E+00	6.71E-06	9.67E-11
60851345	234678 HxCDF	2.74E-11	0.00E+00	0.00E+00	8.44E-06	1.22E-10
67562394	1234678 HpCDF	3.63E-11	0.00E+00	0.00E+00	1.12E-05	1.61E-10

70648269	123478	HxCDF	2.35E-11	0.00E+00	0.00E+00	7.24E-06	1.04E-10
72918219	123789	HxCDF	4.05E-12	0.00E+00	0.00E+00	1.25E-06	1.80E-11

Emission Factors are taken from approved TEIR for Mendota Biomass Power, Ltd. #40155

	<u>Units</u>	<u>Formula Symbol</u>
Boiler Rating	330 MMBtu/hr	BR
Annual Operation	8,400 hrs/year	AO
Pounds per Ton	2,000 lbs/ton	MC
Minimum Heating Value (AP-42 1.6.1)	4,500 Btu/lb	MI
Maximum Heating Value (AP-42 1.6.1)	8,000 Btu/lb	MA
Maximum Process Rate = $BR * AO * 10^6 * (1/MI) * (1/MC) =$	308,000 ton/year	
Minimum Process Rate Rate = $BR * AO * 10^6 * (1/MA) * (1/MC) =$	173,250 ton/year	

Biomass External Combustion

Use this spreadsheet for Biomass (AG Waste) External Combustion (Boilers, Power Plants). Entries required in yellow areas, output in grey areas.

Author or updater: Cheryl Lawler Last Update: February 24, 2011

Facility: Woodland Biomass Power, Ltd.
 ID#: 00257
 Project #: C-12-131

Inputs	Rate Ton/hr	Rate Ton/yr	Formula				
			Ag Waste Emission Factor	Ag and Urban Waste Emission Factor	Urban Waste Emission Factor	LB/HR	
Biomass		308,000	Emissions are a result of the multiplications of the Biomass Rate and Emission Factors				
			Ag Waste Emission Factor lbs/ton*	Ag and Urban Waste Emission Factor lbs/ton*	Urban Waste Emission Factor lbs/ton*	LB/HR	LB/HR
Substances							
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (Furan 8F)			5.24E-09	1.66E-10	2.05E-10	0.00E+00	1.61E-03
1,2,3,4,6,7,8,9-Octachlorodibenzo-P-dioxin (Dioxin 8D)			5.81E-08	4.12E-10	3.32E-10	0.00E+00	1.79E-02
1,2,3,4,6,7,8-Heptachlorodibenzofuran (Furan 7F 1234678)			7.32E-09	1.21E-10	3.41E-10	0.00E+00	2.25E-03
1,2,3,4,6,7,8-Heptachlorodibenzo-P-dioxin (Dioxin 7D)			3.5822469	2.19E-10	1.08E-10	0.00E+00	2.59E-03
1,2,3,4,7,8,9-Heptachlorodibenzofuran (Furan 7F 1234789)			5.6673897	4.72E-11	4.98E-11	0.00E+00	2.29E-04
1,2,3,4,7,8-Hexachlorodibenzofuran (Furan 6F 123478)			7.0648269	5.86E-11	9.08E-11	0.00E+00	4.71E-04
1,2,3,4,7,8-Hexachlorodibenzo-P-dioxin (Dioxin 6D 123478)			3.9227286	9.07E-11	8.95E-11	0.00E+00	3.76E-04
1,2,3,6,7,8-Hexachlorodibenzofuran (Furan 6F 123678)			5.7117449	4.98E-11	8.18E-11	0.00E+00	4.80E-04
1,2,3,6,7,8-Hexachlorodibenzo-P-dioxin (Dioxin 6D 123678)			5.7653857	7.94E-11	8.95E-11	0.00E+00	3.91E-04
1,2,3,7,8,9-Hexachlorodibenzofuran (Furan 6F 123789)			7.2918219	6.51E-10	4.35E-11	0.00E+00	2.01E-04
1,2,3,7,8,9-Hexachlorodibenzo-P-dioxin (Dioxin 6D 123789)			1.9408743	7.19E-11	8.09E-11	0.00E+00	3.54E-04
1,2,3,7,8-Pentachlorodibenzofuran (Furan 5F 12378)			5.7117416	1.28E-10	1.19E-10	0.00E+00	9.52E-04
1,2,3,7,8-Pentachlorodibenzo-P-dioxin (Dioxin 5D 12378)			4.0321764	8.69E-11	8.10E-11	0.00E+00	3.39E-04
2,3,4,6,7,8-Hexachlorodibenzofuran (Furan 6F 234678)			6.0851345	1.75E-09	4.17E-11	5.41E-11	5.39E-04
2,3,4,7,8-Pentachlorodibenzofuran (Furan 5F 23478)			5.7117314	1.63E-10	1.60E-10	0.00E+00	1.38E-03
2,3,7,8-Tetrachlorodibenzofuran (Furan 4F)			5.1207319	2.00E-10	1.57E-10	0.00E+00	9.86E-04
2,3,7,8-Tetrachlorodibenzo-P-dioxin (Dioxin 4D)			1.7460016	5.79E-11	3.99E-11	0.00E+00	1.37E-04
Acenaphthene**			8.3329	1.20E-05	5.62E-07	6.96E-06	3.70E+00
Acenaphthylene**			2.08968	9.47E-05	5.14E-07	1.62E-07	2.92E+01
Acetaldehyde			7.5070	1.87E-04	1.03E-04	0.00E+00	3.17E+02
Acrolein			1.07028	1.31E-04	5.23E-05	0.00E+00	4.03E+01
Anthracene			1.20127	6.80E-07	2.92E-07	0.00E+00	3.70E+00
Arsenic			7.440382	1.74E-05	6.06E-06	0.00E+00	5.36E+00
Benzene			7.1432	1.34E-04	1.49E-04	0.00E+00	2.37E+02
Benzo(a)anthracene			5.6553	1.20E-05	3.86E-08	0.00E+00	3.70E+00
Benzo(a)pyrene			5.0328	1.20E-05	3.70E-08	0.00E+00	3.70E+00
Benzo(b)fluoranthene			2.05992	1.20E-05	3.48E-08	0.00E+00	3.70E+00
Benzo[g,h,i] perylene**			1.91242	1.20E-05	4.41E-08	0.00E+00	3.70E+00
Benzo[k] Fluoranthene			2.07089	1.20E-05	4.41E-08	0.00E+00	3.70E+00

Beryllium	7440417	2.16E-06	3.65E-07	2.75E-07	0.00E+00	6.65E-01
Cadmium	7440439	8.87E-05	5.35E-06	5.29E-06	0.00E+00	2.73E+01
Chromium**	7440473	2.88E-06	4.57E-05	3.85E-05	0.00E+00	1.41E+01
Chrysene	218019	1.20E-05	4.41E-08	4.26E-08	0.00E+00	3.70E+00
Copper	7440508	6.15E-05	6.13E-05	3.60E-05	0.00E+00	1.89E+01
Dibenz(A,H)Anthracene	53703	1.20E-05	4.41E-08	4.26E-08	0.00E+00	3.70E+00
Fluoranthene**	206440	4.79E-05	3.15E-06	1.86E-07	0.00E+00	1.48E+01
Fluorene**	86737	1.20E-05	1.39E-06	3.75E-07	0.00E+00	3.70E+00
Formaldehyde	50000	2.34E-02	2.65E-03	6.04E-04	0.00E+00	7.21E+03
Hex Chlorine	18540299	4.28E-05	9.58E-07	1.02E-06	0.00E+00	1.32E+01
Hydrochloric acid	7647010	7.21E-02	1.14E-04	1.55E-04	0.00E+00	2.22E+04
Indeno [1,2,3-cd] pyrene	193395	1.20E-05	4.41E-08	4.26E-08	0.00E+00	3.70E+00
Lead	7439921	6.54E-05	8.76E-05	4.04E-05	0.00E+00	2.70E+01
Manganese	7439965	2.86E-04	7.65E-04	1.64E-04	0.00E+00	2.36E+02
Mercury	7439976	1.92E-04	9.41E-06	3.69E-04	0.00E+00	1.14E+02
Napthalene	91203	7.17E-03	2.17E-05	1.00E-05	0.00E+00	2.21E+03
Nickel	7440020	4.50E-05	3.56E-05	8.51E-06	0.00E+00	1.39E+01
Phenanthrene**	85018	1.13E-04	1.62E-05	7.06E-07	0.00E+00	3.48E+01
Pyrene**	129000	4.93E-05	1.24E-06	1.03E-07	0.00E+00	1.52E+01
Selenium	7782492	1.90E-05	9.78E-06	6.29E-06	0.00E+00	5.85E+00
Toluene	108883	9.79E-09	1.28E-04	1.70E-04	0.00E+00	5.24E+01
Total Heptachlorodibenzofuran (Furan 7F Total)**	38998753	1.81E-08	1.33E-10	1.16E-10	0.00E+00	3.02E-03
Total Heptachlorodibenzo-p-dioxin (Dioxin 7D Total)**	37871004	2.85E-08	2.87E-10	5.51E-09	0.00E+00	5.57E-03
Total Hexachlorodibenzofuran (Furan 6F Total)**	55684941	2.54E-08	1.78E-10	8.03E-10	0.00E+00	8.78E-03
Total Hexachlorodibenzo-p-dioxin (Dioxin 6D Total)**	34465468	2.54E-08	7.55E-10	9.50E-10	0.00E+00	7.82E-03
Total PCB	1336363	8.58E-08	6.17E-06	5.87E-07	0.00E+00	1.90E+00
Total Pentachlorodibenzofuran (Furan 5F Total)**	30402154	5.85E-08	2.07E-09	1.40E-09	0.00E+00	2.64E-02
Total Pentachlorodibenzo-p-dioxin (Dioxin 5D Total)**	36089229	3.09E-07	6.56E-09	4.46E-09	0.00E+00	1.80E-02
Total Tetrachlorodibenzofuran (Furan 4F Total)**	55722275	2.16E-07	3.56E-09	1.79E-09	0.00E+00	9.52E-02
Total Tetrachlorodibenzo-p-dioxin (Dioxin 4D Total)**	41903575	75014	1.42E-04	1.57E-04	0.00E+00	6.65E-02
Vinyl Chloride	1330207	5.43E-04	1.50E-04	1.60E-04	0.00E+00	1.67E+02
Xylene	7440666	3.36E-04	3.74E-04	1.74E-04	0.00E+00	4.93E+01
Zinc**						1.15E+02

References:

* The emission factors were taken from Fluidized Bed Combustor Combustion (Agricultural Waste Subgroup 2, Mean Values) section of Table 19 in the 1999 CARB Report, *Development of Toxics Emission Factors from Source Test Data Collected Under the Air Toxics Hot Spots Program*. Until a reference is found for other types of Biomass combustors use these values for the fuel type utilized.

** Non - HAPs, Toxics current as of update date

	Boiler Rating	Units	Formula Symbol
Annual Operation	330 MMBtu/hr	BR	
Pounds per Ton	8,400 hrs/year	AO	
Minimum Heating Value (AP-42 1.6.1)	2,000 lbs/ton	MC	
Maximum Heating Value (AP-42 1.6.1)	4,500 Btu/lb	MI	
	8,000 Btu/lb	MA	
Maximum Process Rate = BR * AO * 10 ⁻⁶ * (1/MI) * (1/MC) =	308,000 ton/year		
Minimum Process Rate = BR * AO * 10 ⁻⁶ * (1/MA) * (1/MC) =	173,250 ton/year		