

**San Joaquin Valley Air Pollution Control District
Authority to Construct
Application Review
Natural Gas-Fired Boiler**

Facility Name:	Darling International, Inc.	Date:	8/28/07
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Application #:	C-406-2-5 and 6-0		
Project #:	C-1073300		
Deemed Complete:			

I. PROPOSAL

Darling International, Inc., hereafter referred to as Darling, requests Authority to Construct (ATC) permit for the installation of a new 25.2 MMBtu/hr natural-gas-fired boiler at its animal rendering facility. In order to comply with District Rule 4306 requirements, the applicant proposes to meet the 9 ppmvd @ 3% O₂ (equivalent to 0.011 lb/MMBtu) NO_x emission requirements of District Rule 4306, *Boilers, Steam Generators, and Process Heaters – Phase 3*. Please note that the applicant had originally proposed to use a NO_x emission limit of 0.0108 lb/MMBtu, but in an email request dated 8/29/07, revised the emission factor to mirror the rule limit of 0.011 lb/MMBtu in order to account for differences in method of calculation and to have a greater margin of compliance.

The installation of this new boiler is contemporaneous with a request for an increase in raw material processing applied for in District project C-1070484. Darling is proposing in that project to increase the daily amount of raw material processed from 850,000 pounds per day to 1,510,560 pounds per day. The existing steam-heated cooker at Darling's facility is sized appropriately to handle 1,510,560 pounds of raw material per hour. However, in order to heat the cooker properly, Darling will need a greater amount of steam that cannot be supplied by the existing equipment. The boiler proposed in this project will be used as a supplemental boiler, to supply extra steam capacity when the cooker is running at or near maximum raw material throughput.

In addition, the facility is proposing to follow Alternate Monitoring Scheme "A" using a portable analyzer, according to District Policy SSP-1105.

Darling is also proposing to install an additional vapor condensor to capture vapors from the cooking process. This piece of equipment is considered an additional odor mitigation technique, as discussed in Section VIII, Compliance. The addition of this condensor will

not affect the remaining cooking operation's emissions since the condensor does not have any criteria pollutant emissions of its own. The condensor is solely to capture cooking vapors created during the rendering process. The ATC for the installation of the condensor will be based on contemporaneous ATC C-406-2-4 which is authorizing a raw material processing rate increase. Therefore the following condition will be placed on ATC C-406-2-5 resulting from this project:

- Authority to Construct (ATC) C-406-2-4 shall be implemented concurrently, or prior to the modification and startup of the equipment authorized by this Authority to Construct. [District Rule 2201]

Please note that since installation of the new boiler proposed in this project will be considered an integral part of the proposed raw material increase, this boiler will also be subject to public noticing to satisfy California Environmental Quality Act (CEQA) and Environmental Justice (EJ) requirements. These requirements are discussed in further detail in Section VIII, Compliance.

II. APPLICABLE RULES

District Rule 2201	New and Modified Stationary Source Review Rule (9/21/06)
District Rule 2520	Federally Mandated Operating Permits (6/21/01)
District Rule 4001	New Source Performance Standards (4/14/99)
District Rule 4101	Visible Emissions (2/17/05)
District Rule 4102	Nuisance (12/17/92)
District Rule 4201	Particulate Matter Concentration (12/17/92)
District Rule 4301	Fuel Burning Equipment (12/17/92)
District Rule 4304	Equipment Tuning Procedure for Boilers, Steam Generators and Process Heaters (10/19/95)
District Rule 4305	Boilers, Steam Generators and Process Heaters – Phase 2 (8/21/03)
District Rule 4306	Boilers, Steam Generators and Process Heaters – Phase 3 (3/17/05)
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
	California Environmental Quality Act (CEQA)

III. PROJECT LOCATION

This facility is located at 795 W. Belgravia in Fresno, CA. The facility is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. PROCESS DESCRIPTION

Darling International is an animal rendering facility. Animal raw material (raw material) are transported by truck from local slaughterhouses and other sources to the receiving area. The raw material is conveyed to grinders where it is ground and chopped into uniform size pieces. The material is then introduced into a cooker where the material is indirectly

heated (heat is supplied by steam from permitted boilers). Vapors from the cooker are condensed in an air-cooled condenser. The condensate is sent to the municipal sewers.

Non-condensable vapors that escape the air-cooled condensing process are treated by a 12,000 cfm venturi scrubber. The venturi scrubber exhausts to a thermal oxidizer. Any remaining emissions will be incinerated before being vented to the atmosphere.

The resulting material from the cooker is crax, and once ground is called meat and bone meal (MBM). MBM is conveyed to storage silos where they are stored for loadout. Insignificant amounts of particulate matter are emitted from the loadout system (0.7 lb PM10/day, see C-1041037), but what emissions do exist are controlled by the 75,000 cfm room air scrubber. The loadout system is enclosed in the processing building which is kept under negative pressure, ensuring 100% capture efficiency.

The maximum operating schedule use for Potential to Emit from the boiler will be based on the applicant's proposal of 221 billion Btu/year. This amount of heat output is equivalent to operating for 24 hours per day, 7 days per week.

V. EQUIPMENT LISTING

C-406-2

Pre-Project Description

ANIMAL RENDERING OPERATION EQUIPPED WITH AN ATLAS-STORD TST-2264 COOKER, TALLOW WORK TANK, ROTO-SHEAR FAT DRAINER, PRESSES, SCREWS, CENTRIFUGE, AND CONDENSER SERVED BY A 12,000 CFM VENTURI SCRUBBER AND AN 18 MMBTU/HR NATURAL GAS-FIRED THERMAL OXIDIZER WITH AN ASSOCIATED 350 HP HEAT RECOVERY STEAM BOILER

Modification: Install one additional condensor prior to the venturi scrubber

MODIFICATION OF ANIMAL RENDERING OPERATION EQUIPPED WITH AN ATLAS-STORD TST-2264 COOKER, TALLOW WORK TANK, ROTO-SHEAR FAT DRAINER, PRESSES, SCREWS, CENTRIFUGE, AND CONDENSER SERVED BY A 12,000 CFM VENTURI SCRUBBER AND AN 18 MMBTU/HR NATURAL GAS-FIRED THERMAL OXIDIZER WITH AN ASSOCIATED 350 HP HEAT RECOVERY STEAM BOILER: INSTALL ONE ADDITIONAL VAPOR CONDENSOR PRIOR TO THE EXISTING VENTURI SCRUBBER

Post-Project Description

ANIMAL RENDERING OPERATION EQUIPPED WITH AN ATLAS-STORD TST-2264 COOKER, TALLOW WORK TANK, ROTO-SHEAR FAT DRAINER, PRESSES, SCREWS, CENTRIFUGE, AND TWO CONDENSORS SERVED BY A 12,000 CFM VENTURI SCRUBBER AND AN 18 MMBTU/HR NATURAL GAS-FIRED THERMAL OXIDIZER WITH AN ASSOCIATED 350 HP HEAT RECOVERY STEAM BOILER

C-406-6-0

25.2 MMBTU/HR CLEAVER BROOKS NATURAL GAS-FIRED BOILER WITH AN AMERICAN COMBUSTION TECHNOLOGY MODEL ACT AABI03G06-SLE ULTRA LOW NOX BURNER AND A FLUE GAS RECIRCULATION SYSTEM

VI. EMISSION CONTROL TECHNOLOGY EVALUATION

Ultra Low-NO_x burners reduce NO_x 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_x burners delay the mixing of fuel and air by introducing the fuel (or sometimes the 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_x. 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.

The use of flue gas re-circulation (FGR) can reduce nitrogen oxides (NO_x) 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_x is formed by high flame temperatures, the lower flame temperatures produced by FGR serve to reduce thermal NO_x.

VII. GENERAL CALCULATIONS

A. Assumptions

- The maximum operating schedule is 24 hours per day
- The unit is fired solely on PUC regulated natural gas
- Annual pre-project and post-project potential to emit is calculated based on 8,760 hours of operation per year
- 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)

B. Emission Factors

C-406-2 – Cooking Operation

Emission factors for the thermal oxidizer serving the cooking process are taken from the current Permits to Operate (see Appendix A). These emission factors take into account controlled VOC emissions from the cooking and rendering process. The cooker is steam heated, and does not have criteria pollutants of its own.

Cooking Operation (thermal oxidizer exhaust)

NO_x – 2.52 lb/hr (please note that this value represents a combined NO_x emission rate from both the cooker and the thermal oxidizer due to natural gas combustion)

SO_x – 0.01 lb/hr

PM₁₀ – 0.04 lb/hr

CO – 0.63 lb/hr

VOC – 0.05 lb/hr

C-406-6 - Boiler

For this boiler unit, emission factors are listed in the table below.

Pollutant	Post-Project Emission Factors (EF2)			Source
NO _x	11 lb-NO _x /MMscf	0.011 lb-NO _x /MMBtu	9 ppmvd NO _x (@ 3%O ₂)	Applicant's Proposal and Rule 4306
SO _x	2.85 lb-SO _x /MMscf	0.00285 lb-SO _x /MMBtu		District Policy APR 1720
PM ₁₀	7.6 lb-PM ₁₀ /MMscf	0.0076 lb-PM ₁₀ /MMBtu		AP-42 (07/98) Table 1.4-2
CO		0.074 lb-CO/MMBtu	100 ppmvd CO (@ 3%O ₂)	Applicant's data
VOC	5.5 lb-VOC/MMscf	0.0055 lb-VOC/MMBtu	13 ppmvd VOC (@ 3% O ₂)	AP-42 (07/98) Table 1.4-2

According to boiler manufacturers, low NO_x burners will achieve their rated emissions within one to two minutes of initial startup and do not require a special shutdown procedure. Because of the short duration before achieving the rated emission factor following startup, the emissions factors for this unit during startup and shutdown will be assumed to be the same as the steady state emission factors shown in the table above.

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Cooking Operation – C-406-2

Emissions shown below are controlled emissions after the thermal oxidizer.

Daily Emissions

Pollutant	EF (lb/hr)	hr/day	lb/day
NOx	2.52	24	60.5
SOx	0.01	24	0.2
PM10	0.04	24	1.0
CO	0.63	24	15.1
VOC	0.05	24	1.2

Annual Emissions

Pollutant	EF (lb/hr)	hr/year	lb/year
NOx	2.52	7488	18,870
SOx	0.01	7488	75
PM10	0.04	7488	300
CO	0.63	7488	4717
VOC	0.05	7488	374

Boiler - C-406-6

The boiler is a new emissions unit, therefore PE1 is equal to zero for all pollutants.

2. Post-Project Potential to Emit (PE2)

C-406-2

PE2 for the cooking operation is identical to PE1 above. Addition of the condenser does not affect criteria pollutant emissions.

C-406-6

The PE2 for each pollutant for the boiler is calculated with the following equation:

- $PE2 = EF \text{ (lb/MMBtu)} \times \text{Heat Input (MMBtu/hr)} \times \text{Op. Sched. (hr/day or hr/year)}$

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO _x	0.011	25.2	24	6.7
SO _x	0.00285	25.2	24	1.7
PM ₁₀	0.0076	25.2	24	4.6
CO	0.074	25.2	24	44.8
VOC	0.0055	25.2	24	3.3

Pollutant	Annual PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
NO _x	0.011	25.2	8,760	2,428
SO _x	0.00285	25.2	8,760	629
PM ₁₀	0.0076	25.2	8,760	1,678
CO	0.074	25.2	8,760	16,336
VOC	0.0055	25.2	8,760	1,214

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.

Permit Unit	SSPE1 (lb/year)				
	NO _x	SO _x	PM ₁₀	CO	VOC
C-406-1-2	0	0	0	0	0
C-406-2-2	18,870	75	300	4,717	374
C-406-3-9	9,806	1,091	4,022	56,469	1,134
C-406-4-3	0	0	227	0	0
SSPE1	28,676	1,166	4,549	61,186	1,508

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.

SSPE2 (lb/year)					
Permit Unit	NO_x	SO_x	PM₁₀	CO	VOC
C-406-1-2	0	0	0	0	0
C-406-2-5	18,870	75	300	4,717	374
C-406-3-9	9,806	1,091	4,022	56,469	1,134
C-406-4-3	0	0	227	0	0
C-406-6-0 (new)	2,428	629	1,678	16,336	1,214
SSPE2	31,104	1,795	6,227	77,522	2,722

5. Major Source Determination

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

Major Source Determination (lb/year)					
	NO_x	SO_x	PM₁₀	CO	VOC
Pre-Project SSPE (SSPE1)	28,676	1,166	4,549	61,186	1,508
Post Project SSPE (SSPE2)	31,104	1,795	6,227	77,522	2,722
Major Source Threshold	50,000	140,000	140,000	200,000	50,000
Major Source	No	No	No	No	No

As seen in the table above, the facility is not an existing Major Source and also is not becoming a Major Source as a result of this project.

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 3.22

As shown in Section VII.C.5 above, the facility is not a Major Source for any criteria pollutant.

Therefore Baseline Emissions (BE) are equal to the Pre-Project Potential to Emit (PE1), which is zero for all pollutants.

7. Major Modification

Section 3.23 of District Rule 2201 defines a Major Modification as "*any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act.*"

As discussed in Section VII.C.5 above, the facility is not a Major Source for any criteria pollutant; therefore the project does not constitute a Major Modification.

8. Federal Major Modification

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

9. Quarterly Net Emissions Change (QNEC)

The QNEC will be calculated for each pollutant, for each unit, as the difference between the quarterly PE2 and the quarterly PE1. The QNEC for each pollutant is shown in the table(s) below:

QNEC			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	607	0	607
SO _x	157	0	157
PM10	420	0	420
CO	4084	0	4084
VOC	304	0	304

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 a Major Modification.

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

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

BACT is triggered for the proposed boiler since daily emissions of NO_x, PM₁₀, and VOC will exceed 2 lbs/day, as calculated in Section VII.C.2 above. Daily emissions for CO will also exceed 2 lbs, however the facility-wide CO emissions is not above 200,000 lbs. BACT for the new condensor is not triggered since the condensor has no emissions of its own. Emissions from the thermal oxidizer are not changing pre and post project.

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

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

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

$$\text{AIPE} = \text{PE}_2 - \text{HAPE}$$

Where,

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

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

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

$$\text{HAPE} = \text{PE}_1 \times (\text{EF}_2/\text{EF}_1)$$

Where,

- PE1 = The emissions unit's Potential to Emit prior to modification or relocation, (lb/day)
- EF2 = The emissions unit's permitted emission factor for the pollutant after modification or relocation. If EF2 is greater than EF1 then EF2/EF1 shall be set to 1
- EF1 = The emissions unit's permitted emission factor for the pollutant before the modification or relocation

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

There are no emissions units being modified in this project, therefore BACT is not triggered for AIPE purposes.

d. Major Modification

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

2. BACT Guideline

BACT Guideline 1.1.2 addresses natural gas fired boilers with a heat input rating of greater than 20.0 MMBtu/hr, operated as a base-loaded unit or with small load swings.

3. Top-Down BACT Analysis

BACT is triggered for NOx, PM10, and VOC emissions.

NOx Emissions

Step 1 – Identify All Control Technologies

BACT Guideline 1.1.2 specifies a performance standard of 9.0 ppmvd @ 3% O2 using SCR, low temperature oxidizer, or equal and a < 30 ppmv NOx @ 3% O2 igniter system if the igniter system is used to heat the boiler at low fire as Technologically Feasible BACT. Achieved in Practice option is listed as a performance standard of 9.0 ppmvd @ 3% O2 using ultra-low NOx burner system and a natural gas or LPG fired igniter system if the igniter system is used to heat the boiler at low fire. There are no other options listed. Additionally, it is noted that the applicant has not proposed to use the igniter to heat the boiler at low fire, therefore this option will not longer be discussed.

Step 2 – Eliminate Technologically Infeasible Options

There are no technologically infeasible options listed.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

It is noted that the performance standard (when not including the igniter system) is the same for both Tech Feasible and AIP options. These two options are therefore considered equivalent for this project.

- a) 9.0 ppmvd @ 3% O2 using SCR, low temperature oxidizer, or equal
- a) 9.0 ppmvd @ 3% O2 using ultra-low NOx burner system

Step 4 – Cost Effectiveness Analysis

The applicant is proposing the most stringent control technology from Step 3 above, therefore no cost effectiveness analysis is required.

Step 5 – Select BACT

The applicant is proposing to use an ultra-low NOx burner system with no greater than 9.0 ppmvd NOx emissions. Therefore BACT is satisfied.

PM10 and VOC

The following discussion is valid for both of these criteria pollutants since control options are similar for both of them.

Step 1 – Identify All Control Technologies

BACT Guideline 1.1.2 lists the use of natural gas fuel with LPG backup as Achieved in Practice. There are no other control options listed.

Step 2 – Eliminate Technologically Infeasible Options

There are no technologically infeasible options listed.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

- a) use of natural gas fuel with LPG backup

Step 4 – Cost Effectiveness Analysis

The applicant is proposing the most stringent control option from Step 3 above, therefore no cost effectiveness analysis is required.

Step 5 – Select BACT

BACT is the use of natural gas fuel with LPG backup. It is noted that the applicant is not proposing the use of any backup fuels. BACT, however, is still satisfied since the use of natural gas fuel ensures the lowest emissions achievable for this class and category of source.

B. Offsets

1. Offset Applicability

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

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

Offset Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Post Project SSPE (SSPE2)	31,104	1,795	6,227	77,522	2,722
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered	Yes	No	No	No	No

2. Quantity of Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for NO_x only; therefore offset calculations will be required for this project.

Per Sections 4.7.1 and 4.7.3, the quantity of offsets in pounds per year for NO_x is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

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

Where,

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

BE = Baseline Emissions, (lb/year)

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

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = Pre-project Potential to Emit for:

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

otherwise,

BE = Historic Actual Emissions (HAE)

It has already been established that BE is equal to PE1 for this project, since Darling is a non-Major Source. BE is therefore equal to zero. Additionally, there is no increase in cargo carrier emissions proposed, and DOR will be assumed to be worst-case of 1.5:1. The above calculation then simplifies to:

$$\text{Offsets Required (lb/year)} = ([PE2 - 0] + 0) \times 1.5$$

$$\text{Offsets Required (lb/year)} = 2,428 \text{ lbs NO}_x\text{/year} \times 1.5 = 3,642 \text{ lbs NO}_x\text{/year}$$

Calculating the appropriate quarterly emissions to be offset is as follows:

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
911	911	911	911

The applicant has stated that the facility plans to use ERC certificates N-650-2, C-762-2, and S-2385-2 to offset the increases in NO_x emissions associated with this project. The above certificates have available quarterly NO_x credits as follows:

	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
ERC #N-650-2	4686	4738	4790	4790
ERC #C-762-2	0	0	0	270
ERC #S-2385-2	1347	1294	804	875

As seen above, the facility has sufficient credits to fully offset the quarterly NO_x emissions increases associated with this project.

Without the offset ratio applied, the facility will be required to offset the full potential to emit of NO_x for the boiler, as calculated below:

$$2,482 \text{ lbs NO}_x\text{/year} \div 4 \text{ quarters/year} = 607 \text{ lbs NO}_x\text{/qtr}$$

This value will be used in the following permit conditions to ensure compliance with the offsetting requirements of Rule 2201.

Proposed Rule 2201 (offset) Conditions:

- Prior to operating equipment under this Authority to Construct, permittee shall surrender NO_x emission reduction credits for the following quantity of emissions: 1st quarter - 607 lb, 2nd quarter - 607 lb, 3rd quarter - 607 lb, and fourth quarter - 607 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 9/21/06). [District Rule 2201]
- ERC Certificate Numbers N-650-2, C-762-2, and S-2385-2 (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements for New Source Review purposes, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

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

This facility is an existing facility, therefore it cannot become a New Major Source. Public noticing for New Major Source purposes is not required.

b. Major Modification

As demonstrated in VII.C.7, this project does not constitute a Major Modification; therefore, public noticing for Major Modification purposes is not 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. As calculated in Section VII.C.2 above, the maximum daily potential to emit of the proposed boiler is less than 100 lbs/day for all pollutants. Public noticing is not required for daily emissions above 100 lbs.

d. Offset Threshold

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

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required
NO _x	28,676	31,104	20,000 lb/year	No
SO _x	1,166	1,795	54,750 lb/year	No
PM ₁₀	4,549	6,227	29,200 lb/year	No
CO	61,186	77,522	200,000 lb/year	No
VOC	1,508	2,722	20,000 lb/year	No

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

e. SSIPE > 20,000 lb/year

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

Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required
NO _x	31,104	28,676	2,428	20,000 lb/year	No
SO _x	1,795	1,166	629	20,000 lb/year	No
PM ₁₀	6,227	4,549	1,678	20,000 lb/year	No
CO	77,522	61,186	16,336	20,000 lb/year	No
VOC	2,722	1,508	1,214	20,000 lb/year	No

2. Public Notice Action

As discussed above, this project will not result in emissions, for any criteria pollutant, which would subject the project to any of the noticing requirements listed above. Therefore, public notice will not be required for this project for New Source Review purposes.

However, Darling’s Fresno facility is located in an area of depressed economic growth, which is inhabited mainly by ethnic minorities. Although the proposed modifications are not anticipated to adversely affect air quality, Darling International is a high-profile facility situated near several neighborhoods that would be subject to Environmental Justice. In order to properly address Environmental Justice and the possible concern of the local residents, the District will require that this project be subject to a 30-day public notice in order to ensure the residents of this area are able to participate in the regulatory process.

Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Fair treatment means that no group of people, including a racial, ethnic, or a socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

Meaningful involvement means that: (1) potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that will

affect their environment and/or health; (2) the public's contribution can influence the regulatory agency's decision; (3) the concerns of all participants involved will be considered in the decision making process; and (4) the decision makers seek out and facilitate the involvement of those potentially affected.

It is the District's intent to further satisfy all four of the above criteria for meaningful involvement through a 30-day public noticing. Letters summarizing Darling's proposal and the District's findings will be mailed to the residents near this facility. The District will make available a copy of the application, engineering evaluation, draft ATCs, and all other pertinent information for the public's inspection. Only after all comments have been addressed by the District will the ATCs be issued.

D. Daily Emission Limits (DELs)

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

C-406-2-5

For the cooking operation C-406-2, the following existing conditions will be carried over:

- Emissions from the thermal oxidizer shall not exceed any of the following emission limits: 2.52 lb NO_x/hr, 0.01 lb SO_x/hr, 0.04 lb PM₁₀/hr, 0.63 lb CO/hr, and 0.05 lb VOC/hr. [District Rule 2201]
- Total facility raw material process rate shall not exceed 1,510,560 pounds per day. [District Rules 2201 and 4102]

C-406-6-0

The DELs for the boiler unit is based on the use of natural gas as a fuel and will be stated in the form of emission factors as shown:

- {3200} Emissions from the natural gas-fired unit shall not exceed any of the following limits: 9 ppmvd NO_x @ 3% O₂ or 0.011 lb-NO_x/MMBtu, 0.00285 lb-SO_x/MMBtu, 0.0076 lb-PM₁₀/MMBtu, 100 ppmvd CO @ 3% O₂ or 0.074 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, and 4306]

In addition the following permit conditions will appear on the permit:

- {2964} The unit shall only be fired on PUC-regulated natural gas. [District Rule 2201]

E. Compliance Assurance

1. Source Testing

This unit is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters, Phase 2*, and District Rule 4306, *Boilers, Steam Generators and Process Heaters, Phase 3*. Source testing requirements, in accordance with District Rules 4305 and 4306, will be discussed in Section VIII, *District Rules 4305 and 4306*, of this evaluation.

Source testing is not required for the cooking operation since the thermal oxidizer is an odor abatement device, and no prohibitory rule requires source testing of these types of thermal oxidizers.

2. Monitoring

As required by District Rule 4305, *Boilers, Steam Generators and Process Heaters, Phase 2*, and District Rule 4306, *Boilers, Steam Generators and Process Heaters, Phase 3*, this unit is subject to monitoring requirements. Monitoring requirements, in accordance with District Rules 4305 and 4306, will be discussed in Section VIII, *District Rules 4305 and 4306*, of this evaluation.

3. Recordkeeping

As required by District Rule 4305, *Boilers, Steam Generators and Process Heaters, Phase 2*, and District Rule 4306, *Boilers, Steam Generators and Process Heaters, Phase 3*, this unit is subject to recordkeeping requirements. Recordkeeping requirements, in accordance with District Rules 4305 and 4306, will be discussed in Section VIII, *District Rules 4305 and 4306*, of this evaluation.

The following permit condition will be listed on permit as follows:

- {2983} 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, 4305, and 4306]

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

District Rule 2520 Federally Mandated Operating Permits

Facility name does not have a Title V permit at this time. Therefore, Rule 2520 requirements for modifications are not applicable.

District Rule 4001 New Source Performance Standards

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).

The boiler unit in this project is potentially subject to this subpart. However, per Subpart A of the NSPS, a facility is considered an affected facility (therefore having affected emissions units) only if a standard applies to it. The boiler in this project is gaseous fueled-only units. Subpart Dc does not have any standards that apply to gaseous fueled units, therefore the boiler is not considered affected units. Subpart Dc does not apply.

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.

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

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

Therefore, compliance with District Rule 4101 requirements is expected.

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.

A permit condition will be listed on the boiler's permit (C-406-6) as follows:

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

For the cooking operation, C-406-2, the addition of a condensor will help to mitigate odors since odorous vapors from the cooking operation will be captured and condensed before being sent to the city sewers. These odors will have otherwise been sent to the thermal oxidizer in mass. By lowering the amount of vapors sent to the thermal oxidizer, this lowers the load that the thermal oxidizer processes, and ultimately lowers nuisance emissions. Please see nuisance odor discussion in contemporaneous project C-1070484.

California Health & Safety Code 41700 (Health Risk Assessment)

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

An HRA is not required for a project with a total facility prioritization score of less than or equal to one. According to the Technical Services Memo for this project (Appendix A), the total facility prioritization score including this project was less than or equal to one. Therefore, no future analysis is required to determine the impact from this project and compliance with the District's Risk Management Policy is expected.

Rule 4104 Reduction of Animal Matter

This rule applies to any source that reduces animal matter. This rule requires that any equipment used to reduce animal matter (such as cookers) be controlled by incinerating all effluent gases at a temperature of at least 1200 degrees F for at least 0.3 seconds. Darling currently operates a thermal oxidizer that meets these rule requirements, and will continue to do so with the proposed modifications. The rule also requires that equipment be installed so that proper operating temperatures, pressures, and other operating conditions may be monitored. Continued compliance with this rule is expected, and the following condition will be placed on the draft Authority to Construct (taken from the current PTO):

- All non-condensable emissions and vapors shall be incinerated in the thermal oxidizer at a minimum temperature of 1200 degrees F and a minimum retention time of 0.5 seconds. Incineration temperature shall be monitored by a continuously recording temperature device. [District Rules 4104 and 4102]
- Thermocouple installed at the rear of the thermal oxidizer shall provide accurate temperature readings of flue gas. An audible alarm shall be installed to alert facility personnel to low temperature readings. [District Rules 4104 and 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 NG:	8,578 dscf/MMBtu at 60 °F
PM10 Emission Factor:	0.0076 lb-PM10/MMBtu
Percentage of PM as PM10 in Exhaust:	100%
Exhaust Oxygen (O ₂) Concentration:	3%
Excess Air Correction to F Factor =	$\frac{20.9}{(20.9 - 3)} = 1.17$

$$GL = \left(\frac{0.0076 \text{ lb-PM}}{\text{MMBtu}} \times \frac{7,000 \text{ grain}}{\text{lb-PM}} \right) / \left(\frac{8,578 \text{ ft}^3}{\text{MMBtu}} \times 1.17 \right)$$

$$GL = 0.0053 \text{ grain/dscf} < 0.1 \text{ grain/dscf}$$

Therefore, compliance with District Rule 4201 requirements is expected and a permit condition will be listed on the permit as follows:

- {14} 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 SO₂, NO₂, 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.

District Rule 4301 Limits			
Pollutant	NO ₂	Total PM	SO ₂
ATC #C-406-6-0 (lb/hr)	0.27	0.38	0.071
Rule Limit (lb/hr)	140	10	200

The above table indicates compliance with the maximum lb/hr emissions in this rule; therefore, continued compliance is expected.

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

Pursuant to District Rules 4305 and 4306, Section 6.3.1, the boiler is not required to tune since it follows a District approved Alternate Monitoring scheme where the applicable emission limits are periodically monitored. Therefore, the unit is not subject to this rule.

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

The unit is natural gas-fired with a maximum heat input of 25.2 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4305, the unit is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters – Phase 2*.

In addition, the unit is also subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3*.

Since emissions limits of District Rule 4306 and all other requirements are equivalent or more stringent than District Rule 4305 requirements, compliance with District Rule 4306 requirements will satisfy requirements of District Rule 4305.

Conclusion

Therefore, compliance with District Rule 4305 requirements is expected and no further discussion is required.

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

The unit is natural gas-fired with a maximum heat input of 25.2 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4306, the unit is subject to District Rule 4306.

Section 5.1, NO_x and CO Emissions Limits

Section 5.1.1 requires that except for units subject to Sections 5.2, NO_x 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. Emission concentrations shall be corrected to 3.00 percent oxygen in accordance with Section 8.1.

With a maximum heat input of xxx MMBtu/hr, the applicable emission limit category is listed in Section 5.1.1, Table 1, Category B, from District Rule 4306.

Rule 4306 Emissions Limits				
Category	Operated on gaseous fuel		Operated on liquid fuel	
	NO _x Limit	CO Limit	NO _x Limit	CO Limit
B. Units with a rated heat input greater than 20.0 MMBtu/hr, except for categories C, D, E, F, G, H, and I units	9 ppmv or 0.011 lb/MMBtu	400 ppmv	40 ppmv or 0.052 lb/MMBtu	400 ppmv

For the unit:

- the proposed NO_x emission factor is 9 ppmvd @ 3% O₂ (0.011 lb/MMBtu), and
- the proposed CO emission factor is 100 ppmvd @ 3% O₂ (0.074 lb/MMBtu).

Therefore, compliance with Section 5.1 of District Rule 4306 is expected.

A permit condition listing the emissions limits will be listed on permit as shown in the DEL section above.

Section 5.2, Low Use

The unit annual heat input will exceed the 9 billion Btu heat input per calendar year criteria limit addressed by this section. Since the unit is not subject to Section 5.2, the requirements of this section do not apply to the unit.

Section 5.3, Startup and Shutdown Provisions

Section 5.3 states that on and after the full compliance schedule specified in Section 7.1, the applicable emission limits of Sections 5.1, 5.2.2 and 5.2.3 shall not apply during start-up or shutdown provided an operator complies with the requirements specified in Sections 5.3.1 through 5.3.4.

According to boiler manufacturers, low NO_x burners will achieve their rated emissions within one to two minutes of initial startup and do not require a special shutdown procedure. Because of the short duration before achieving the rated emission factor following startup,

the unit will be subject to the applicable emission limits of Sections 5.1, 5.2.2 and 5.2.3 while in operation.

Section 5.4, Monitoring Provisions

Section 5.4.2 requires that permit units subject to District Rule 4306, Section 5.1 emissions limits shall either install and maintain Continuous Emission Monitoring (CEM) equipment for NO_x, CO and O₂, or install and maintain APCO-approved alternate monitoring.

In order to satisfy the requirements of District Rule 4306, the applicant has proposed to use pre-approved alternate monitoring scheme A (pursuant to District Policy SSP-1105), which requires that monitoring of NO_x, CO, and O₂ exhaust concentrations shall be conducted at least once per month (in which a source test is not performed) using a portable analyzer. The following conditions will be incorporated into the permit in order to ensure compliance with the requirements of the proposed alternate monitoring plan:

- {2935} The permittee shall monitor and record the stack concentration of NO_x, CO, and O₂ at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. 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 month. [District Rules 4305 and 4306] N
- {2936} If either the NO_x or CO concentrations corrected to 3% O₂, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. 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 and 4306] N
- {2937} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305 and 4306] N
- {2938} The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x and CO

concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305 and 4306] N

Since the unit is not subject to the requirements listed in Section 5.2.1 or 5.2.2, it is not subject to Section 5.4.3 requirements.

Since the unit is not subject to the requirements of category H (maximum annual heat input between 9 billion and 30 billion Btu/year) listed in Section 5.1.1, it is not subject to Section 5.4.4 requirements.

Section 5.5, Compliance Determination

Section 5.5.1 requires that the operator of any unit shall have the option of complying with either the applicable heat input (lb/MMBtu) emission limits or the concentration (ppmv) emission limits specified in Section 5.1. The emission limits selected to demonstrate compliance shall be specified in the source test proposal pursuant to Rule 1081 (Source Sampling). Therefore, the following condition will be listed on the permit as follows:

- {2976} The source plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305 and 4306]

Section 5.5.2 requires that 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. Therefore, the following permit condition will be listed on the permit as follows:

- {2972} 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 and 4306]

Section 5.5.4 requires that for emissions monitoring pursuant to Sections 5.4.2, 5.4.2.1, and 6.3.1 using a portable NO_x analyzer as part of an APCO approved Alternate Emissions Monitoring System, emission readings shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15-consecutive-minute sample reading or by taking at least five (5) readings evenly spaced out over the 15-consecutive-minute period.

Therefore, the following permit condition will be listed on the permit as follows:

- {2937} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or

a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305 and 4306]

Section 5.5.5 requires that for emissions source testing performed pursuant to Section 6.3.1 for the purpose of determining compliance with an applicable standard or numerical limitation of this rule, the arithmetic average of three (3) 30-consecutive-minute test runs shall apply. If two (2) of three (3) runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. Therefore, the following permit condition will be listed on the permit as follows:

- {2980} 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 and 4306]

Section 6.1, Recordkeeping

Section 6.1 requires that the records required by Sections 6.1.1 through 6.1.3 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 noncompliance with the applicable requirements of this rule shall constitute a violation of this rule.

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

- {2983} 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, 4305, and 4306]

Section 6.1.2 requires that the operator of a unit subject to Section 5.2 shall record the amount of fuel use at least on a monthly basis. Since the unit is not subject to the requirements listed in Section 5.2, it is not subject to Section 6.1.2 requirements.

Section 6.1.3 requires that the operator of a unit subject to Section 5.2.1 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. The unit is not subject to Section 6.1.3. Therefore, the requirements of this section do not apply to the unit.

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 _x	ppmv	EPA Method 7E or ARB Method 100
NO _x	lb/MMBtu	EPA Method 19
CO	ppmv	EPA Method 10 or ARB Method 100
Stack Gas O ₂	%	EPA Method 3 or 3A, or ARB Method 100
Stack Gas Velocities	ft/min	EPA Method 2
Stack Gas Moisture Content	%	EPA Method 4

The following permit conditions will be listed on the permit as follows:

- {109} 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]
- {2977} NO_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305 and 4306]
- {2978} CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305 and 4306]
- {2979} Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305 and 4306]

Section 6.3, Compliance Testing

Section 6.3.1 requires that this unit be tested to determine compliance with the applicable requirements of section 5.1 and 5.2.3 not less than once every 12 months. Upon demonstrating compliance on two consecutive compliance source tests, the following source test may be deferred for up to thirty-six months.

The following permit conditions will be listed on the permit as follows:

- {3467} Source testing to measure NO_x and CO emissions from this unit while fired on natural gas shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, and 4306]
- {3466} Source testing to measure NO_x and CO emissions from this unit while fired on natural gas shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (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 twelve (12) months. [District Rules 4305 and 4306]

- {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

In addition, since the applicant has proposed to use pre-approved Alternate Monitoring Scheme “A” using a portable analyzer, the tune-up requirements listed in Section 6.3.1 are not applicable to the [boiler / steam generator]. Section 6.3.1 also requires that, during the 36-month source testing interval, the owner/operator shall monthly monitor the operational characteristics recommended by the unit manufacturer. Since the pre-approved Alternate Monitoring Scheme “A” using a portable analyzer requires monthly monitoring of NO_x, CO, and O₂ exhaust emissions concentrations, operational characteristics monitoring requirement is satisfied, and no further discussion is required.

Section 6.4, Emission Control Plan (ECP)

Section 6.4.1 requires that the operator of any unit shall submit to the APCO for approval an Emissions Control Plan according to the compliance schedule in Section 7.0 of District Rule 4306.

The proposed modified unit will be in compliance with the emissions limits listed in table 1, Section 5.1 of this rule and with periodic monitoring and source testing requirements. Therefore, this current application for the new proposed unit satisfies the requirements of the Emission Control Plan, as listed in Section 6.4 of District Rule 4306. No further discussion is required.

Section 7.0, Compliance Schedule

Section 7.0 indicates that an operator with multiple units at a stationary source shall comply with this rule in accordance with the schedule specified in Table 2, Section 7.1 of District Rule 4306.

The unit will be in compliance with the emissions limits listed in table 1, Section 5.1 of this rule, and periodic monitoring and source testing as required by District Rule 4306. Therefore, requirements of the compliance schedule, as listed in Section 7.1 of District Rule 4306, are satisfied. No further discussion is required.

Conclusion

Conditions will be incorporated into the permit in order to ensure compliance with each section of this rule, see attached draft permit(s). Therefore, compliance with District Rule 4306 requirements is expected.

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

This rule applies to boilers, steam generators, and process heaters at NO_x Major Sources that are not located west of Interstate 5 in Fresno, Kings, or Kern counties. If applicable, the emission limits, monitoring provisions, and testing requirements of this rule are satisfied

when the unit is operated in compliance with Rule 4306. Therefore, compliance with this rule is expected.

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 SO₂, 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:

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

With:

N = moles SO₂

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

P (Standard Pressure) = 14.7 psi

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

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

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

Therefore, compliance with District Rule 4801 requirements is expected.

California Health & Safety Code 42301.6 (School Notice)

This facility is not located within 1,000 feet of a school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The San Joaquin Valley Unified Air Pollution Control District (District) adopted its *Environmental Review Guidelines* (ERG) in 2001. The ERG was prepared to comply with this requirement and is an internal document used to comply with CEQA.

The basic purposes of CEQA are to:

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

The District has determined that no other agency has discretionary approval over the project, therefore establishing the District as the Lead Agency for the project (CEQA Guidelines §15051(b)). An Initial Study was prepared, which identified impact on air quality as the project’s only potential significant environmental effect. The District’s engineering evaluation of the project (this document) determined that compliance with District rules and permit conditions would mitigate the project’s potential impact to less than significant. Consistent with CEQA Guidelines §15070(b)(1), a proposed Mitigated Negative Declaration was prepared and released for public review.

IX. RECOMMENDATION

Compliance with all applicable rules and regulations is expected. Pending a successful public noticing period, issue Authorities to Construct C-406-2-5 and C-406-6-0 subject to the permit conditions on the attached draft Authority to Construct in Appendix B.

X. BILLING INFORMATION

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
C-406-2-5	3020-02-H	18,000 kbtu/hr	\$882
C-406-6-0	3020-02- H	25,200 kBtu/hr	\$882

APPENDICES

- Appendix A: HRA Summary
- Appendix B: Draft Authority to Construct
- Appendix C: Emissions Profile

APPENDIX A

HRA Summary

APPENDIX B

Draft ATC

APPENDIX C

Emissions Profile