



APR 15 2014

Mr. Kevin Rebelo  
Morning Star Packing Company  
13448 South Volta Road  
Los Banos, CA 93635

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)  
District Facility # N-1326  
Project # N-1133785**

Dear Mr. Rebelo:

Enclosed for your review is the District's analysis of an application for Authority to Construct for the facility identified above. You requested that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. This project is for the modification of an 8.4 MMBtu/hr boiler to replace the existing low-NOx burner with an ultra-low NOx burner and to remove the current annual fuel heat input limit such that the boiler may be operated full-time.

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

If you have any questions, please contact Mr. Rupi Gill, Permit Services Manager, at (209) 557-6400.

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

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

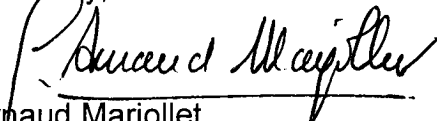
**Central Region (Main Office)**  
1990 E. Gettysburg Avenue  
Fresno, CA 93726-0244  
Tel: (559) 230-6000 FAX: (559) 230-6061

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

Mr. Kevin Rebelo  
Page 2

Thank you for your cooperation in this matter.

Sincerely,



Arnaud Marjollet  
Director of Permit Services

Enclosures

cc: Mike Tollstrup, CARB (w/enclosure) via email  
cc: Gerardo C. Rios, EPA (w/enclosure) via email



District Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)  
District Rule 4351 Boilers, Steam Generators, and Process Heaters – Phase 1 (8/21/03)  
District Rule 4801 Sulfur Compounds (12/17/92)  
CH&SC 41700 Health Risk Assessment  
CH&SC 42301.6 School Notice  
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)  
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387; CEQA Guidelines

### III. PROJECT LOCATION

This boiler is located at 13448 S Volta Rd in Los Banos, CA. The District has verified that the boiler is not located within 1000' of a K-12 school. Therefore, the public notification requirements of California Health and Safety Code 42301.6 are not applicable to this project.

### IV. PROCESS DESCRIPTION

The boiler is utilized to heat water, which is utilized in various processes for food processing at the facility.

The boiler is currently limited to 9 billion Btu/year. Following the modifications in this permit, the boiler will be able to operate 24 hr/day, 365 days/year.

### V. EQUIPMENT LISTING

#### Pre-Project Equipment Description:

N-1326-13-1: 8.4 MMBTU/HR HURST MODEL #SA-G-200-200 NATURAL GAS-FIRED BOILER WITH AN INDUSTRIAL COMBUSTION MODEL #LNDG-1455-20 LOW NOX BURNER WITH FLUE GAS RECIRCULATION (FGR)

#### Post-Project Equipment Description:

N-1326-13-2: 8.4 MMBTU/HR HURST MODEL #SA-G-200-200 NATURAL GAS-FIRED BOILER WITH A WEBSTER HDRMB ULTRA-LOW NOX BURNER WITH FLUE GAS RECIRCULATION (FGR)

## VI. EMISSION CONTROL TECHNOLOGY EVALUATION

This boiler will be retrofitted with an Ultra Low-NO<sub>x</sub> burner. Ultra Low-NO<sub>x</sub> burners reduce NO<sub>x</sub> formation by producing lower flame temperatures and longer flames than conventional burners. Conventional burners thoroughly mix all the fuel and air in a single stage just prior to combustion, whereas low-NO<sub>x</sub> burners delay the mixing of fuel and air by introducing the fuel or air in multiple stages. Generally, in the first combustion stage, the air-fuel mixture is fuel rich. In a fuel rich environment, all the oxygen will be consumed in reactions with the fuel, leaving no excess oxygen available to react with nitrogen to produce thermal NO<sub>x</sub>. In the secondary and tertiary stages, the combustion zone is maintained in a fuel-lean environment. The excess air in these stages helps to reduce the flame temperature so that the reaction between the excess oxygen with nitrogen is minimized.

This boiler is equipped with a flue gas recirculation system. The use of flue gas recirculation can reduce nitrogen oxides (NO<sub>x</sub>) emissions by 60% to 70%. In an FGR system, a portion of the flue gas is re-circulated back to the inlet air. As flue gas is composed mainly of nitrogen and the products of combustion, it is much lower in oxygen than the inlet air and contains virtually no combustible hydrocarbons to burn. Thus, flue gas is practically inert. The addition of an inert mass of gas to the combustion reaction serves to absorb heat without producing heat, thereby lowering the flame temperature. Since thermal NO<sub>x</sub> is formed by high flame temperatures, the lower flame temperatures produced by FGR serve to reduce thermal NO<sub>x</sub>.

## VII. GENERAL CALCULATIONS

### A. Assumptions

- The unit will only be fired on PUC-Quality natural gas.
- Natural Gas Heating Value: 1,000 Btu/scf (District Practice).
- F-Factor for Natural Gas: 8,578 dscf/MMBtu corrected to 60°F (40 CFR 60, Appendix B).
- The combined NO<sub>x</sub> emissions from units N-1326-1, '-2, '-3, '-8, '-11, '-12, and '-13 will continue to be limited to 33,333 lb/12-month rolling period. (per applicant)
- All other assumptions will be stated as they are made.

**B. Emission Factors**

**Pre-Project Emission Factors (EF1)**

The following pre-project emission factors will be used for this project.

Pollutant	Emission Factor Natural Gas	Source
NOx	20 ppmvd @ 3% O <sub>2</sub> (0.024 lb/MMBtu)	PTO N-1326-13-1
SOx	0.00285 lb/MMBtu	PTO N-1326-13-1
PM10	0.005 lb/MMBtu	PTO N-1326-13-1
CO	100 ppmvd @ 3% O <sub>2</sub> (0.0739 lb/MMBtu)	PTO N-1326-13-1
VOC	2 ppmvd @ 3% O <sub>2</sub> (0.001 lb/MMBtu)	PTO N-1326-13-1

**Post-Project Emission Factors (EF2)**

The following post-project emission factors will be used for this project.

Pollutant	Emission Factor Natural Gas	Source
NOx	9 ppmvd @ 3% O <sub>2</sub> (0.011 lb/MMBtu)	Applicant
SOx	0.00285 lb/MMBtu	District Policy APR 1720
PM10	0.005 lb/MMBtu	PTO N-1326-13-1
CO	50 ppmvd @ 3% O <sub>2</sub> (0.037 lb/MMBtu)	Applicant
VOC	2 ppmvd @ 3% O <sub>2</sub> (0.001 lb/MMBtu)	Applicant

**C. Calculations**

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

The following formulas will be used to calculate emissions from the existing boiler:

$$PE1_{\text{Daily}} = 8.4 \text{ MMBtu/hr} \times \text{EF (lb/MMBtu)} \times 24 \text{ hr/day}$$

$$PE1_{\text{Annual}} = 9,000 \text{ MMBtu/year} \times \text{EF (lb/MMBtu)}$$

Pollutant	EF (lb/MMBtu)	Daily and Annual Pre-Project Potential to Emit	
		PE1 (lb/day)	PE1 (lb/year)
NO <sub>x</sub>	0.024	4.8	216
SO <sub>x</sub>	0.00285	0.6	26
PM10	0.005	1	45
CO	0.073	14.7	657
VOC	0.001	0.2	9

## 2. Post-Project Potential to Emit (PE2)

The following formulas will be used to calculate emissions from the boiler, following the proposed modifications.

$$PE2_{\text{Daily}} = 8.4 \text{ MMBtu/hr} \times EF \text{ (lb/MMBtu)} \times 24 \text{ hr/day}$$

$$PE2_{\text{Annual}} = 8.4 \text{ MMBtu/hr} \times EF \text{ (lb/MMBtu)} \times 8,760 \text{ hr/year}$$

Pollutant	EF (lb/MMBtu)	Daily and Annual Post-Project Potential to Emit	
		PE2 (lb/day)	PE2 (lb/year)
NO <sub>x</sub>	0.011	2.2	809
SO <sub>x</sub>	0.00285	0.6	210
PM10	0.005	1.0	368
CO	0.037	7.5	2,723
VOC	0.001	0.2	74

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

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site. The following data was obtained from District Project N-1113340.

Unit	NO <sub>x</sub> (lb/year)	SO <sub>x</sub> (lb/year)	PM10 (lb/year)	CO (lb/year)	VOC (lb/year)					
N-1326-1-7	33,333	11,875	19,501	121,652	17,500					
N-1326-2-8										
N-1326-3-10										
N-1326-8-5										
N-1326-11-3										
N-1326-12-3										
N-1326-13-1	387	50	54	163	60					
N-1326-5-1										
N-1326-14-1						93	0	1	19	4
N-1326-15-0										
<b>SSPE1 Total</b>	<b>33,813</b>	<b>11,925</b>	<b>19,557</b>	<b>121,841</b>	<b>17,569</b>					

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

Pursuant to Section 4.10 of District Rule 2201, the Post-Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site. Combined emissions for units N-1326-1, '-2, '-3, '-8, '-11, '-12, and '-13 are calculated in Appendix IV, with SOx, PM10, CO, and VOC emissions adjustments due to the NOx specific limiting condition.

Unit	NOx (lb/year)	SOx (lb/year)	PM10 (lb/year)	CO (lb/year)	VOC (lb/year)
N-1326-1-7	33,333	11,875	19,545	121,257	17,500
N-1326-2-8					
N-1326-3-10					
N-1326-8-5					
N-1326-11-3					
N-1326-12-3					
N-1326-13-2					
N-1326-5-1	387	50	54	163	60
N-1326-14-1	93	0	1	19	4
N-1326-15-0	0	0	1	7	5
<b>SSPE2 Total</b>	<b>33,813</b>	<b>11,925</b>	<b>19,601</b>	<b>121,446</b>	<b>17,569</b>

**5. Major Source Determination**

**Rule 2201 Major Source Determination:**

A Major Source is a source with an SSPE2 that equals or exceeds any of the following Major Source thresholds. The following table compares the pre-project and post-project facility-wide annual emissions in order to determine if the facility is already an existing Major Source or if the facility is becoming a Major Source as the result of this project. This facility does not contain ERCs which have been banked at the source.



<b>Major Source Determination</b>					
<b>Pollutant</b>	<b>SSPE1 (lb/yr)</b>	<b>SSPE2 (lb/yr)</b>	<b>Major Source Threshold (lb/yr)</b>	<b>Existing Major Source?</b>	<b>Becoming a Major Source?</b>
NO <sub>x</sub>	33,813	33,813	20,000	Yes	No
SO <sub>x</sub>	11,925	11,925	140,000	No	No
PM <sub>10</sub>	19,557	19,601	140,000	No	No
CO	121,841	121,446	200,000	No	No
VOC	17,569	17,569	20,000	No	No

**Rule 2410 Major Source Determination:**

The facility or the equipment evaluated under this project is listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). Therefore the following PSD Major Source thresholds are applicable.

<b>PSD Major Source Determination (tons/year)</b>							
	<b>NO<sub>2</sub></b>	<b>VOC</b>	<b>SO<sub>2</sub></b>	<b>CO</b>	<b>PM</b>	<b>PM<sub>10</sub></b>	<b>CO<sub>2e</sub></b>
Facility PE before Project Increase	16.9	8.8	6.0	60.7	9.8	9.8	242,911 <sup>1</sup>
PSD Major Source Thresholds	100	100	100	100	100	100	100,000
PSD Major Source ? (Y/N)	No	No	No	No	No	No	Yes

As shown above, the facility is an existing major source for PSD.

**6. Baseline Emissions (BE)**

BE = Pre-project Potential to Emit for:

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

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.23

Baseline emissions are used in offset calculations.

<sup>1</sup> See calculations in Appendix IV.

**Baseline Emissions for SOx, PM10, CO, and VOC Emissions**

The facility is a non-Major Source for these pollutants. Therefore, the baseline emissions for these pollutants are equal to the pre-project potential to emit.

**Baseline Emissions for NOx Emissions**

Since this facility includes several boilers that are subject to a combined limit for NOx emissions, the offset calculation for NOx emissions includes the baseline emissions for all units under the specific limiting condition (SLC). Thus, BE<sub>SLC</sub> must be calculated for NOx emissions.

This facility is a Major Source for NOx emissions. As shown in the table below, all existing units in the combined limit are clean. Therefore,

$$BE_{SLC} = PE_{1SLC} = 33,333 \text{ lb-NOx/year}$$

Clean Emissions Unit Determination for NOx emissions				
Permit Unit	BACT Guideline	Achieved In Practice	Permit Limit (Actual)	Clean Emissions Unit?
N-1326-1-7	Guideline Rescinded - Current District Practice	7 ppmvd NOx @ 3% O2 (0.008 lb/MMBtu)	7 ppmvd NOx @ 3% O2 (0.008 lb/MMBtu)	Yes
N-1326-2-8				
N-1326-3-10				
N-1326-8-5				
N-1326-11-3				
N-1326-12-3				
N-1326-13-2	1.1.1 Last Effective 10/25/2009 <sup>2</sup>	20 ppmvd NOx @ 3% O2 (0.024 lb/MMBtu)	20 ppmvd NOx @ 3% O2 (0.024 lb/MMBtu)	Yes

**7. SB 288 Major Modification**

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

As discussed in Section VII.C.5 above, the facility is an existing Major Source for NOx emissions. Thus, an SB288 Major Modification could only be triggered for NOx emissions. The project by itself would need to be a significant increase in order to trigger an SB288 Major Modification. The emission unit in this project does not have a total potential to emit that is greater than the SB288 Major Modification threshold for NOx emissions (see following table). Therefore, the project cannot be a significant increase and the project does not trigger a SB 288 Major Modification.

<sup>2</sup> Pursuant to District Rule 2201, a unit is clean if it is equipped with an emission control technology that meets the requirements for achieved-in-practice BACT as accepted by the APCO during the five years immediately prior to the submission of the complete application. Since BACT Guideline 1.1.1 applies to boilers rated less than 20 MMBtu/hr and was last effective 10/25/2009, within 5 years of the submission of the complete application; therefore, this BACT Guideline may be used to determine whether the 8.4 MMBtu/hr boiler is clean.

<b>SB 288 Major Modification Thresholds (Existing Major Source)</b>			
<b>Pollutant</b>	<b>Project PE2 (lb/year)</b>	<b>Threshold (lb/year)</b>	<b>SB 288 Major Modification Calculation Required?</b>
NOx	809	50,000	No

### **8. Federal Major Modification**

District Rule 2201, Section 3.17 states that Federal Major Modifications are the same as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA. This facility is only a Major Source for NOx emissions; therefore, a Federal Major Modification can only be triggered for NOx emissions. This project will result in a net emission increase greater than the Federal Major Modification threshold of 0 lb/year for NOx emissions from the unit in this project. Therefore, this project triggers a Federal Major Modification for NOx emissions. Thus, BACT is triggered for NOx emissions, the project is considered a significant modification to the Title V permit, and a public-notice must be performed prior to issuance of the Authority to Construct permit.

### **9. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination**

Rule 2410 applies to pollutants for which the District is in attainment or for unclassified, pollutants. The pollutants addressed in the PSD applicability determination are listed as follows:

- NO2 (as a primary pollutant)
- SO2 (as a primary pollutant)
- CO
- PM
- PM10
- Greenhouse gases (GHG): CO2, N2O, CH4, HFCs, PFCs, and SF6

The first step of this PSD evaluation consists of determining whether the facility is an existing PSD Major Source or not (See Section VII.C.5 of this document).

This facility is an existing PSD Major Source. In the case the facility is an existing PSD Major Source, the second step of the PSD evaluation is to determine if the project results in a PSD significant increase.

**I. Project Location Relative to Class 1 Area**

As demonstrated in the "PSD Major Source Determination" Section above, the facility was determined to be a existing major source for PSD. Because the project is not located within 10 km of a Class 1 area – modeling of the emission increase is not required to determine if the project is subject to the requirements of Rule 2410.

**II. Significance of Project Emission Increase Determination**

**a. Potential to Emit of attainment/unclassified pollutant for New or Modified Emission Units vs PSD Significant Emission Increase Thresholds**

As a screening tool, the potential to emit from all new and modified units is compared to the PSD significant emission increase thresholds, and if total potential to emit from all new and modified units is below this threshold, no further analysis will be needed. For CO<sub>2e</sub> emissions, see the calculations in Appendix IV.

<b>PSD Significant Emission Increase Determination: Potential to Emit (tons/year)</b>						
	<b>NO<sub>2</sub></b>	<b>SO<sub>2</sub></b>	<b>CO</b>	<b>PM</b>	<b>PM<sub>10</sub></b>	<b>CO<sub>2e</sub></b>
Total PE from New and Modified Units	0.4	0.1	1.4	0.2	0.2	4,289.9
PSD Significant Emission Increase Thresholds	40	40	100	25	15	75,000
PSD Significant Emission Increase?	N	N	N	N	N	N

As demonstrated above, because the project has a total potential to emit from all new and modified emission units below the PSD significant emission increase thresholds, this project is not subject to the requirements of Rule 2410 due to a significant emission increase and no further discussion is required.

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

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

**VIII. COMPLIANCE**

**District Rule 2201 New and Modified Stationary Source Review Rule**

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

**1. BACT Applicability**

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

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB288 Major Modification or a Federal Major Modification, as defined by the rule.

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

As discussed in Section I, the facility is proposing modify the existing 8.4 MMBtu/hr boiler to allow full-time use. This project will result in a Federal Major Modification for NOx emissions. Therefore, BACT is triggered for NOx emissions. For all other pollutants, BACT is generally triggered for modified units if the Adjusted Increase in Potential to Emit is greater than 2.0 lb/day; however, in this case the AIPE calculations would equal zero but the unit would be able to operate additional days. Per District Practice, if a unit is able to operate additional days, then BACT is triggered for the unit if the potential to emit on any additional day exceeds 2.0 lb/day. Thus, a 2.0 lb/day threshold will be used to determine whether BACT is triggered for the remaining pollutants.

The daily emissions from the boiler are compared to the BACT threshold levels in the following table:

<b>Emissions Unit BACT Applicability</b>				
<b>Pollutant</b>	<b>Daily Emissions for unit -8-4 (lb/day)</b>	<b>BACT Threshold (lb/day)</b>	<b>SSPE2 (lb/yr)</b>	<b>BACT Triggered?</b>
SO <sub>x</sub>	0.6	> 2.0	n/a	No
PM <sub>10</sub>	1.0	> 2.0	n/a	No
CO	7.5	> 2.0 and SSPE2 ≥ 200,000 lb/yr	121,446	No
VOC	0.2	> 2.0	n/a	No

Thus, BACT is only triggered for NOx by this proposal.

## 2. BACT Guideline

The District adopted District Rule 4320 for boilers on October 16, 2008. The NO<sub>x</sub> emission limit requirements in District Rule 4320 are more stringent than the limits contained within BACT Guideline 1.1.1 for boilers rated 20 MMBtu/hr and below. Therefore, the District rescinded BACT Guideline 1.1.1 and a project-specific BACT analysis is required for boilers.

## 3. Top Down BACT Analysis

Per District Policy APR 1305, Section IX, "A top-down BACT analysis shall be performed as a part of the Application Review for each application subject to the BACT requirements pursuant to the District's NSR Rule for source categories or classes covered in the BACT Clearinghouse, relevant information under each of the following steps may be simply cited from the Clearinghouse without further analysis."

Pursuant to the attached Top-Down BACT Analysis, which appears in Appendix III of this report, BACT is satisfied with:

NO<sub>x</sub>: 9 ppm @ 3% O<sub>2</sub>

## B. Offsets

### 1. Offset Applicability

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

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

<b>Offset Determination (lb/year)</b>					
	<b>NO<sub>x</sub></b>	<b>SO<sub>x</sub></b>	<b>PM10</b>	<b>CO</b>	<b>VOC</b>
SSPE2	33,813	11,925	19,601	121,446	17,569
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	<b>Yes</b>	No	No	No	No

### 2. Quantity of Offsets Required

As seen above, the SSPE2 is greater than the offset threshold for NO<sub>x</sub>; therefore offset calculations will be required for this project.

The quantity of offsets in pounds per year is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated and subject to a specific limiting condition (SLC).

Offsets Required (lb/year) =  $(PE_{2SLC} - BE_{SLC} + ICCE) \times DOR$ , for all new or modified emissions units in the project,

Where,

$PE_{2SLC}$  = Post Project Potential to Emit, (lb/year)

$BE_{SLC}$  = Baseline Emissions, (lb/year)

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

DOR = Distance Offset Ratio

There are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

Offsets Required (lb/year) =  $(PE_{2SLC} - BE_{SLC}) \times DOR$

$PE_{2SLC} = 33,333$  lb-NOx/year

As demonstrated earlier in Baseline Emissions section of this evaluation,

$BE_{SLC} = PE_{1SLC} = 33,333$  lb-NOx/year

Thus,

Offsets Required (lb/year) =  $(33,333$  lb-NOx/year –  $33,333$  lb-NOx/year)  $\times$  DOR

Offsets Required (lb/year) =  $0$  lb-NOx/year

As demonstrated in the calculation above, the quantity of offsets required is zero. Therefore, offsets are not required for this project.

## C. Public Notification

### 1. Applicability

Public noticing is required for:

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

#### a. New Major Source

As demonstrated in section VII.C.5 above, the facility is not becoming a new Major Source as a result of this project.

**b. Major Modification**

As demonstrated in VII.C.7, this project triggers a Federal Major Modification for VOC emissions. Therefore, a public notice is required.

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

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

**d. Offset Threshold**

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

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Offset Threshold Surpassed?
NO <sub>x</sub>	33,813	33,813	20,000 lb/year	No
SO <sub>x</sub>	11,925	11,925	54,750 lb/year	No
PM <sub>10</sub>	19,557	19,601	29,200 lb/year	No
CO	121,841	121,446	200,000 lb/year	No
VOC	17,569	17,569	20,000 lb/year	No

The offset threshold for NO<sub>x</sub> emissions has already been surpassed and this project does not result in any increase in NO<sub>x</sub> emissions from the facility. As demonstrated above, an offset threshold will not be surpassed.

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

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



<b>Stationary Source Increase in Permitted Emissions [SSIFE] – Public Notice</b>					
<b>Pollutant</b>	<b>SSPE2 (lb/year)</b>	<b>SSPE1 (lb/year)</b>	<b>SSIFE (lb/year)</b>	<b>SSIFE Public Notice Threshold</b>	<b>Public Notice Required?</b>
NO <sub>x</sub>	33,813	33,813	0	20,000 lb/year	No
SO <sub>x</sub>	11,925	11,925	0	20,000 lb/year	No
PM <sub>10</sub>	19,601	19,557	44	20,000 lb/year	No
CO	121,446	121,841	< 0	20,000 lb/year	No
VOC	17,569	17,569	0	20,000 lb/year	No

As demonstrated in the above table, a public notice is not required for SSIFE greater than 20,000 lb/year.

## 2. Public Notice Action

As discussed above, public noticing is required for this project for Federal Major Modification for VOC. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB), US Environmental Protection Agency (USEPA), and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

## D. Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.16 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.16.1 and 3.16.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT. The following DELs will be included on the Authority to Construct permit:

- *The boiler shall only be fired on PUC-quality natural gas. [District Rules 2201, 4305, 4306, 4320, and 4351]*
- *The emissions from the boiler shall not exceed any of the following limits when fired on natural gas fuel: 9 ppmvd NO<sub>x</sub> @ 3% O<sub>2</sub> (equivalent to 0.011 lb-NO<sub>x</sub>/MMBtu), 0.00285 lb-SO<sub>x</sub>/MMBtu, 0.005 lb-PM<sub>10</sub>/MMBtu, 50 ppmvd CO @ 3% O<sub>2</sub> (equivalent to 0.037 lb-CO/MMBtu), and 2 ppmvd VOC @ 3% O<sub>2</sub> (equivalent to 0.001 lb-VOC/MMBtu). [District Rules 2201, 4305, 4306, 4320, and 4351]*
- *The combined NO<sub>x</sub> emissions from the boilers operating under permits to operate (PTOs) N-1326-1, -2, -3, -8, -11, -12, and -13 shall not exceed 33,333 pounds per year on a 12-month rolling basis. [District Rule 2201]*

## **E. Compliance Assurance**

### **1. Source Testing**

This boiler is subject to District Rule 4320. Source testing requirements for NO<sub>x</sub> and CO will be discussed in Section VIII, *District Rule 4320*, of this evaluation. In addition to the source testing requirements for NO<sub>x</sub> and CO, the facility has proposed an emission factor for VOC that is less than what is typically proposed. Therefore, source testing for VOC emissions will be required upon startup of the boiler with the new burner to ensure that the unit is complying with the VOC emission limit. The following conditions will be included on the permit:

- *Source testing to measure NO<sub>x</sub>, CO, and VOC emissions from the boiler shall be conducted within 60 days of initial startup. [District Rules 2201, 4305, 4306, 4320, and 4351]*
- *VOC emissions for source test purposes shall be determined using EPA Method 18 or EPA Method 25. [District Rule 2201]*

### **2. Monitoring**

This boiler is subject to the monitoring requirements of District Rule 4320. Therefore, the monitoring requirements will be discussed in Section VIII, *District Rule 4320*, of this evaluation.

### **3. Recordkeeping**

This boiler is subject to the recordkeeping requirements of District Rule 4320. Therefore, the recordkeeping requirements will be discussed in Section VIII, *District Rule 4320*, of this evaluation. Additionally, records of the combined NO<sub>x</sub> emissions for the boilers are required. Thus, the following condition will be included on the Authority to Construct permit:

- *Records of the cumulative NO<sub>x</sub> emissions determined on a 12-month rolling basis from the boilers operating under PTOs N-1326-1, -2, -3, -8, -11, -12, and -13 shall be updated daily. [District Rule 2201]*

### **4. Reporting**

No reporting is required to demonstrate compliance with Rule 2201.

## **F. Ambient Air Quality Analysis**

An ambient air quality analysis was performed to determine whether the increase in emissions would cause or contribute to a violation of an Ambient Air Quality Standard. The results of the Ambient Air Quality Analysis modeling are summarized in the following table. For full results, see Appendix VI.

### Criteria Pollutant Modeling Results

NG-Fired Boiler	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO <sub>x</sub>	Pass	X	X	X	Pass
SO <sub>x</sub>	Pass	Pass	X	Pass	Pass
PM <sub>10</sub>	X	X	X	Pass <sup>2</sup>	Pass <sup>2</sup>
PM <sub>2.5</sub>	X	X	X	Pass <sup>2</sup>	Pass <sup>2</sup>

1. The project was compared to the 1-hour NO<sub>2</sub> National Ambient Air Quality Standard that became effective on April 2, 2010 using the District's approved procedures.
2. The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165(b)(2).

### G. Alternate Siting Analysis

Alternative siting analysis is required for any project, which constitutes a New Major Source or a Federal Major Modification. This project will take place at an existing processing facility that requires steam. Therefore, the boiler that will be modified in this project must be sited at the same location as the processing equipment.

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

### District Rule 2410 Prevention of Significant Deterioration

As stated earlier in this evaluation, this project is not subject to the requirements of District Rule 2410. No further discussion is required.

### District Rule 2520 Federally Mandated Operating Permits

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

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

As discussed above, the facility has applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected.

## **District Rule 4001 New Source Performance Standards**

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

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60. 40 CFR Part 60, Subpart Dc applies to Small Industrial-Commercial-Industrial Steam Generators between 10 MMBtu/hr and 100 MMBtu/hr (post-6/9/89 construction, modification or, reconstruction). Subpart Dc has standards for SO<sub>x</sub> and PM<sub>10</sub>. The 8.4 MMBtu/hr boiler is not subject to Subpart Dc requirements as the heat input rating is less than 10 MMBtu/hr.

## **District Rule 4002 National Emission Standards for Hazardous Air Pollutants**

### **40 CFR Part 63 Subpart DDDDD National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters**

This subpart is applicable to boilers and process heaters located at Major Sources of HAP emissions. As demonstrated in Appendix V of this document, this facility is an Area Source of HAP emissions. Therefore the requirements of Subpart DDDDD are not applicable to the proposed boiler.

### **40 CFR Part 63 Subpart JJJJJJ National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources**

Pursuant to Section 63.1195(e) a gas-fired boiler, as defined in Subpart JJJJJ, is not subject to any requirement of this Subpart. Pursuant to the definition in the subpart, a gas-fired boiler includes any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or period testing on liquid fuel. The proposed boiler meets the definition of a gas-fired boiler as it is only fired on natural gas fuel. Therefore, Subpart JJJJJJ requirements are not applicable.

## **District Rule 4101 Visible Emissions**

District Rule 4101, Section 5.0, indicates that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour, which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.

The following condition will be included in the Authority to Construct permit:

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

**District Rule 4102 Nuisance**

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

The following condition will be included in the Authority to Construct permit:

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

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

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

The results of the risk management review modeling are summarized in the following table. For full results, please see Appendix VI.

<b>RMR Summary</b>			
<b>Categories</b>	<b>NG Boiler (Unit 13-2)</b>	<b>Project Totals</b>	<b>Facility Totals</b>
<b>Prioritization Score</b>	0.00	0.00	> 1
<b>Acute Hazard Index</b>	0.00	0.00	0.00
<b>Chronic Hazard Index</b>	0.00	0.00	0.00
<b>Maximum Individual Cancer Risk</b>	3.33E-09	3.33E-09	5.32E-08
<b>T-BACT Required?</b>	No		
<b>Special Permit Conditions?</b>	Yes		

The following special condition will be included on the Authority to Construct permit:

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

### District Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.

F-Factor for Natural Gas: 8,578 dscf/MMBtu at 60 °F  
 Maximum PM<sub>10</sub> Emission Factor: 0.005 lb-PM<sub>10</sub>/MMBtu  
 Percentage of PM as PM<sub>10</sub> in Exhaust: 100%

$$GL = \left( \frac{0.005 \text{ lb-PM}}{\text{MMBtu}} \times \frac{7,000 \text{ grain}}{\text{lb-PM}} \right) / \left( \frac{8,578 \text{ ft}^3}{\text{MMBtu}} \right) = 0.004 \text{ grains/dscf}$$

Therefore, compliance is expected. The following condition will be included on the Authority to Construct permit:

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

### District Rule 4301 Fuel Burning Equipment

This rule specifies maximum emission rates in lb/hr for SO<sub>2</sub>, NO<sub>2</sub>, and combustion contaminants (defined as total PM in Rule 1020). This rule also limits combustion contaminants to ≤ 0.1 gr/scf. According to AP 42 (Table 1.4-2, footnote c), all PM emissions from natural gas combustion are less than 1 μm in diameter. As shown below, emission rates for the boiler are below the Rule 4301 limits.

District Rule 4301 Limits			
Unit	NO <sub>2</sub>	Total PM	SO <sub>2</sub>
N-1326-13-2	0.09 lb/hr	0.04 lb/hr	0.03 lb/hr
<b>Rule 4301 Limit</b>	<b>140 lb/hr</b>	<b>10 lb/hr</b>	<b>200 lb/hr</b>

As shown in the previous table, compliance with this rule is expected.

### District Rule 4304 Equipment Tuning Procedure for Boilers, Steam Generators and Process Heaters

This rule includes tune-up requirements for boilers and applies to this unit. The following condition will be included on the Authority to Construct permit:

- *When the 36-month source testing frequency is in effect for the boiler, the owner/operator shall tune the boiler at least twice each calendar year. The boiler tuning shall be performed within four to eight months of the previous bi-annual tuning date. All equipment tuning shall be performed by a technician that is qualified, to the satisfaction of the APCO. Tuning shall be conducted in accordance with the procedure described in Rule 4304 (Equipment Tuning Procedure for Boilers, Steam Generators, and Process Heaters). Permittee shall keep records of each calendar date that the boiler equipment tuning is performed. [District Rules 2201, 4304, 4306, 4320, and 4351]*

**District Rule 4305 Boilers, Steam Generators, and Process Heaters – Phase II**

This boiler is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters – Phase 2*. In addition, the boiler is also subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3* and District Rule 4320, *Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr*.

Since emissions limits of District Rule 4320 and all other requirements are equivalent or more stringent than District Rule 4305 requirements, compliance with District Rule 4320 requirements will satisfy the requirements of District Rule 4305.

**District Rule 4306 Boilers, Steam Generators, and Process Heaters – Phase III**

This boiler is subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3*. In addition, the boiler is also subject to *District Rule 4320, Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr*.

Since emissions limits of District Rule 4320 and all other requirements are equivalent or more stringent than District Rule 4306 requirements, compliance with District Rule 4320 requirements will satisfy the requirements of District Rule 4306.

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

This boiler is subject to District Rule 4320 requirements pursuant to Section 2.0 of District Rule 4320.

Section 5.2, NO<sub>x</sub> and CO Emissions Limits

Section 5.2 requires NO<sub>x</sub> and carbon monoxide (CO) emissions shall not exceed the limits specified in the following table. All ppmv emission limits specified in this section are referenced at dry stack gas conditions and 3.00 percent by volume stack gas oxygen.

This boiler is rated 8.4 MMBtu/hr; thus, the applicable emission limit category is Section 5.2, Table 1, Category A, from District Rule 4320.

Rule 4320 Emissions Limits		
Category	Operated on gaseous fuel	
	NO <sub>x</sub> Limit	CO Limit
A. Units with a total rated heat input > 5.0 MMBtu/hr to < 20.0 MMBtu/hr, except for Categories C through G units	9 ppmv or 0.011 lb/MMBtu	400 ppmv

This boiler will be limited to 9 ppmvd NO<sub>x</sub> and 50 ppmvd CO, both corrected to 3% O<sub>2</sub>. Thus, compliance with the District Rule 4320 NO<sub>x</sub> and CO emission limits is expected.

### Section 5.3, Annual Fee Calculation

Annual Fees are required if an emissions unit will not be meeting the emission limits in Section 5.2 of this rule. Since the proposed boiler will meet the emission limits of Section 5.2, the annual fee requirements are not applicable.

### Section 5.4, Particulate Matter Control Requirements

Section 5.4.1 of this rule requires the operator to comply with one of the following requirements:

1. Fire the boiler exclusively on PUC-quality natural gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases;
2. Limit fuel sulfur content to no more than five grains of total sulfur per one hundred (100) standard cubic feet;
3. Install and properly operate an emission control system that reduces SO<sub>2</sub> emissions by at least 95% by weight; or limit exhaust SO<sub>2</sub> to less than or equal to 9 ppmv corrected to 3.0% O<sub>2</sub>;

The following condition will be included on the Authority to Construct permit:

- *The boiler shall only be fired on PUC-quality natural gas. [District Rules 2201, 4305, 4306, 4320, and 4351]*

### Section 5.5, Low Use

This boiler's annual heat input will exceed the 1.8 billion Btu heat input per calendar year criteria limit addressed by this section. Thus, the requirements of Section 5.5 are not applicable.

### Section 5.6, Startup and Shutdown Provisions

Section 5.6 states that on and after the full compliance deadline in Section 5.0, the applicable emission limits of Sections 5.2 Table 1 and 5.5.2 shall not apply during startup or shutdown provided an operator complies with the requirements specified in Sections 5.6.1 through 5.6.5.

The facility has not requested that startup and shutdown provisions be included on the permit.

### Section 5.7, Monitoring Provisions

Section 5.7.1 requires that permit units subject to District Rule 4320, Section 5.2 emissions limits shall either install and maintain Continuous Emission Monitoring (CEM) equipment for NO<sub>x</sub>, CO and O<sub>2</sub>, or install and maintain APCO-approved alternate monitoring.

The facility has proposed to monitor the FGR settings to comply with this requirement. The following conditions will be included on the Authority to Construct permit:



- *{4080} The flue gas recirculation valve(s) setting shall be monitored at least on a weekly basis. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last week. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4305, 4306, 4320, and 4351]*
- *{4081} The acceptable settings for the flue gas recirculation valve(s) shall be established by source testing this unit or other representative units per Rules 4305 and 4306 and as approved by the District. The normal range/level shall be that for which compliance with applicable NOx and CO emissions rates have been demonstrated through source testing at a similar firing rate. [District Rules 4305, 4306, 4320, and 4351]*
- *{4082} Normal range or level for the flue gas recirculation valve(s) settings shall be re-established during each source test required by this permit. [District Rules 4305, 4306, 4320, and 4351]*
- *{4083} If the flue gas recirculation valve(s) setting is less than the normal range/level, the permittee shall return the flue gas recirculation valve(s) setting to the normal range/level as soon as possible, but no longer than 1 hour of operation after detection. If the flue gas recirculation valve(s) setting is not returned to the normal range/level within 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour, and conduct a source test within 60 days of the first exceedance, to demonstrate compliance with the applicable emission limits at the new flue gas recirculation valve(s) setting. A District-approved portable analyzer may be used in lieu of a source test to demonstrate compliance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305, 4306, 4320, and 4351]*
- *{4084} The permittee shall maintain records of the date and time of flue gas recirculation valve(s) settings, the observed setting, and the firing rate at the time of the flue gas recirculation valve(s) setting measurements. The records must also include a description of any corrective action taken to maintain the flue gas recirculation valve(s) setting within the acceptable range. [District Rules 4305, 4306, 4320 and 4351]*

Section 5.7.6 includes monitoring requirements for SOx emissions and requires an annual fuel analysis to demonstrate that the fuel is indeed PUC-quality natural gas. The following condition will be included on the Authority to Construct permit:

- *Permittee shall determine the natural gas fuel sulfur content annually or shall demonstrate that the combusted gas is provided from a PUC or FERC regulated source. [District Rules 1081 and 4320]*

### Section 6.1, Recordkeeping

Section 6.1 requires that the records required by Sections 6.1.1 through 6.1.5 shall be maintained for five calendar years and shall be made available to the APCO upon request. Failure to maintain records or information contained in the records that demonstrate non-compliance with the applicable requirements of this rule shall constitute a violation of this rule.

The following condition will be included on the Authority to Construct permit:

- *All records shall be maintained and retained on-site for a minimum of five years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, 4320, and 4351]*

Section 6.1.2 requires that the operator of a unit subject to Section 5.5 shall record the amount of fuel use at least on a monthly basis. This boiler is not subject to the requirements listed in Section 5.5, Section 6.1.2 requirements are not applicable.

Section 6.1.3 requires that the operator of a unit subject to Section 5.5.1 or 6.3.1 shall maintain records to verify that the required tune-up and the required monitoring of the operational characteristics have been performed. This boiler is not subject to Sections 5.5.1 or 6.3.1. Therefore, the requirements of this section do not apply. The following condition will be included on the Authority to Construct permit:

- *When the 36-month source testing frequency is in effect for the boiler, the owner/operator shall tune the boiler at least twice each calendar year. The boiler tuning shall be performed within four to eight months of the previous bi-annual tuning date. All equipment tuning shall be performed by a technician that is qualified, to the satisfaction of the APCO. Tuning shall be conducted in accordance with the procedure described in Rule 4304 (Equipment Tuning Procedure for Boilers, Steam Generators, and Process Heaters). Permittee shall keep records of each calendar date that the boiler equipment tuning is performed. [District Rules 2201, 4304, 4306, and 4320]*

Section 6.1.4 requires that the operator of a unit with startup or shutdown provisions keep records of the duration of the startup or shutdowns. This boiler is not subject to the startup or shutdown provisions; therefore, the requirements of this section do not apply.

Section 6.1.5 requires that the operator of a unit fired on liquid fuel during PUC-quality natural gas curtailment periods record the sulfur content of the fuel, amount of fuel used, and duration of the natural gas curtailment period. This applicant has not proposed the use of a curtailment fuel; therefore, the requirements of this section do not apply.

### Section 6.2, Test Methods

Section 6.2 identifies the following test methods as District-approved source testing methods for the pollutants listed:

Pollutant	Units	Test Method Required
NO <sub>x</sub>	ppmv	EPA Method 7E or ARB Method 100
NO <sub>x</sub>	lb/MMBtu	EPA Method 19
CO	ppmv	EPA Method 10 or ARB Method 100
Stack Gas O <sub>2</sub>	%	EPA Method 3 or 3A, or ARB Method 100
Stack Gas Velocities	ft/min	EPA Method 2 or 19
Stack Gas Moisture Content	%	EPA Method 4

The following permit conditions will be listed on the Authority to Construct:

- *Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]*
- *NO<sub>x</sub> emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, 4320, and 4351]*
- *CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, 4320, and 4351]*
- *Stack gas oxygen (O<sub>2</sub>) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, 4320, and 4351]*
- *Stack gas velocities shall be determined using EPA Method 2 or 19. [District Rules 4305, 4306, 4320, and 4351]*
- *Stack gas moisture content shall be determined using EPA Method 4. [District Rules 4305, 4306, 4320, and 4351]*

### Section 6.3. Compliance Testing

Section 6.3.1 requires that this unit be tested to determine compliance with the applicable requirements of section 5.2 not less than once every 12 months. Upon demonstrating compliance on two consecutive compliance source tests, the source test may be deferred for up to thirty-six months. Additionally, initial testing is required. The following conditions will be included on the Authority to Construct permit:

- *Source testing to measure NOx and CO emissions from the boiler shall be conducted at least once every 12 months. After demonstrating compliance on two consecutive annual source tests, the unit shall be tested not less than once every 36 months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every 12 months. [District Rules 2201, 4305, 4306, 4320, and 4351]*
- *Source testing to measure NOx, CO, and VOC emissions from the boiler shall be conducted within 60 days of initial startup. [District Rules 2201, 4305, 4306, 4320, and 4351]*

### Conclusion

Compliance with District Rule 4320 requirements is expected.

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

This boiler is subject to District Rule 4351, *Boilers, Steam Generators and Process Heaters – Phase 1*. In addition, the boiler is also subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3 and District Rule 4320, Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr*.

Since emissions limits of District Rule 4320 and all other requirements are equivalent or more stringent than District Rule 4351 requirements, compliance with District Rule 4320 requirements will satisfy the requirements of District Rule 4351.

### **District Rule 4801 Sulfur Compounds**

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

Using the ideal gas equation and the emission factors presented in Section VII, the sulfur compound emissions are calculated as follows:

$$\text{Volume SO}_2 = \frac{n RT}{P}$$

N = moles SO<sub>2</sub>

T (Standard Temperature) = 60°F = 520°R

P (Standard Pressure) = 14.7 psi

R (Universal Gas Constant) =  $\frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot \text{°R}}$

Natural Gas Combustion:

EPA F-Factor for Natural Gas: 8,710 dscf/MMBtu at 68 °F, equivalent to

$$\text{Corrected } F - \text{ factor} = \left( \frac{8,710 \text{ dscf}}{\text{MMBtu}} \right) \times \left( \frac{60^\circ F + 459.6}{68^\circ F + 459.6} \right) = 8,578 \frac{\text{dscf}}{\text{MMBtu}} \text{ at } 60^\circ F$$

$$\frac{0.00285 \text{ lb} - \text{SO}_x}{\text{MMBtu}} \times \frac{\text{MMBtu}}{8,578 \text{ dscf}} \times \frac{1 \text{ lb} \cdot \text{mol}}{64 \text{ lb}} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ R} \times \frac{520^\circ R}{14.7 \text{ psi}} \times \frac{1,000,000 \cdot \text{parts}}{\text{million}} = 1.97 \frac{\text{parts}}{\text{million}}$$

$$\text{Sulfur Concentration} = 1.97 \frac{\text{parts}}{\text{million}} < 2,000 \text{ ppmv (or 0.2\%)}$$

Therefore, compliance with District Rule 4801 requirements is expected.

**California Environmental Quality Act (CEQA)**

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

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

**Greenhouse Gas (GHG) Significance Determination**

It is determined that no other agency has or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project.

Project specific impacts on global climate change were evaluated consistent with the adopted District policy – *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. Emissions from the proposed operation are greater than 230 metric tons of CO<sub>2</sub> equivalent per year. The only greenhouse gas emission unit is the proposed boiler.

Per the District's Draft Policy titled CEQA Determinations of Significance for Projects Subject to ARB's GHG Cap-and-Trade Regulation (September 30, 2013), all increases in GHG emissions caused by the use of transportation fuels, natural gas and other fuels (except jet fuel) are considered mitigated by the fuel supplier and are not significant under CEQA. The unit currently under consideration will fire solely on natural gas, therefore, its GHG emission increases are not significant under CEQA.

**District CEQA Findings**

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

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

This boiler is not located within 1000' of a k-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

**IX. RECOMMENDATION**

Compliance with all applicable rules and regulations is expected. Issue Authority to Construct permit N-1326-13-2 subject to the permit conditions on the attached draft Authority to Construct permit in Appendix I.

**X. BILLING INFORMATION**

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Previous Fee Schedule
N-1326-13-2	3020-02-G	8.4 MMBtu/hr	3020-02-G

**APPENDICES**

- Appendix I: Draft Authority to Construct Permit N-1326-13-2
- Appendix II: Current Permit to Operate N-1326-13-1
- Appendix III: Top-Down BACT Analysis for unit N-1326-13-2
- Appendix IV: SSPE Calculations
- Appendix V: HAP Emission Calculations
- Appendix VI: Risk Management Review and Ambient Air Quality Analysis Results
- Appendix VII: QNEC Calculations

## **APPENDIX I**

**Draft Authority to Construct Permit N-1326-13-2**

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: N-1326-13-2

LEGAL OWNER OR OPERATOR: MORNING STAR PACKING COMPANY

MAILING ADDRESS: 13448 S VOLTA RD  
LOS BANOS, CA 93635

LOCATION: 13448 S VOLTA RD  
LOS BANOS, CA 93635

**EQUIPMENT DESCRIPTION:**

MODIFICATION OF 8.4 MMBTU/HR HURST MODEL #SA-G-200-200 NATURAL GAS-FIRED BOILER WITH AN INDUSTRIAL COMBUSTION MODEL #LNDG-1455-20 LOW NOX BURNER WITH FLUE GAS RECIRCULATION (FGR); MODIFICATION TO REPLACE THE EXISTING BURNER WITH A WEBSTER HDRMB ULTRA-LOW NOX BURNER AND TO REMOVE THE 9 BILLION BTU/YEAR FUEL USAGE RESTRICTION FROM THE PERMIT SUCH THAT THE BOILER MAY OPERATE FULL-TIME

**CONDITIONS**

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
4. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
6. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCCO

**DRAFT**

DAVID WARNER, Director of Permit Services

N-1326-13-2 - Mar 19 2014 2:11PM - HARADERJ - Joint Inspection NOT Required



7. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101] Federally Enforceable Through Title V Permit
8. The boiler shall only be fired on PUC-quality natural gas. [District Rules 2201, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
9. The emissions from the boiler shall not exceed any of the following limits when fired on natural gas fuel: 9 ppmvd NO<sub>x</sub> @ 3% O<sub>2</sub> (equivalent to 0.011 lb-NO<sub>x</sub>/MMBtu), 0.00285 lb-SO<sub>x</sub>/MMBtu, 0.005 lb-PM<sub>10</sub>/MMBtu, 50 ppmvd CO @ 3% O<sub>2</sub> (equivalent to 0.037 lb-CO/MMBtu), and 2 ppmvd VOC @ 3% O<sub>2</sub> (equivalent to 0.001 lb-VOC/MMBtu). [District Rules 2201, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
10. The combined NO<sub>x</sub> emissions from the boilers operating under permits to operate (PTOs) N-1326-1, -2, -3, -8, -11, -12, and -13 shall not exceed 33,333 pounds per year on a 12-month rolling basis. [District Rule 2201] Federally Enforceable Through Title V Permit
11. Source testing to measure NO<sub>x</sub>, CO, and VOC emissions from the boiler shall be conducted within 60 days of initial startup. [District Rules 2201, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
12. Source testing to measure NO<sub>x</sub> and CO emissions from the boiler shall be conducted at least once every 12 months. After demonstrating compliance on two consecutive annual source tests, the unit shall be tested not less than once every 36 months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every 12 months. [District Rules 2201, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
13. NO<sub>x</sub> emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
14. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
15. VOC emissions for source test purposes shall be determined using EPA Method 18 or EPA Method 25. [District Rule 2201] Federally Enforceable Through Title V Permit
16. Stack gas oxygen (O<sub>2</sub>) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
17. Stack gas velocities shall be determined using EPA Method 2 or 19. [District Rules 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
18. Stack gas moisture content shall be determined using EPA Method 4. [District Rules 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
19. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
20. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
21. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
22. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
23. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit

DRAFT  
CONDITIONS CONTINUE ON NEXT PAGE

24. The flue gas recirculation valve(s) setting shall be monitored at least on a weekly basis. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last week. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
25. The acceptable settings for the flue gas recirculation valve(s) shall be established by source testing this unit or other representative units per Rules 4305 and 4306 and as approved by the District. The normal range/level shall be that for which compliance with applicable NOx and CO emissions rates have been demonstrated through source testing at a similar firing rate. [District Rules 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
26. Normal range or level for the flue gas recirculation valve(s) settings shall be re-established during each source test required by this permit. [District Rules 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
27. If the flue gas recirculation valve(s) setting is less than the normal range/level, the permittee shall return the flue gas recirculation valve(s) setting to the normal range/level as soon as possible, but no longer than 1 hour of operation after detection. If the flue gas recirculation valve(s) setting is not returned to the normal range/level within 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour, and conduct a source test within 60 days of the first exceedance, to demonstrate compliance with the applicable emission limits at the new flue gas recirculation valve(s) setting. A District-approved portable analyzer may be used in lieu of a source test to demonstrate compliance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
28. The permittee shall maintain records of the date and time of flue gas recirculation valve(s) settings, the observed setting, and the firing rate at the time of the flue gas recirculation valve(s) setting measurements. The records must also include a description of any corrective action taken to maintain the flue gas recirculation valve(s) setting within the acceptable range. [District Rules 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
29. When the 36-month source testing frequency is in effect for the boiler, the owner/operator shall tune the boiler at least twice each calendar year. The boiler tuning shall be performed within four to eight months of the previous bi-annual tuning date. All equipment tuning shall be performed by a technician that is qualified, to the satisfaction of the APCO. Tuning shall be conducted in accordance with the procedure described in Rule 4304 (Equipment Tuning Procedure for Boilers, Steam Generators, and Process Heaters). Permittee shall keep records of each calendar date that the boiler equipment tuning is performed. [District Rules 2201, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
30. Permittee shall determine the natural gas fuel sulfur content annually or shall demonstrate that the combusted gas is provided from a PUC or FERC regulated source. [District Rules 1081 and 4320] Federally Enforceable Through Title V Permit
31. Records of the cumulative NOx emissions determined on a 12-month rolling basis from the boilers operating under PTOs N-1326-1, -2, -3, -8, -11, -12, and -13 shall be updated daily. [District Rule 2201] Federally Enforceable Through Title V Permit
32. All records shall be maintained and retained on-site for a minimum of five years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit

DRAFT

## **APPENDIX II**

**Current Permit to Operate N-1326-13-1**

# San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-1326-13-1

EXPIRATION DATE: 09/30/2017

## EQUIPMENT DESCRIPTION:

8.4 MMBTU/HR HURST MODEL #SA-G-200-200 NATURAL GAS-FIRED BOILER WITH AN INDUSTRIAL COMBUSTION MODEL #LNDG-1455-20 LOW NOX BURNER WITH FLUE GAS RECIRCULATION (FGR)

## PERMIT UNIT REQUIREMENTS

---

1. The combined NOx emissions from the boilers operating under permits to operate (PTOs) N-1326-1, -2, -3, -8, -11, -12, and -13 shall not exceed 33,333 pounds per year on a 12-month rolling basis. [District Rule 2201] Federally Enforceable Through Title V Permit
2. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
3. The unit shall only be fired on PUC-regulated natural gas. [District Rule 2201 and 4320] Federally Enforceable Through Title V Permit
4. Maximum annual heat input of the unit shall be less than 9 billion Btu per calendar year. [District Rules 2201, 4305, and 4306] Federally Enforceable Through Title V Permit
5. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of natural gas combusted in this unit shall be utilized and maintained. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Owner/operator shall have unit tuned at least twice each calendar year, from four to eight months apart, in which it operates, by a technician that is qualified, to the satisfaction of the APCO, in accordance with the procedure described in Rule 4304 (Equipment Tuning Procedure for Boilers, Steam Generators, and Process Heaters). [District Rule 4306] Federally Enforceable Through Title V Permit
7. If the unit does not operate throughout a continuous six-month period within a calendar year, only one tune-up is required for that calendar year. No tune-up is required for any unit that is not operated during that calendar year; this unit may be test fired to verify availability of the unit for its intended use, but once the test firing is completed the unit shall be shutdown. [District Rule 4306] Federally Enforceable Through Title V Permit
8. Emissions rates from the natural gas-fired unit shall not exceed any of the following limits: 20 ppmv NOx @ 3% O2 or 0.024 lb-NOx/MMBtu, 0.00285 lb-SOx/MMBtu, 0.005 lb-PM10/MMBtu, 100 ppmv CO @ 3% O2 or 0.0739 lb-CO/MMBtu, or 2 ppmv VOC @ 3% O2 or 0.001 lb-VOC/MMBtu. [District Rules 2201, 4305, and 4306] Federally Enforceable Through Title V Permit
9. Records of monthly and annual heat input of the unit shall be maintained. [District Rules 2201, 4305, and 4306] Federally Enforceable Through Title V Permit
10. Records of the daily fuel usage by this boiler shall be maintained on the premises at all times. [District Rule 2201] Federally Enforceable Through Title V Permit
11. Records of tune-up and monitoring of the operational characteristics of the unit shall be maintained. [District Rules 4305 and 4306] Federally Enforceable Through Title V Permit
12. Records of the cumulative NOx emissions determined on a 12-month rolling basis from the boilers operating under PTOs N-1326-1, -2, -3, -8, -11, -12, and -13 shall be updated daily. [District Rule 2201] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

13. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 2201, 4305, and 4306] Federally Enforceable Through Title V Permit
14. Pursuant to Rule 4320, beginning in 2010 the operator shall pay an annual emission fee to the District for NOx emissions from this unit for the previous calendar year. Payments are due by July 1 of each year. Payments shall continue annually until either the unit is permanently removed from service in the District or the operator demonstrates compliance with the applicable NOx emission limit listed in Rule 4320. [District Rule 4320] Federally Enforceable Through Title V Permit
15. Permittee shall maintain records of annual heat input (MMBtu) for this unit on a calendar year basis. Such records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070 and Rule 4320] Federally Enforceable Through Title V Permit

These terms and conditions are part of the Facility-wide Permit to Operate.

## **APPENDIX III**

### **Top-Down BACT Analysis for N-1326-13-2**

## Top Down BACT Analysis for Boiler N-1326-13-2

### I. BACT Analysis for Boiler N-1326-13-2:

BACT is required for NOx emissions.

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

The following control technologies have been identified in Rule 4320:

Pollutant	Achieved In Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
NOx	9.0 ppmvd @ 3% O <sub>2</sub> (0.011 lb/MMBtu)	6.0 ppmvd @ 3% O <sub>2</sub> (0.007 lb/MMBtu)	

#### b. Step 2 - Eliminate Technologically Infeasible Options

There are no infeasible options for NOx.

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

NOx Emissions:

Rank	Control Technology	Achieved in Practice
1	6.0 ppmvd @ 3% O <sub>2</sub> (0.007 lb/MMBtu)	N
2	9.0 ppmvd @ 3% O <sub>2</sub> (0.008 lb/MMBtu)	Y

#### d. Step 4 - Cost Effectiveness Analysis

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

The applicant is not proposing the technologically feasible option of 6 ppmvd NOx @ 3% O<sub>2</sub>. Therefore, a cost analysis must be conducted to determine the cost effectiveness of the 6 ppmvd NOx @ 3% O<sub>2</sub> BACT option.

##### 1. Cost Effective Analysis for 5 ppmvd NOx @ 3% O<sub>2</sub>

NOx emissions of 6 ppmvd NOx @ 3% O<sub>2</sub> are typically achieved in this size of a boiler equipped using a Selective Catalytic Reduction system (SCR). 9 ppmvd NOx @ 3% O<sub>2</sub> is equivalent to the District Rule 4320 NOx requirement and a 9 ppmvd boiler without SCR will be considered to be the industry standard emission rate for a typical boiler.

Capital Cost for a 6 ppmvd NOx SCR System

The District recently collected a capital cost quote of \$283,259.50 for an SCR system controlling a 10.0 MMBtu/hr boiler (quote attached at end of this appendix). This cost will be used to determine the cost effectiveness of an SCR system.

Annualized Capital Cost of 6 ppmvd NOx SCR System

Per District BACT Policy, an equivalent annual capital cost is calculated assuming 10 year equipment life and a 10% interest rate. The following formula is used to calculate the equivalent annual cost:

$$A = P \frac{i(1+i)^n}{(1+i)^n - 1}$$

Where,

- A = Equivalent Annual Control Equipment Capital Cost
- B = Present Value of the control equipment
- i = Interest rate (District typically assumes 10%)
- n = Equipment life (District typically assumes 10 years)

$$B = \$283,259.50$$

The equivalent annual control equipment capital cost is:

$$A = \$283,259.50 \frac{0.1(1+0.1)^{10}}{(1+0.1)^{10} - 1} = \$46,099/\text{year}$$

Emission Reductions Achievable if using a 6 ppmvd NOx SCR System

Annual industry standard NOx emissions will be calculated assuming an 8,760 hour/year operating schedule, a 8.4 MMBtu/hr burner rating, and an emissions factor of 0.011 lb-NOx/MMBtu. Using these values, the annual industry standard emissions are:

$$\begin{aligned} PE_{\text{annual, industry standard NOx}} &= 8.4 \text{ MMBtu/hr} \times 8760 \text{ hr/yr} \times 0.011 \text{ lb/MMBtu} \\ PE_{\text{annual, industry standard NOx}} &= 809 \text{ lb-NOx/year} \end{aligned}$$

The technologically feasible BACT emissions level is 6 ppmvd @ 3% O<sub>2</sub> (0.007 lb/MMBtu). The annual NOx emissions at this emissions level would be:

$$\begin{aligned} PE_{\text{annual, 6 ppmvd NOx}} &= 8.4 \text{ MMBtu/hr} \times 8760 \text{ hr/year} \times 0.007 \text{ lb/MMBtu} \\ PE_{\text{annual, 6 ppmvd NOx}} &= 515 \text{ lb-NOx/year} \end{aligned}$$



The emission reduction that can be achieved if using the technologically feasible control system, compared to industry standard, is:

$$\begin{aligned} \text{Emission Reduction} &= PE_{\text{annual, industry standard NOx}} - PE_{\text{annual, 6 ppmvd NOx}} \\ \text{Emission Reduction} &= 809 \text{ lb-NOx/year} - 515 \text{ lb-NOx/year} \\ \text{Emission Reduction} &= 294 \text{ lb-NOx/year (0.15 tons-NOx/year)} \end{aligned}$$

Cost per Ton of Emission Reductions for a 6 ppmvd NOx SCR System

The cost per ton of emission reductions is:

$$\begin{aligned} \$/\text{ton} &= \$46,099/\text{year} \div 0.15 \text{ tons-NOx/year} \\ \$/\text{ton} &= \$307,326/\text{ton-NOx} \end{aligned}$$

Since the cost/ton of NOx reduced for the technologically feasible control option is greater than the NOx cost effectiveness threshold of \$24,500/ton, the use of an SCR system to achieve 6 ppmvd NOx is not considered to be cost effective and will not be required.

**e. Step 5 - Select BACT**

BACT for NOx is 9 ppmvd NOx @ 3% O<sub>2</sub> (0.011 lb-NOx/MMBtu). The applicant has proposed a system that meets 9 ppmvd NOx @ 3% O<sub>2</sub>; therefore, BACT requirements for NOx are satisfied.

**APPENDIX IV**  
**SSPE Calculations**

**N-1326-1-8: 130 MMBTU/HR NEBRASKA MODEL #NSF-81 NATURAL GAS-FIRED BOILER WITH A TODD/RADIAN MODEL #D-RMB128 BURNER AND A FLUE GAS RECIRCULATION SYSTEM**

Emission factors for the full-time boiler were obtained from the current Permit to Operate. The GHG emission factor is taken from the ARB emission factors for natural gas. The following formula will be used to calculate the annual emissions:

$$PE = 130 \text{ MMBtu/hr} \times 8760 \text{ hr/year} \times EF \text{ (lb/MMBtu)}$$

Pollutant	EF (lb/MMBtu)	PE (lb/year)
NOx	0.008	9,110
SOx	0.00285	3,246
PM10	0.0033	3,758
CO	0.0291	33,139
VOC	0.0042	4,783
CO <sub>2</sub> e	116.6	132,784,080

**N-1326-2-9: 120 MMBTU/HR NEBRASKA MODEL #NS-F-81-ECON NATURAL GAS-FIRED BOILER WITH A TODD/RADIAN CORPORATION MODEL #D-RMB ULTRA LOW NOX BURNER WITH AN INDUCED FLUE GAS RECIRCULATION SYSTEM**

Emission factors for the full-time boiler were obtained from the current Permit to Operate. The following formula will be used to calculate the annual emissions:

$$PE = 120 \text{ MMBtu/hr} \times 8760 \text{ hr/year} \times EF \text{ (lb/MMBtu)}$$

Pollutant	EF (lb/MMBtu)	PE (lb/year)
NOx	0.008	8,410
SOx	0.00285	2,996
PM10	0.0052	5,466
CO	0.0291	30,590
VOC	0.0042	4,415
CO <sub>2</sub> e	116.6	122,569,920

**N-1326-3-10: 120 MMBTU/HR NEBRASKA MODEL #NS-F-81-ECON NATURAL GAS-FIRED BOILER WITH A TODD/RADIAN CORPORATION MODEL #D-RMB ULTRA LOW NOX BURNER WITH AN INDUCED FLUE GAS RECIRCULATION SYSTEM**

Emission factors for the full-time boiler were obtained from the current Permit to Operate. The following formula will be used to calculate the annual emissions:

$$PE = 120 \text{ MMBtu/hr} \times 8760 \text{ hr/year} \times EF \text{ (lb/MMBtu)}$$

Pollutant	EF (lb/MMBtu)	PE (lb/year)
NOx	0.008	8,410
SOx	0.00285	2,996
PM10	0.0052	5,466
CO	0.0291	30,590
VOC	0.0042	4,415
CO <sub>2</sub> e	116.6	122,569,920

N-1326-8-5: 205 MMBTU/HR NEBRASKA MODEL #N2S-7/S-95-ECON NATURAL GAS-FIRED BOILER WITH A TODD/RADIAN CORPORATION MODEL #D-RMB ULTRA LOW NOX BURNER

Emission factors for the full-time boiler were obtained from the current Permit to Operate. The following formula will be used to calculate the annual emissions:

$$PE = 205 \text{ MMBtu/hr} \times 8760 \text{ hr/year} \times EF \text{ (lb/MMBtu)}$$

Pollutant	EF (lb/MMBtu)	PE (lb/year)
NOx	0.008	14,366
SOx	0.00285	5,118
PM10	0.0033	5,926
CO	0.0291	52,258
VOC	0.0042	7,542
CO <sub>2</sub> e	116.6	209,390,280

N-1326-11-3: 90 MMBTU/HR NEBRASKA MODEL #NS-E-59 NATURAL GAS-FIRED BOILER WITH A TODD/RADIAN CORPORATION MODEL #D-RMB RAPID MIX ULTRA LOW NOX BURNER

Emission factors for the full-time boiler were obtained from the current Permit to Operate. The following formula will be used to calculate the annual emissions:

$$PE = 90 \text{ MMBtu/hr} \times 8760 \text{ hr/year} \times EF \text{ (lb/MMBtu)}$$

Pollutant	EF (lb/MMBtu)	PE (lb/year)
NOx	0.008	6,307
SOx	0.00285	2,247
PM10	0.0033	2,602
CO	0.0291	22,942
VOC	0.0042	3,311
CO <sub>2</sub> e	116.6	91,927,440

**N-1326-12-3:118.6 MMBTU/HR NEBRASKA MODEL #NSF-81 NATURAL GAS-FIRED BOILER WITH A TODD/RADIAN CORPORATION MODEL #D-RMB ULTRA LOW NOX BURNER**

Emission factors for the full-time boiler were obtained from the current Permit to Operate. The following formula will be used to calculate the annual emissions:

$$PE = 118.6 \text{ MMBtu/hr} \times 8760 \text{ hr/year} \times EF \text{ (lb/MMBtu)}$$

Pollutant	EF (lb/MMBtu)	PE (lb/year)
NOx	0.008	8,311
SOx	0.00285	2,961
PM10	0.005	5,195
CO	0.0291	30,233
VOC	0.0042	4,364
CO <sub>2</sub> e	116.6	121,139,938

**N-1326-13-2:8.4 MMBTU/HR HURST MODEL #SA-G-200-200 NATURAL GAS-FIRED BOILER WITH A WEBSTER HDRMB ULTRA-LOW NOX BURNER WITH FLUE GAS RECIRCULATION (FGR)**

Emission factors and potential to emit calculations were shown earlier in this evaluation.

Pollutant	EF (lb/MMBtu)	PE (lb/year)
NOx	0.011	809
SOx	0.00285	210
PM10	0.005	368
CO	0.037	2,723
VOC	0.001	74
CO <sub>2</sub> e	116.6	8,579,894

**Adjustments to SOx Emissions based on NOx Specific Limiting Condition**

The above calculations demonstrate worst-case emissions from each individual boiler; however, the permit for these boilers includes a combined NOx limit of 33,333 lb which is less than the total NOx emissions from these boilers if they were all fired at their worst-case individual limits. Thus, the boilers may not all operate at the worst-case individual scenarios and the SOx emissions must be adjusted appropriately. Worst-case SOx emissions will be determined by assuming that the boilers with the highest SOx/NOx ratio are fired until the combined NOx emission limit has been reached.

The following table shows the NOx and SOx emission contribution from each boiler for the scenario that results in the worst-case SOx emissions:

Unit	EF <sub>SOx</sub> (lb/MMBtu)	EF <sub>NOx</sub> (lb/year)	SOx/NOx Ratio	NOx (lb/year)	SOx (lb/year)
N-1326-1-8	0.00285	0.008	0.35625	9,110	3,246
N-1326-2-9	0.00285	0.008	0.35625	8,410	2,996
N-1326-3-10	0.00285	0.008	0.35625	8,410	2,996
N-1326-8-5	0.00285	0.008	0.35625	7,403	2,637
N-1326-11-3	0.00285	0.008	0.35625	0	0
N-1326-12-3	0.00285	0.008	0.35625	0	0
N-1326-13-2	0.00285	0.011	0.25909	0	0
<b>Total</b>				<b>33,333</b>	<b>11,875</b>

**Adjustments to PM10 Emissions based on NOx Specific Limiting Condition**

The above calculations demonstrate worst-case emissions from each individual boiler; however, the permit for these boilers includes a combined NOx limit of 33,333 lb which is less than the total NOx emissions from these boilers if they were all fired at their worst-case individual limits. Thus, the boilers may not all operate at the worst-case individual scenarios and the PM10 emissions must be adjusted appropriately. Worst-case PM10 emissions will be determined by assuming that the boilers with the highest PM10/NOx ratio are fired until the combined NOx emission limit has been reached.

The table below shows the NOx and PM10 emission contribution from each boiler for the scenario that results in the worst-case PM10 emissions:

Unit	EF <sub>PM10</sub> (lb/MMBtu)	EF <sub>NOx</sub> (lb/year)	PM10/NOx Ratio	NOx (lb/year)	PM10 (lb/year)
N-1326-2-9	0.0052	0.008	0.65	8,410	5,466
N-1326-3-10	0.0052	0.008	0.65	8,410	5,466
N-1326-13-12	0.005	0.011	0.4545	809	368
N-1326-12-3	0.005	0.008	0.4545	8,311	5,195
N-1326-1-8	0.0033	0.008	0.4125	7,393	3,050
N-1326-8-5	0.0033	0.008	0.4125	0	0
N-1326-11-3	0.0033	0.008	0.4125	0	0
<b>Total</b>				<b>33,333</b>	<b>19,545</b>

**Adjustments to CO Emissions based on NOx Specific Limiting Condition**

The above calculations demonstrate worst-case emissions from each individual boiler; however, the permit for these boilers includes a combined NOx limit of 33,333 lb which is less than the total NOx emissions from these boilers if they were all fired at their worst-case individual limits. Thus, the boilers may not all operate at the worst-case individual scenarios and the CO emissions must be adjusted appropriately. Worst-case CO emissions will be determined by assuming that the boilers with the highest CO/NOx ratio are fired until the combined NOx emission limit has been reached.

The following table shows the NOx and CO emission contribution from each boiler for the scenario that results in the worst-case CO emissions:

Unit	EF <sub>CO</sub> (lb/MMBtu)	EF <sub>NOx</sub> (lb/year)	CO/NOx Ratio	NOx (lb/year)	CO (lb/year)
N-1326-1-8	0.0291	0.008	3.6375	9,110	33,139
N-1326-2-9	0.0291	0.008	3.6375	8,410	30,590
N-1326-3-10	0.0291	0.008	3.6375	8,410	30,590
N-1326-8-5	0.0291	0.008	3.6375	7,403	26,928
N-1326-11-3	0.0291	0.008	3.6375	0	0
N-1326-12-3	0.0291	0.008	3.6375	0	0
N-1326-13-12	0.037	0.011	3.3636	0	0
<b>Total</b>				<b>33,333</b>	<b>121,247</b>

**Adjustments to VOC Emissions based on NOx Specific Limiting Condition**

The above calculations demonstrate worst-case emissions from each individual boiler; however, the permit for these boilers includes a combined NOx limit of 33,333 lb which is less than the total NOx emissions from these boilers if they were all fired at their worst-case individual limits. Thus, the boilers may not all operate at the worst-case individual scenarios and the VOC emissions must be adjusted appropriately. Worst-case VOC emissions will be determined by assuming that the boilers with the highest VOC/NOx ratio are fired until the combined NOx emission limit has been reached.

The table below shows the NOx and VOC emission contribution from each boiler for the scenario that results in the worst-case VOC emissions:

Unit	EF <sub>VOC</sub> (lb/MMBtu)	EF <sub>NOx</sub> (lb/year)	VOC/NOx Ratio	NOx (lb/year)	VOC (lb/year)
N-1326-1-8	0.0042	0.008	0.525	9,110	4,783
N-1326-2-9	0.0042	0.008	0.525	8,410	4,415
N-1326-3-10	0.0042	0.008	0.525	8,410	4,415
N-1326-8-5	0.0042	0.008	0.525	7,403	3,887
N-1326-11-3	0.0042	0.008	0.525	0	0
N-1326-12-3	0.0042	0.008	0.525	0	0
N-1326-13-12	0.001	0.011	0.091	0	0
<b>Total</b>				<b>33,333</b>	<b>17,500</b>

**Adjustments to CO<sub>2</sub>e Emissions based on NOx Specific Limiting Condition**

The above calculations demonstrate worst-case emissions from each individual boiler; however, the permit for these boilers includes a combined NOx limit of 33,333 lb which is less than the total NOx emissions from these boilers if they were all fired at their worst-case individual limits. Thus, the boilers may not all operate at the worst-case individual scenarios and the CO<sub>2</sub>e emissions must be adjusted appropriately. Worst-case CO<sub>2</sub>e emissions will be determined by assuming that the boilers with the highest CO<sub>2</sub>e/NOx ratio are fired until the combined NOx emission limit has been reached.

The following table shows the NOx and CO<sub>2</sub>e emission contribution from each boiler for the scenario that results in the worst-case CO<sub>2</sub>e emissions:

Unit	EF <sub>CO2e</sub> (lb/MMBtu)	EF <sub>NOx</sub> (lb/year)	CO <sub>2</sub> e/NOx Ratio	NOx (lb/year)	CO <sub>2</sub> e (lb/year)
N-1326-1-8	116.6	0.008	14,575	9,110	132,784,080
N-1326-2-9	116.6	0.008	14,575	8,410	122,569,920
N-1326-3-10	116.6	0.008	14,575	8,410	122,569,920
N-1326-8-5	116.6	0.008	14,575	7,403	107,898,725
N-1326-11-3	116.6	0.008	14,575	0	0
N-1326-12-3	116.6	0.008	14,575	0	0
N-1326-13-11 <sup>3</sup>	116.6	0.024	4,858	0	0
<b>Total</b>				<b>33,333</b>	<b>485,822,645</b>

<sup>3</sup> CO<sub>2</sub>e emissions are calculated for the existing units for PSD purposes. Therefore, the pre-project emission factors for this unit are included in this table.



## **APPENDIX V**

### **HAP Emission Calculations**

## HAP Emission Calculations

### Combined HAP Emissions from Boilers N-1326-1, '-2, '-3, '-8, '-11, '-12, and '-13

The following table shows the estimated HAP emissions from the boilers at this site. The HAP emissions were calculated using the combined maximum annual fuel usage for the boilers and the District's Toxic Air Contaminants Spreadsheet Calculator for external natural gas combustion (attached at end of this appendix).

The boilers are nearly all rated at 7 ppm NOx (0.008 lb/MMBtu). The maximum NOx emissions are 33,333 lb in any rolling 12-month period. Thus, the maximum heat input is:

Maximum Combined Heat Input = 33,333 lb-NOx/year ÷ 0.008 lb-NOx/MMBtu

Maximum Combined Heat Input = 4,166,625 MMBtu/year

Maximum Fuel Usage = 4,166,625 MMBtu/year × MMscf/1000 MMBtu

Maximum Fuel Usage = 4,166.6 MMscf/year

<b>Boiler HAP Emissions</b>	
<b>Hazardous Air Pollutant</b>	<b>PE (lb/year)</b>
Acetaldehyde	3.75
Acrolein	3.33
Benzene	7.08
Ethyl Benzene	8.33
Formaldehyde	15
Hexane	5.42
Naphthalene	1.25
PAH's	1.67
Propylene	64.7
Toluene	32.5
Xylene	24.2

### HAP Emissions from Diesel Fired IC Engine (N-1326-5)

The following table shows the estimated HAP emissions from the diesel-fired IC engine. The HAP emissions were calculated using the combined maximum annual fuel usage for the engine and the District's Toxic Air Contaminants Spreadsheet Calculator for diesel-fired engines (attached at end of this appendix).

<b>Engine N-1326-5 HAP Emissions</b>	
<b>Hazardous Air Pollutant</b>	<b>PE (lb/year)</b>
1,3 Butadiene	0.3
Acetaldehyde	1.0
Acrolein	0.004
Arsenic	0.002
Benzene	0.24
Cadmium	0.002
Chlorobenzene	0.0003
Chromium	0.0008
Copper	0.005
Ethyl Benzene	0.01
Formaldehyde	2.23
Hexane	0.03
Hexavalent Chromium	0.0001
Hydrogen Chloride	0.24
Lead	0.11
Manganese	0.004
Mercury	0.003
Naphthalene	0.03
Nickel	0.005
PAHs	0.07
Propylene	0.60
Selenium	0.003
Toluene	0.14
Xylenes	0.05
Zinc	0.03

**HAP Emissions from Diesel Fired IC Engine (N-1326-14)**

The following table shows the estimated HAP emissions from the diesel-fired IC engine. The HAP emissions were calculated using the combined maximum annual fuel usage for the engine and the District's Toxic Air Contaminants Spreadsheet Calculator for diesel-fired engines (attached at end of this appendix).

<b>Engine N-1326-14 HAP Emissions</b>	
<b>Hazardous Air Pollutant</b>	<b>PE (lb/year)</b>
1,3 Butadiene	0.07
Acetaldehyde	0.26
Acrolein	0.01
Arsenic	0.0005
Benzene	0.06
Cadmium	0.0005
Chlorobenzene	0.00007
Chromium	0.0002
Copper	0.001
Ethyl Benzene	0.004
Formaldehyde	0.58
Hexane	0.009
Hexavalent Chromium	0.00003
Hydrogen Chloride	0.06
Lead	0.003
Manganese	0.001
Mercury	0.0007
Naphthalene	0.0007
Nickel	0.001
PAHs	0.02
Propylene	0.16
Selenium	0.0007
Toluene	0.04
Xylenes	0.01
Zinc	0.008

Total HAP emissions from the facility are summed in the table below. As shown in the below table, HAP emissions are less than 20,000 lb/year for each HAP and 50,000 lb/year for total HAPs; therefore, this facility is an Area Source of HAP Emissions.

<b>Post-Project Facility-Wide HAP Emissions</b>				
<b>Hazardous Air Pollutant</b>	<b>PE from Boilers (lb/year)</b>	<b>PE from Engine N-1326-5 (lb/year)</b>	<b>PE from Engine N-1326-14 (lb/year)</b>	<b>Total PE (lb/year)</b>
1,3 Butadiene	0	0.3	0.07	0.37
Acetaldehyde	3.75	1.0	0.26	5.01
Acrolein	3.33	0.004	0.01	3.344
Arsenic	0	0.002	0.0005	0.0025
Benzene	7.08	0.24	0.06	7.38
Cadmium	0	0.002	0.0005	0.0025
Chlorobenzene	0	0.0003	0.00007	0.00037
Chromium	0	0.0008	0.0002	0.001
Copper	0	0.005	0.001	0.006
Ethyl Benzene	8.33	0.01	0.004	8.344
Formaldehyde	15	2.23	0.58	17.81
Hexane	5.42	0.03	0.009	5.459
Hexavalent Chromium	0	0.0001	0.00003	0.00013
Hydrogen Chloride	0	0.24	0.06	0.3
Lead	0	0.11	0.003	0.113
Manganese	0	0.004	0.001	0.005
Mercury	0	0.003	0.0007	0.0037
Naphthalene	1.25	0.03	0.0007	1.2807
Nickel	0	0.005	0.001	0.006
PAHs	1.67	0.07	0.02	1.76
Propylene	64.7	0.60	0.16	65.46
Selenium	0	0.003	0.0007	0.0037
Toluene	32.5	0.14	0.04	32.68
Xylenes	24.2	0.05	0.01	24.26
Zinc	0	0.03	0.008	0.038
<b>Total Facility-Wide HAP Emissions</b>				<b>173.6396</b>

**APPENDIX VI**

**Risk Management Review**

**and**

**Ambient Air Quality Analysis Results**

## San Joaquin Valley Air Pollution Control District Risk Management Review

To: James Harader – Permit Services  
 From: Kyle Melching – Technical Services  
 Date: January 2, 2014  
 Facility Name: Morning Star Packing  
 Location: 13448 S. Volta Ave., Los Banos  
 Application #(s): N-1326-13-2  
 Project #: N-1133785

---

### A. RMR SUMMARY

RMR Summary			
Categories	NG Boilers (Unit 13-2)	Project Totals	Facility Totals
Prioritization Score	0.00	0.00	>1
Acute Hazard Index	0.00	0.00	0.00
Chronic Hazard Index	0.00	0.00	0.00
Maximum Individual Cancer Risk	3.33E-09	3.33E-09	5.32E-08
T-BACT Required?	No		
Special Permit Conditions?	Yes		

### Proposed Permit Conditions

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

#### Unit 13-2

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

## B. RMR REPORT

### I. Project Description

Technical Services received a request on December 30, 2013, to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for a natural gas-fired 8.4 MMBtu/hr boiler. This modification will remove the annual fuel usage limit from the permit.

### II. Analysis

For the Risk Management Review, toxic emissions from the project were calculated using District approved emission for natural gas external combustion. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905-1, March 2, 2001), risks from the proposed project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEART's database. The project's prioritization score was less than 1.0, (see RMR Summary Table); however, the facility's combined prioritization scores totaled to greater than one. Therefore, a refined Health Risk Assessment was required and performed for the project. AERMOD was used with source parameters outlined below and concatenated 5-year meteorological data from Los Banos to determine maximum dispersion factors at the nearest residential and business receptors. The dispersion factors were input into the HARP model to calculate the Chronic and Acute Hazard Indices and the Carcinogenic Risk.

The following parameters were used for the review:

Source Parameters For N-8881-1-0			
Source Type	Point	Location Type	Rural
Stack Height (m)	9.14	Closest Receptor (m)	250
Diameter (m)	0.31	Fuel Type	NG
Velocity (m/s)	18.7	NG Usage (mmscf/yr)	65
Temperature (°K)	477		

Technical Services also performed modeling for criteria pollutants CO, NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>, as well as the RMR. Emission rates used for criteria pollutant modeling were 2,058 lb/yr CO, 593 lb/yr NO<sub>x</sub>, 184 lb/yr SO<sub>x</sub>, and 323 lb/yr PM<sub>10</sub>.



The results from the Criteria Pollutant Modeling are as follows:

**Criteria Pollutant Modeling Results\***  
Values are in  $\mu\text{g}/\text{m}^3$

NG-Fired Boiler	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO <sub>x</sub>	Pass <sup>1</sup>	X	X	X	Pass
SO <sub>x</sub>	Pass	Pass	X	Pass	Pass
PM <sub>10</sub>	X	X	X	Pass <sup>2</sup>	Pass <sup>2</sup>
PM <sub>2.5</sub>	X	X	X	Pass <sup>2</sup>	Pass <sup>2</sup>

\*Results were taken from the attached PSD spreadsheet.

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

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

### III. Conclusion

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

The acute and chronic indices are below 1.0; and the maximum individual cancer risk associated with the project is **3.33E-09**, which is less than the 1 in a million threshold. In accordance with the District's Risk Management Policy, the project is approved **without** Toxic Best Available Control Technology (T-BACT).

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

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

### IV. Attachments

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Prioritization score w/ toxic emissions summary
- D. HARP Risk Report
- E. Facility Summary
- F. AAQA Summary
- G. AERMOD Non-Regulatory Option Checklist

## **APPENDIX VII**

### **QNEC Calculations**

**QNEC Calculations**

$$\text{QNEC} = (\text{PE2} - \text{BE}) \div 4$$

As shown in Section VII.C.5, BE is equal to PE1 for all pollutants. Therefore, the equation for QNEC reduces to:

$$\text{QNEC} = (\text{PE2} - \text{PE1}) \div 4$$

NOx emissions from the boilers at this facility are subject to a combined limit that will not be modified. Therefore, the QNEC for NOx will be equal to zero. The QNEC for all other pollutants is shown below:

<b>Pollutant</b>	<b>PE2 (lb/year)</b>	<b>PE1 (lb/year)</b>	<b>QNEC (lb/qtr)</b>
SOx	210	26	46.0
PM10	368	45	80.75
CO	2,723	657	516.5
VOC	74	9	16.25