San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

SEP 20 2019

Bill McMurtry
Darling Ingredients Inc
5601 N MacArthur Blvd
Irving, Tx 75038

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: C-9251
Project Number: C-1172884

Dear Mr. McMurtry:

Enclosed for your review and comment is the District's analysis of Darling Ingredients Inc's application for an Authority to Construct for the installation of a new animal rendering facility and associated equipment which includes two rendering lines with a shared emissions control system and an odor control system, protein storage and loadout operation and two 63 MMBtu/hr natural gas/biogas-fired boilers, at 5449 W Jensen Ave, Fresno, CA.

The notice of preliminary decision for this project has been posted on the District's website (www.valleyair.org). After addressing all comments made during the 30-day public notice period, the District intends to issue the Authority to Construct. Please submit your written comments on this project within the 30-day public comment period, as specified in the enclosed public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Jesse A. Garcia of Permit Services at (559) 230-5918.

Sincerely,

Arnaud Marjollet
Director of Permit Services

AM:jag

Enclosures

cc: Courtney Graham, CARB (w/ enclosure) via email

Samir Sheikh
Executive Director/Air Pollution Control Officer

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www.valleyair.org www.healthyairliving.com

San Joaquin Valley Air Pollution Control District

Authority to Construct Application Review

New Food Processing Byproduct Conversion (Animal Rendering) Facility

Facility Name:	Darling Ingredients Inc	Date:	September 20, 2019
Mailing Address:	5601 N MacArthur Blvd Irving, TX 75038	Engineer:	Jesse A. Garcia
		Lead Engineer:	Jerry Sandhu
Contact Person:	Bill McMurtry (Darling Ingredients Inc) or Russell Kingsley (Yorke Engineering)		
Telephone:	Bill: (972) 281-4409 or cell (469) 387-2888 or Russell: (805) 293-7756 or cell (805) 844-7491		
E-Mail:	BMcMurtry@darlingii.com or RKingsley@yorkeengr.com		
Application #s:	C-9251-1-0, -2-0, -3-0, -4-0, & -5-0		
Project #:	C-1172884		
Deemed Complete:	November 21, 2017		

I. Proposal

Darling Ingredients Inc has requested Authority to Construct (ATC) permits for the construction of a new food processing byproduct conversion (animal rendering) operation. The proposed facility is being constructed to replace and relocate an existing facility. The existing facility is located at 795 W Belgravia in Fresno. The proposed facility will be considered a new stationary source for District Rule 2201, New Source Review Rule, purposes.

The proposed facility includes:

- two animal rendering lines with a shared emissions control system consisting of a venturi scrubber, a twin packed bed scrubber and a regenerative thermal oxidizer (RTO) (ATCs C-9251-1, and -2) and an odor control cross-flow scrubber serving the fugitive emissions from the processing building, ATCs C-9251-1 and -2,
- protein storage and loadout operation (ATC C-9251-3),
- two 63 MMBtu/hr natural gas and/or biogas-fired boilers, each with a flue gas recirculation (FGR) and selective catalytic reduction (SCR) system (ATCs C-9251-4 & -5),
- four fat day tanks and five fat storage, all permit exempt since they are not a source of air contaminants as discussed in the Compliance Determination for Rule 2010 in Section VIII of this document.

The draft ATCs are included in Appendix A and the process flow diagram of the rendering lines and protein storage and loadout operation is included in Appendix B.

II. Applicable Rules

Rule 1100	Equipment Breakdown (12/17/92)
Rule 2010	Permits Required (12/17/92)
Rule 2201	New and Modified Stationary Source Review Rule (8/15/19)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (8/15/19)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4104	Reduction of Animal Matter (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/92)
Rule 4305	Boilers, Steam Generators, and Process Heaters – Phase 2 (8/21/03)
Rule 4306	Boilers, Steam Generators, and Process Heaters – Phase 3 (10/16/08)
Rule 4320	Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)
Rule 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

The site is located at 5449 W Jensen Ave in Fresno, California. The equipment 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

C-9251-1 & -2:
Raw materials for recycling are collected and delivered to the facility in Darling Ingredients Inc or customer owned trucks, as well as by contract haulers. The raw materials include fat, bone, offal, and used cooking oil from food processing establishments. Once weighed, the raw materials are delivered into receiving pits serving the two identical rendering lines.

From there, the raw materials travel up an inclined conveyor, past a magnet to remove metal, and into a grinder that reduces the material size to a nominal 1-1/2 inch. Ground material is pumped to the cooker. The cooker uses steam from the boilers listed in permits C-9251-4 & -5 to evaporate the moisture and provide a partial separation of the fat (liquid fraction) from the protein (solids fraction). The materials are cooked at 260 to 290 degrees Fahrenheit (°F). The liquids and solids generated flow to the drainer/sedimenter to separate free-flowing liquid fats from solids.

Solids from the drainer/sedimenter are conveyed to the screw presses which squeeze residual liquid fats from the solids. The liquid fats are returned to the drainer/sedimenter. The dry solids are conveyed to the crax hopper for temporary storage pending further processing. The crax is processed in a hammermill for size reduction and a screen for size classification. Oversized materials are returned to the hammermill and finished product (solids portion) is conveyed to the finished product storage silo. Liquid fats from the drainer/sedimenter flow to the centrifuge for removal of fine particles from the liquids. The liquid fat is then pumped to processing tanks called day tanks. A portion of the liquid fat is recycled back to the cooker to maintain liquidity. Finished fats are pumped to the permit-exempt fat storage tanks.

The water vapor evaporated by the cooker is pulled through a condensing system where the water vapor is condensed out of the gas stream before discharge to the Fresno municipal wastewater treatment system. Wash water, blowdown water, and other process related waste water will be processed through a rotary screen, equalization tank, and a dissolved air flotation (DAF) with chemistry prior to being discharged to the Fresno municipal wastewater treatment system. Liquid fats from the DAF are returned to the raw material feed and/or hauled offsite for beneficial use.

The proposed fat storage tanks are used to store fat produced from the rendering process. Finished fat is first stored in the four fat day tanks before being pumped into the five fat storage tanks. The fat storage tanks are heated with the steam from the boilers listed in permits C-9251-4 & -5 to prevent solidification.

The proposed fat loadout line consists of a pumping station that connects the five fat storage tanks to the tank truck loading station.

C-9251-3:
The proposed protein loadout line is composed of two protein storage silos with passive bin vent filters and a loadout station within the rendering process building. The finished protein solids are conveyed into the silos then loaded out into trucks within the rendering process building.

C-9251-4 & -5:
The proposed natural gas and/or biogas-fired boilers are used to provide steam to steam-jacketed cookers on both rendering lines listed in permits C-9251-1 & -2.

V. Equipment Listing

C-9251-1-0: FOOD PROCESSING BYPRODUCT CONVERSION OPERATION (LINE #1) WITH ONE RAW MATERIAL FEED HOPPER AND TRANSFER SYSTEM, ONE DUPPS MODEL 320U COOKER WITH ENTRAINMENT TRAP, DISCHARGE SCREWS, AND DRAINERS, ONE AIR-COOLED CONDENSER, ONE DRAINER/SEDIMENTER, ONE CENTRIFUGE, THREE CRAX PRESSES, ONE CRAX HOPPER, ONE FINISHING CENTRIFUGE, ONE SCREEN AND ONE CRAX GRINDER/HAMMERMILL, A WASTEWATER TREATMENT SYSTEM WITH ROTARY SCREEN, EQUALIZATION TANK AND DISSOLVED AIR FLOATATION SYSTEM SHARED WITH PERMIT C-9251-2, AND AN EMISSIONS/ODOR CONTROL SYSTEM CONSISTING OF A VENTURI SCRUBBER, A TWIN PACKED TOWER SCRUBBER AND A 4 MMBTU/HR REGENERATIVE THERMAL OXIDIZER (RTO) IN SERIES (EMISSIONS/ODOR CONTROL SYSTEM SHARED WITH PERMIT C-9251-2) AND PERMIT EXEMPT FAT STORAGE TANKS (NOT A SOURCE OF AIR CONTAMINANTS). ROOM AIR WILL BE SERVED BY A 100,000 CFM CROSS-FLOW SCRUBBER SHARED WITH PERMIT C-9251-2

C-9251-2-0: FOOD PROCESSING BYPRODUCT CONVERSION OPERATION (LINE #2) WITH ONE RAW MATERIAL FEED HOPPER AND TRANSFER SYSTEM, ONE DUPPS MODEL 320U COOKER WITH ENTRAINMENT TRAP, DISCHARGE SCREWS, AND DRAINERS, ONE AIR-COOLED CONDENSER, ONE DRAINER/SEDIMENTER, ONE CENTRIFUGE, THREE CRAX PRESSES, ONE CRAX HOPPER, ONE FINISHING CENTRIFUGE, ONE SCREEN AND ONE CRAX GRINDER/HAMMERMILL, A WASTEWATER TREATMENT SYSTEM WITH ROTARY SCREEN, EQUALIZATION TANK AND DISSOLVED AIR FLOATATION SYSTEM SHARED WITH PERMIT C-9251-1, AND AN EMISSIONS/ODOR CONTROL SYSTEM CONSISTING OF A VENTURI SCRUBBER, A TWIN PACKED TOWER SCRUBBER AND A 4 MMBTU/HR REGENERATIVE THERMAL OXIDIZER (RTO) IN SERIES (EMISSIONS/ODOR CONTROL SYSTEM SHARED WITH PERMIT C-9251-1) AND PERMIT EXEMPT FAT STORAGE TANKS (NOT A SOURCE OF AIR CONTAMINANTS). ROOM AIR WILL BE SERVED BY A 100,000 CFM CROSS-FLOW SCRUBBER SHARED WITH PERMIT C-9251-1

C-9251-3-0: PROTEIN STORAGE AND LOADOUT OPERATION WITH TWO 18,850 CU FT STORAGE SILOS, EACH SERVED BY A BIN VENT FILTER

C-9251-4-0: 63 MMBTU/HR VICTORY BOILER MODEL F2-1500HP-S200 NATURAL GAS/BIOGAS-FIRED BOILER WITH A WEBSTER MODEL HDR(X)-RF23-750 LOW-NOX BURNER FLUE GAS RECIRCULATION (FGR) SYSTEM AND WITH A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM

C-9251-5-0: 63 MMBTU/HR VICTORY BOILER MODEL F2-1500HP-S200 NATURAL GAS/BIOGAS-FIRED BOILER WITH A WEBSTER MODEL HDR(X)-RF23-750 LOW-NOX BURNER FLUE GAS RECIRCULATION (FGR) SYSTEM AND WITH A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM

For the boilers and burner under ATCs C-9251-4-0 and -5-0, the applicant has requested approval for the installation of the boiler equipped with the burner listed above, or an equivalent boiler and burner. Therefore, in accordance with District Policy APR 1040, Flexibility in Equipment Descriptions in ATCs, the following conditions will be included on each of these ATCs:

- The permittee shall obtain APCO approval for the use of any equivalent boiler and/or burner not specifically approved by this Authority to Construct. Approval of an equivalent boiler and/or burner shall only be made after the APCO's determination that the submitted design and performance data for the proposed boiler and/or burner is equivalent to the approved boiler and/or burner. [District Rule 2201]
- The permittee's request for approval of an equivalent boiler and/or burner shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2201]
- No emission factor and no emissions shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]
- The permittee's request for approval of an equivalent boiler and/or burner shall be submitted to the District at least 90 days prior to the planned installation date. The permittee shall also notify the District at least 30 days prior to the actual installation of the District approved equivalent boiler and/or burner. [District Rule 2201]

VI. Emission Control Technology Evaluation

C-9251-1 & -2:
The raw material hopper and raw material grinder will handle material with an elevated moisture content of up to 65%; therefore, PM emissions are not expected to be emitted. The materials received will be processed promptly (within 24 hours) upon arrival at the facility to minimize odors and VOC emissions.

Once the raw material is received and sized, it is sent to the cooker where VOCs, Particulate Matter, and nitrogen and sulfur containing compounds are emitted. The water laden gas stream leaving the cooker(s) will be condensed by way of an air cooled condensing (ACC) system, which will cool and collapse the gas stream into condensate thereby removing a large portion of the pollutants mentioned above. The remaining, relatively small, noncondensible gas stream from the ACC and the odorous emissions from certain high intensity sources (e.g. the drainer/sedimenter, centrifuge, screw presses and crax hopper) will be routed to the venturi and twin packed bed scrubbers to remove additional water vapor, Particulate Matter, VOCs, and nitrogen and sulfur containing compounds. The treated gas stream will then flow to the RTO to oxidize any remaining odor.

Since the odor profile generated by the raw material being processed can have some variability, the twin packed bed scrubber, and one of the two stages of the cross-flow scrubber will be operated in the following manner to optimize the odor control system performance:

- For an acidic approach, the pH of the scrubbing solution will be less than or equal to 5.
- For an alkaline approach, the pH of the scrubbing solution will be greater than or equal to 9.
- For a neutral approach, the pH of the scrubbing solution will be greater than 5 and less than 9.

Any fugitive odors that may not be captured at the point of generation by the enclosed odor control system described above are not expected to be significant but will be controlled by the cross-flow scrubber.

The proposed cross-flow scrubber has a cross-flow orientation with the airflow traveling horizontally through spray sections allowing the scrubbing fluid to make intimate contact with the gas stream being treated. A mist eliminator section helps prevent water and any entrained Particulate Matter from leaving the discharge stack.

In the event of a malfunction of the RTO, to minimize odors since the operation cannot be shut down immediately, the processing area of the building cross-flow scrubber will be employed to minimize emissions normally controlled by the RTO.

Although the protein processing activities are served by the cross-flow scrubber, emissions are considered to be insignificant and uncontrolled, and will be calculated as such.

Although exempt, the five fat storage tanks will be vented to the venturi, twin packed bed scrubber system and the RTO to address any potential odor profile from the tanks.

C-9251-3:
Emissions from the storage silos are minimized by the use of bin vent filters. The protein solids have a relatively high fat and moisture content which makes it not easily friable resulting in particulate emissions that are not expected to be significant. Although the storage silos are equipped with bin vent filters, emissions will be considered to be uncontrolled and will be calculated as such.

C-9251-4 & -5:
In a combined effort with the existing neighboring Fresno municipal wastewater treatment plant (Facility C-535) Darling Ingredients Inc is proposing to utilize the renewable natural gas, or conditioned (purified) biogas, produced at the waste water treatment plant in addition to natural gas as fuel for the boilers.

Emissions from natural gas and/or biogas-fired boilers include NO_x, CO, VOC, PM_{10}, and SO_x.

NO_X is the major pollutant of concern when burning natural gas. NO_X formation is either due to thermal fixation of atmospheric nitrogen in the combustion air (thermal NO_X) or due to conversion of chemically bound nitrogen in the fuel (fuel NO_X). Due to the low fuel nitrogen content of natural gas, nearly all NO_X emissions are thermal NO_X. Formation of thermal NO_X is affected by four furnace zone factors: (1) nitrogen concentration, (2) oxygen concentration, (3) peak temperature, and (4) time of exposure at peak temperature.

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.

Flue gas recirculation (FGR) reduces NO_X emissions by recirculating a percentage of the exhaust gas back into the windbox. This reduces the oxygen concentration in the air-fuel mixture and regulates the combustion process, lowering the combustion temperature. The lowered availability of oxygen in conjunction with lowered combustion temperature reduces the formation of NO_X.

A Selective Catalytic Reduction (SCR) system operates as an external control device where flue gases and a reagent, in this case ammonia, are passed through an appropriate catalyst. Ammonia, will be injected upstream of the catalyst where it reacts and reduces NO_X, over the catalyst bed, to form elemental nitrogen and other by-products. The use of SCR typically reduces the NO_X emissions by up to 90%.

The biogas that will be used as fuel in the boilers will come from the nearby facility C-535 and will be cleaned and conditioned in the gas treatment system permitted under C-535-26 to remove moisture, hydrogen sulfide, siloxanes and carbon dioxide prior to combustion in the boilers.

VII. General Calculations

A. Assumptions

For all units, the maximum operating schedule is 24 hours/day and 365 days/year.

C-9251-1 & -2:

- The maximum combined throughput, for each processing line, proposed by the applicant and based on historical throughputs from other facilities owned by the applicant:

Material	Throughput	
	tons/day	tons/year
Raw Feed	850	260,714
Fat*	132	40,411
	34,510 gal**	10,564,967 gal**
Protein Solids	166	50,839
Moisture	552	169,464

* This material is sent to the permit exempt fat storage tanks.
** Fat throughput in gallons = fat throughput (lbs) ÷ density of fat; where density of fat is 7.65 lbs/gal per the applicant.

- F-Factor for natural gas: 8,578 dscf/MMBtu corrected to 60°F (40 CFR 60, Appendix B)

C-9251-3:

The maximum protein throughput is 322 tons/day and 101,678 tons/year for the loadout operation.

C-9251-4 & -5:

- These units shall only be fired on either of the following: (1) PUC-regulated natural gas, or (2) a mixture of PUC-regulated natural gas and conditioned biogas from Fresno/Clovis Regional Wastewater Treatment Plant's gas treatment system permitted under permit C-535-26 (per applicant)
- Startup/Shutdown duration is limited to 2 hours per event (4 hours per day total combined) (per applicant)
- Natural Gas Heating Value: 1,000 Btu/scf (District Practice)
- Higher heating value of biogas is 992 Btu/scf (see gas analysis in Appendix C)
- F-Factor for natural gas: 8,578 dscf/MMBtu corrected to 60°F (40 CFR 60, Appendix B)
- F-factor for biogas is equivalent to natural gas as demonstrated by gas analysis (see Appendix C)

B. Emission Factors

C-9251-1 & -2:

Protein Processing Emission Factors:

- An emission factor for transfer of protein of 0.0008 lb-PM_{10}/ton will be used which is District practice for transfer of protein in rendering operations and established from AP-42, Table 9.9.1-2 for animal feed milling shipping.

- An emission factor of 0.01 lb-PM_{10}/ton for protein screening and grinding is proposed by the applicant based on other Darling Ingredients Inc facilities and other previous permitting actions within the District, which is conservatively higher than the hammermill emission factor of 0.006 lb-PM_{10}/ton (calculated as 0.012 lb-PM/ton x 1 lb-PM_{10}/2 lb-PM, since the District does not have speciation data for this operation, Rule 2201, Section 4.11.2 allows for an assumption that 50% of total suspended particulates is PM_{10}) in AP-42, Table 9.9.1-2.

Protein Processing Emission Factors:
Fugitive emissions of PM_{10}, VOC, and H_2S are expected from various emissions points within the processing building including the raw material receiving pit, conveyors, transfer points, magnet, pump, grinder, and any emissions escaping the closed ventilation system served by the venturi scrubber, twin packed bed scrubber and RTO. The emission factors for these sources that are vented through the cross-flow scrubber are presented in the table below:

Emission Factors from Cross-Flow Scrubber		
Pollutant	Emission Factor	Source
PM_{10}	0.001 gr/dscf	Average of 2016-2019 source test results for room air scrubber at rendering operation listed under permit N-1252-30.
VOC	3.2 ppmv (as CH_4)	Average of 2016-2019 source test results for room air scrubber at rendering operation listed under permit N-1252-30*.
H_2S	0.75 ppmv	Average of 2016-2019 source test results for room air scrubber at rendering operation listed under permit N-1252-30 including a margin of compliance since the results varied significantly.

* The emission rate measured on 12/11/2018 was not included since it was significantly higher than the other measured values and not representative (15.34 ppmv measured on 12/11/18 vs. 1.07 ppm, 1.4 ppmv, 4.2 ppmv, 6.3 ppmv measure on other dates within the timeframe).

RTO:
The applicant has proposed the emission factors in the following table for all emissions points served by the RTO (cooker, screw press, centrifuge, etc.).

Emission Factors from RTO Proposed by Applicant		
Pollutant	Emission Factor (lb/hr)	Source
NO_X	0.17	Proposed by Applicant
SO_X	0.82	
PM_{10}	0.08	
CO	0.336	
VOC	0.06	

In order to convert the previous emission factors into pounds per ton of material processed (lbs/ton), the applicant has proposed dividing the emission factors by a conservatively low process rate of 49,000 lbs/hr as calculated in Appendix D (a lower process rate will result in a higher, or more conservative, emission factor in lbs/ton). The emission factors are converted from lbs/hr using the following equation and the results are summarized in the table below:

EF (lbs/ton) = EF (lbs/hr) ÷ (49,000 lbs/hr ÷ 2,000 lbs/ton)

Emission Factors from RTO in lb/ton		
Pollutant	Emission Factor (lb/hr)	Emission Factor (lb/ton)
NO_X	0.17	0.0069
SO_X	0.82	0.0335
PM_{10}	0.08	0.0033
CO	0.336	0.0137
VOC	0.06	0.0024

Additionally, since the source test that established the VOC emission factor in the table above[1] measured a 97.7% VOC control efficiency which is higher than the District's typical control efficiency assumption of 95% for incineration, the VOC emission factor must be adjusted accordingly as follows:

$$EF_{VOC\text{-}95\%\ CE}\ (lb/ton) = EF_{VOC\text{-}97.7\%\ CE}\ (lb/ton) \div (1 - 0.977) \times (1 - 0.95)$$
$$= 0.0024\ lb/ton \div (1 - 0.977) \times (1 - 0.95)$$
$$= 0.0052\ lb/ton$$

Therefore, the final emission factors to be used for the emissions from the RTO are summarized in the following table:

Permitted Emission Factors from RTO		
Pollutant	Emission Factor (lb/hr)	Emission Factor (lb/ton)
NO_X	0.17	0.0069
SO_X	0.82	0.0335
PM_{10}	0.08	0.0033
CO	0.336	0.0137
VOC	0.06	0.0052

[1] Darling Ingredients facility in Los Angeles, tested on July 9-10, 2018, prepared by AirKinetics, Inc. (AKI) with AKI No: 14972.

C-9251-3:
An emission factor for transfer of protein of 0.0008 lb-PM_{10}/ton will be used which is District practice for transfer of protein in rendering operations and established from AP-42, Table 9.9.1-2 for animal feed milling shipping.

C-9251-4 & -5:
For the new boilers during steady state operation, the emissions factors for NO_X and CO are proposed by the applicant. The VOC and PM_{10} emission factors are taken from AP-42. The SO_X emission factor is calculated using the sulfur content in the fuel. The emission factors and sources are summarized in the following table:

Emission Factors During Steady State Operation			
Pollutant	lb/MMBtu	ppmv (@ 3% O_2)	Source
NO_X	0.003*	2.5	Proposed by Applicant
SO_X	0.0034**	1 gr/100 scf, or 15.9 ppmv as H_2S	BACT Requirement
PM_{10}	0.003	--	District Practice
CO	0.037*	50	Proposed by Applicant
VOC	0.0055	--	AP-42 (07/98) Table 1.4-2
NH_3	--	10	Proposed by Applicant

* Converted using the calculator attached in Appendix E.
** Assuming a worst case methane content of 80% and 1 grains-S (as H_2S)/100 scf (Rule 4320 requirement):

$$\frac{1\ grain}{100\ scf} \times \frac{379\ ft^3}{lb-mol} \times \frac{lb-mol}{34\ lb-H_2S} \times \frac{lb}{7000\ grains} = \frac{15.9\ Parts\ H_2S}{10^6\ Parts}$$

$$\frac{15.9\ Parts\ H_2S}{10^6\ Parts} \times \frac{lb-mol}{379\ ft^3} \times \frac{34\ lb-H_2S}{lb-mol} \times \frac{64\ lb-SO_2}{34\ lb\ H_2S} \times \frac{ft^3}{800\ Btu} \times \frac{1{,}000{,}000\ Btu}{MMBtu} = \frac{0.0034\ lb\ SO_X}{MMBtu}$$

For the new boilers, during startup/shutdown, the emissions factors for NO_X and CO are proposed by the applicant.

Emission Factors During Startup/Shutdown			
	lb/MMBtu	ppmv (@ 3% O_2)	Source
NO_X	0.036*	30	Proposed by Applicant
CO	0.074*	100	Proposed by Applicant

* Converted using the calculator attached in Appendix E.

C. Calculations

1. Pre-Project Potential to Emit (PE1)

C-9251-1, -2, -3, -4, -5:

Since these are new emissions units, PE1 = 0 for all pollutants, for each unit.

2. Post Project Potential to Emit (PE2)

C-9251-1 & -2:

The potential to emit for both rendering lines combined is calculated below for the various emissions points:

The following protein processing emissions are calculated solely for BACT applicability determination purposes (see Compliance Determination for Rule 2201 in Section VIII of this document). The protein processing emissions are calculated using the following equation:

Protein Processing Emissions = Emission Factor x protein solids throughput

Transfer from Bucket Elevator to Crax Hopper:
Daily $PE2_{PM10}$ = 0.0008 lb-PM_{10}/ton x 166 tons/day
= 0.1 lb-PM_{10}/day
Annual $PE2_{PM10}$ = 0.0008 lb-PM_{10}/ton x 50,839 tons/year
= 41 lb-PM_{10}/year

Screw Conveyor Transfer from Crax Hopper to Screen:
Daily $PE2_{PM10}$ = 0.0008 lb-PM_{10}/ton x 166 tons/day
= 0.1 lb-PM_{10}/day
Annual $PE2_{PM10}$ = 0.0008 lb-PM_{10}/ton x 50,839 tons/year
= 41 lb-PM_{10}/year

Screening:
Daily $PE2_{PM10}$ = 0.01 lb-PM_{10}/ton x 166 tons/day
= 1.7 lb-PM_{10}/day
Annual $PE2_{PM10}$ = 0.01 lb-PM_{10}/ton x 50,839 tons/year
= 508 lb-PM_{10}/year

Grinding:
Daily $PE2_{PM10}$ = 0.01 lb-PM_{10}/ton x 166 tons/day
= 1.7 lb-PM_{10}/day
Annual $PE2_{PM10}$ = 0.01 lb-PM_{10}/ton x 50,839 tons/year
= 508 lb-PM_{10}/year

Transfer of Meal through Elevator from Grinding Room to Storage Silos' Bucket Elevator:
Daily $PE2_{PM10}$ = 0.0008 lb-PM_{10}/ton x 166 tons/day
= 0.1 lb-PM_{10}/day
Annual $PE2_{PM10}$ = 0.0008 lb-PM_{10}/ton x 50,839 tons/year
= 41 lb-PM_{10}/year

Cross-Flow Scrubber Emissions:

The emissions from various equipment[2] being controlled by the whole building room cross-flow scrubber are as follows:

$$\text{Daily PE2}_{PM10} = \frac{0.001\ grain}{dscf} \times \frac{100{,}000\ scf}{min} \times \frac{1440\ min}{day} \times \frac{lb}{7{,}000\ grains}$$

= 20.6 lb-PM_{10}/day

$$\text{Annual PE2}_{PM10} = \frac{0.001\ grain}{dscf} \times \frac{100{,}000\ scf}{min} \times \frac{1440\ min}{day} \times \frac{365\ days}{year} \times \frac{lb}{7{,}000\ grains}$$

= 7,509 lb-PM_{10}/year

$$\text{Daily PE2}_{VOC} = \frac{3.2\ parts\text{-}VOC}{10^6} \times \frac{100{,}000\ scf}{min} \times \frac{16\ lbs}{lb\text{-}mol} \times \frac{lb\text{-}mol}{379.5scf} \times \frac{1440\ min}{day}$$

= 19.4 lb-VOC/year

$$\text{Annual PE2}_{VOC} = \frac{3.2\ parts\text{-}VOC}{10^6} \times \frac{100{,}000\ scf}{min} \times \frac{16\ lbs}{lb\text{-}mol} \times \frac{lb\text{-}mol}{379.5scf} \times \frac{1440\ min}{day} \times \frac{365\ days}{year}$$

= 7,091 lb-VOC/year

$$\text{Daily PE2}_{H2S} = \frac{0.75\ parts\text{-}H_2S}{10^6} \times \frac{100{,}000\ scf}{min} \times \frac{34\ lbs\text{-}H_2S}{lb\text{-}mol} \times \frac{lb\text{-}mol}{379.5scf} \times \frac{1440\ min}{day}$$

= 9.7 lb-H_2S/day

$$\text{Annual PE2}_{H2S} = \frac{0.75\ parts\text{-}H_2S}{10^6} \times \frac{100{,}000\ scf}{min} \times \frac{34\ lbs\text{-}H_2S}{lb\text{-}mol} \times \frac{lb\text{-}mol}{379.5scf} \times \frac{1440\ min}{day} \times \frac{365\ days}{year}$$

= 3,532 lb-H_2S /year

RTO Emissions:

The emissions from the combustion of natural gas and process vapors in the RTO are calculated below.

Daily $PE2_{NOx}$ = (0.0069 lb/ton) x (850 tons/day) = 5.9 lb-NOx/day
Annual $PE2_{NOx}$ = (0.0069 lb/ton) x (260,714 tons/year) = 1,799 lb-NOx/year

Daily $PE2_{SOx}$ = (0.0335 lb/ton) x (850 tons/day) = 28.5 lb-SOx/day
Annual $PE2_{SOx}$ = (0. 0335 lb/ton) x (260,714 tons/year) = 8,734 lb-SOx/year

Daily $PE2_{PM10}$ = (0.0033 lb/ton) x (850 tons/day) = 2.8 lb-PM_{10}/day
Annual $PE2_{PM10}$ = (0.0033 lb/ton) x (260,714 tons/year) = 860 lb-PM_{10}/year

Daily $PE2_{CO}$ = (0.0137 lb/ton) x (850 tons/day) = 11.6 lb-CO/day
Annual $PE2_{CO}$ = (0.0137 lb/ton) x (260,714 tons/year) = 3,572 lb-CO/year

Daily $PE2_{VOC}$ = (0.0052 lb/ton) x (850 tons/day) = 4.4 lb-VOC/day
Annual $PE2_{VOC}$ = (0.0052 lb/ton) x (260,714 tons/year) = 1,356 lb-VOC/year

[2] Various equipment including but not limited to: raw material hopper, raw material conveyors, raw material processing prior to the cookers including the magnets, grinders and pumps, protein transferring, screening, grinding.

PE2 for RTO		
Pollutant	**Daily Emissions (lb/day)**	**Annual Emissions (lb/year)**
NO_X	5.9	1,799
SO_X	28.5	8,734
PM_{10}	2.8	860
$PM_{2.5}$*	2.8	860
CO	11.6	3,572
VOC	4.4	1,356

*$PM_{2.5}/PM_{10}$ fraction = 1.0 per District practice for gas combustion.

Total emissions from the units are summarized and calculated in the following tables:

Total Daily Emissions from Units -1 and -2 in lbs/day							
	NO_X	**SO_X**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**VOC**	**H_2S**
Transfer from Bucket Elevator to Crax Hopper[3]	0.0	0.0	0.1	0.1*	0.0	0.0	0.0
Screw Conveyor from Crax Hopper to Screen[3]	0.0	0.0	0.1	0.1*	0.0	0.0	0.0
Screens[3]	0.0	0.0	1.7	0.9*	0.0	0.0	0.0
Grinders[3]	0.0	0.0	1.7	0.9*	0.0	0.0	0.0
Transfer of Meal through Elevator from Grinding Room to Storage Silo's Bucket Elevator[3]	0.0	0.0	0.1	0.1*	0.0	0.0	0.0
Cross-Flow Scrubber	0.0	0.0	20.3	11.3*	0.0	19.4	9.7
RTO	5.9	28.5	2.8	2.8**	11.6	4.4	0.0
Total (lbs/day)	**5.9**	**28.5**	**23.1**	**14.1**	**11.6**	**23.8**	**9.7**

*$PM_{2.5}/PM_{10}$ fraction = 0.55 per reported values from ARB's CEPAM, Version 1.05.
**$PM_{2.5}/PM_{10}$ fraction = 1.0 per District practice for gas combustion.

Total Annual Emissions from Units -1 and -2 in lbs/year							
	NO_X	**SO_X**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**VOC**	**H_2S**
Transfer from Bucket Elevator to Crax Hopper[3]	0	0	41	23*	0	0	0
Screw Conveyor from Crax Hopper to Screen[3]	0	0	41	23*	0	0	0
Screens[3]	0	0	508	279*	0	0	0
Grinders[3]	0	0	508	279*	0	0	0
Transfer of Meal through Elevator from Grinding Room to Storage Silo's Bucket Elevator[3]	0	0	41	23*	0	0	0
Cross-Flow Scrubber	0	0	7,509	4,130*	0	7,091	3,532
RTO	1,799	8,734	860	860**	3,572	1,356	0
Total (lbs/year)	**1,799**	**8,734**	**8,369**	**4,990**	**3,572**	**8,447**	**3,532**

*$PM_{2.5}/PM_{10}$ fraction = 0.55 per reported values from ARB's CEPAM, Version 1.05 for the following category: Food and Agriculture, Other, Animal/Poultry (EIC 420-995-6004-0000).
**$PM_{2.5}/PM_{10}$ fraction = 1.0 per District practice for gas combustion.

[3] The emissions from these emissions units are included in the total emissions emitted from the cross-flow scrubber.

C-9251-3:

Protein Loadout Emissions = Emission Factor x protein solids throughput
Daily $PE2_{PM10}$ = 0.0008 lb-PM_{10}/ton x 322 tons/day
= 0.3 lb-PM_{10}/day
Annual $PE2_{PM10}$ = 0.0008 lb-PM_{10}/ton x 101,678 tons/year
= 81 lb-PM_{10}/year

Since $PM_{2.5}/PM_{10}$ fraction = 0.55 per reported values from ARB's CEPAM, Version 1.05,
Daily $PE2_{PM2.5}$ = 0.3 lb-PM_{10}/day x 0.55 = 0.2 lb-$PM_{2.5}$/day
Annual $PE2_{PM2.5}$ = 81 lb-PM_{10}/year x 0.55 = 45 lb-$PM_{2.5}$/year

C-9251-4 & -5:

The potential to emit for each boiler is calculated as follows, and summarized in the table below:

$PE2_{NOx}$ = Startup/Shutdown Emissions + Steady State Emissions
= (0.036 lb/MMBtu) * (63 MMBtu/hr) * (4 hr/day) +
(0.003 lb/MMBtu) * (63 MMBtu/hr) * (20 hr/day)
= 12.9 lb-NOx/day

= [(0.036 lb/MMBtu) * (63 MMBtu/hr) * (4 hr/day) +
(0.003 lb/MMBtu) * (63 MMBtu/hr) * (20 hr/day)] * (365 day/year)
= 4,691 lb-NOx/year

$PE2_{SOx}$ = (0.0034 lb/MMBtu) * (63 MMBtu/hr) * (24 hr/day)
= 5.1 lb-SOx/day

= (0.0034 lb/MMBtu) * (63 MMBtu/hr) * (24 hr/day) * (365 day/year)
= 1,876 lb-SOx/year

$PE2_{PM10}$ = (0.003 lb/MMBtu) * (63 MMBtu/hr) * (24 hr/day)
= 4.5 lb-PM_{10}/day

= (0.003 lb/MMBtu) * (63 MMBtu/hr) * (24 hr/day) * (365 day/year)
= 1,656 lb-PM_{10}/year

$PE2_{CO}$ = Startup/Shutdown Emissions + Steady State Emissions
= (0.074 lb/MMBtu) * (63 MMBtu/hr) * (4 hr/day) +
(0.037 lb/MMBtu) * (63 MMBtu/hr) * (20 hr/day)
= 65.3 lb-CO/day

= [(0.074 lb/MMBtu) * (63 MMBtu/hr) * (4 hr/day) +
(0.037 lb/MMBtu) * (63 MMBtu/hr) * (20 hr/day)] * (365 day/year)
= 23,823 lb-CO/year

$PE2_{VOC}$ = (0.0055 lb/MMBtu) * (63 MMBtu/hr) * (24 hr/day)
= 8.3 lb-VOC/day

= (0.0055 lb/MMBtu) * (63 MMBtu/hr) * (24 hr/day) * (365 day/year)
= 3,035 lb-VOC/year

Ammonia (NH_3) from SCR:

The proposed daily NH_3 emissions can be calculated as follows:

PE_{NH3} = ppm x MW x (2.64×10^{-9}) x ff x BR x [20.9 / (20.9 – O_2%)] x [hr/day or hr/year]

Where:

- ppm is the emission concentration in ppmvd @ 3% O_2
- MW is the molecular weight of the pollutant (MW_{NH3} = 17 lb/lb-mol)
- 2.64 x 10^{-9} is one over the molar specific volume (lb/MMscf, at 60 °F)
- ff is the F-factor for natural gas (8,578 scf/MMBtu, at 60 °F)
- BR is the rating of the boiler (MMBtu/hr)
- O_2 is the stack oxygen content to which the emission concentrations are corrected (3%)

PE_{NH3} = 10 x 17 x (2.64×10^{-9}) (lb-mol/MMscf) x 8,578 (scf/MMBtu) x 63 (MMBtu/hr) [20.9 / (20.9 – 3.0)] x 24 (hour/day)
= 6.8 lb-NH_3/day

= 10 x 17 x (2.64×10^{-9}) (lb-mol/MMscf) x 8,578 (scf/MMBtu) x 63 (MMBtu/hr) [20.9 / (20.9 – 3.0)] x 8760 (hour/year)
= 2,481 lb-NH_3/year

PE2 for Each Boiler		
Pollutant	**Daily Emissions (lb/day)**	**Annual Emissions (lb/year)**
NO_X	12.9	4,691
SO_X	5.1	1,876
PM_{10}	4.5	1,656
$PM_{2.5}$*	4.5	1,656
CO	65.3	23,823
VOC	8.3	3,035
NH_3	6.8	2,481

*$PM_{2.5}/PM_{10}$ = 1.0 per District practice for gas combustion.

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

Pursuant to District Rule 2201, the 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 (AER) that have occurred at the source, and which have not been used on-site.

Since this is a new facility, there are no valid ATCs, PTOs, or ERCs at the Stationary Source; therefore, the SSPE1 is equal to zero.

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

Pursuant to District Rule 2201, the SSPE2 is the PE from all units with valid ATCs or PTOs at the Stationary Source and the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site.

SSPE2 (lb/year)								
Permit Unit	**NO_X**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**VOC**	**NH_3**	**H_2S**
C-9251-1-0	1,799	8,734	8,369	4,990	3,572	8,447	0	3,532
C-9251-2-0*								
C-9251-3-0	0	0	81	45	0	0	0	0
C-9251-4-0	4,691	1,876	1,656	1,656	23,823	3,035	2,481	0
C-9251-5-0	4,691	1,876	1,656	1,656	23,823	3,035	2,481	0
SSPE2	**11,181**	**12,486**	**11,762**	**8,347**	**51,218**	**14,517**	**4,962**	**3,532**

* As explained in Section VII.C.2, the $PM_{10/2.5}$ emissions from these units are included in the total for unit -1.

5. Major Source Determination

Rule 2201 Major Source Determination:

Identify if the source will be a Major Source for Rule 2201 (post project).

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status the following shall not be included:

- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

Rule 2201 Major Source Determination (lb/year)						
	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO	VOC
SSPE1	0	0	0	0	0	0
SSPE2	11,181	12,486	11,762	8,347	51,218	14,517
Major Source Threshold	20,000	140,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No	No

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

Rule 2410 Major Source Determination:

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(iii). Therefore the PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

PSD Major Source Determination (tons/year)						
	NO_2	VOC	SO_2	CO	PM	PM_{10}
Estimated Facility PE before Project Increase	0	0	0	0	0	0
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source ?	N	N	N	N	N	N

As shown in the previous table, the facility is not an existing PSD major source for any regulated NSR pollutant expected to be emitted at this facility.

6. Baseline Emissions (BE)

The BE calculation (in lb/year) is performed pollutant-by-pollutant for each unit within the project to calculate the QNEC, and if applicable, to determine the amount of offsets required.

Pursuant to District Rule 2201, BE = PE1 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 District Rule 2201.

Since these are new emissions units, BE = PE1 = 0 for all pollutants.

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."

Since this facility is not a major source for any of the pollutants addressed in this project, this project does not constitute an SB 288 major modification.

8. Federal Major Modification

District Rule 2201 states that a Federal Major Modification is the same as a "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification.

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

Rule 2410 applies to any pollutant regulated under the Clean Air Act, except those for which the District has been classified nonattainment. The pollutants which must be addressed in the PSD applicability determination for sources located in the SJV and which are emitted in this project are: (See 52.21 (b) (23) definition of significant)

- NO_2 (as a primary pollutant)
- SO_2 (as a primary pollutant)
- CO
- PM
- PM_{10}
- VOC
- Hydrogen sulfide (H_2S)
- Total reduced sulfur (including H_2S)
- Reduced sulfur compounds

I. Project Emissions Increase - New Major Source Determination

The post-project potentials to emit from all new and modified units are compared to the PSD major source thresholds to determine if the project constitutes a new major source subject to PSD requirements.

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). The PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

PSD Major Source Determination: Potential to Emit (tons/year)						
	NO_2	VOC	SO_2	CO	PM	PM_{10}
Total PE from New and Modified Units	5.6	7.3	6.2	25.6	5.9	5.9
PSD Major Source threshold	250	250	250	250	250	250
New PSD Major Source?	N	N	N	N	N	N

As shown in the table above, the potential to emit for the project, by itself, does not exceed any PSD major source threshold. Therefore Rule 2410 is not applicable and no further analysis 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 F.

VIII. Compliance Determination

Rule 1100 Equipment Breakdown

This rule defines a breakdown condition and the procedures to follow if one occurs. The corrective action, the issuance of an emergency variance, and the reporting requirements are also specified.

Section 4.1 of the rule stipulates that the APCO may take no enforcement action if the owner or operator demonstrates to the APCO's satisfaction that a breakdown condition, as defined in this rule, exists.

Section 6.1 states that an owner or operator seeking a breakdown relief shall notify the District as soon as possible, but no longer than one after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. Therefore, the following condition will be included on each permit:

- If permittee wishes to seek breakdown relief under District Rule 1100, permittee shall notify the District of any breakdown condition as defined in the rule as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100]

Rule 2010 Permits Required

This rule requires any person constructing, altering, replacing or operating any source operation which emits, may emit, or may reduce emissions to obtain an Authority to Construct.

Each fat storage tank is heated to maintain the tank contents above a point at which the stored material becomes solid, which typically does not exceed 140 °F. Since the fat, or tallow, stored is chemically similar to fatty acids (triglycerides) or soybean oil, the vapor pressure from soybean oil will be assumed to be the same for the stored fat/tallow.

Material	Vapor Pressure* (psia)	Temperature (°F)
Fatty Acid (triglycerides)	0.0028	120
	0.0167	300

* Calculated in Project N-1061971.

By way of comparison, at 120 °F (the upper bound for the highest summer temperature in the District's air basin), distillate fuel oil #2 (i.e. diesel) has a vapor pressure of 0.022 psia. The District currently considers diesel to be essentially non-volatile and does not require permits for any equipment that handles or stores diesel. The fat/tallow has a vapor pressure at least an order of magnitude lower than diesel; therefore, it is considered to be essentially non-volatile and no permits are required. However, since the tanks are served by the odor control cross-flow scrubber, they will be listed on the permit.

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. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

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 Adjusted Increase in Permitted Emissions (AIPE) exceeding two pounds per day, and/or
d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 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.

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

Conservatively, for BACT purposes, $PM_{2.5}$ is assumed to equal PM_{10}.

C-9251-1 & -2:
The applicant is proposing to install two new rendering lines with the PE from the various emissions units calculated in Section VII.C.2 and summarized below:

Total Daily Emissions from Units -1 and -2 in lbs/day						
	NO_X	SO_X	PM_{10}	CO	VOC	H_2S
Transfer from Bucket Elevator to Crax Hopper	0.0	0.0	0.1	0.0	0.0	0.0
Screw Conveyor from Crax Hopper to Screen	0.0	0.0	0.1	0.0	0.0	0.0
Screens	0.0	0.0	1.7	0.0	0.0	0.0
Grinders	0.0	0.0	1.7	0.0	0.0	0.0
Transfer of Meal through Elevator from Grinding Room to Storage Silo's Bucket Elevator	0.0	0.0	0.1	0.0	0.0	0.0
Cross-Flow Scrubber	0.0	0.0	20.3	0.0	19.4	9.7
RTO	5.9	28.5	2.8	11.6	4.4	0.0

As seen above, NO_X, SO_X, PM_{10}, CO and VOC emissions from the RTO are greater than 2 lb/day. However, BACT is only triggered for new emissions units, not control devices (e.g. RTOs). Since PM_{10} and VOC emissions are the only pollutants emitted by the emissions units (i.e. rendering operation served by the RTO), those are the only pollutants that trigger BACT for emissions greater than 2 lb/day.

Also, as seen above, PM_{10}, VOC, and H_2S emissions from the emissions units (i.e. fugitive emissions from the rendering operation) served by the cross-flow scrubber are greater than 2 lb/day; therefore, BACT is triggered for PM_{10}, VOC, and H_2S for fugitive emissions from the rendering operation that are served by the cross-flow scrubber.

C-9251-3:
As seen in Section VII.C.2 above, the applicant is proposing to install a protein loadout storage operation with a PE less than 2 lb/day. Therefore, BACT is not triggered.

C-9251-4 & -5:
As seen in Section VII.C.2 above, the applicant is proposing to install two new boilers with a PE greater than 2 lb/day for NO_X, SO_X, PM_{10}, CO, and VOC. BACT is triggered for NO_X, SO_X, PM_{10}, and VOC only since the PEs are greater than 2 lb/day. However BACT is not triggered for CO since the SSPE2 for CO is not greater than 200,000 lb/year, as demonstrated in Section VII.C.5 above.

Additionally, daily PE2 for ammonia (NH_3) emissions from the SCR system is greater than 2.0 lb/day. However, SCR is an add-on emission control system for NOx and the District practice is not to evaluate BACT for add-on emission control equipment.

Furthermore, the NH_3 emissions were found not to pose a significant health risk to the nearby public, so BACT for toxic emissions (T-BACT) is not required.

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

As discussed in Section I above, there are no modified emissions units associated with this project. Therefore BACT is not triggered.

d. SB 288/Federal Major Modification

As discussed in Sections VII.C.7 and VII.C.8 above, this project does not constitute an SB 288 and/or Federal Major Modification for any pollutant. Therefore BACT is not triggered for any pollutant.

2. BACT Guideline

C-9251-1 & -2:
BACT Guideline 8.3.2, applies to the animal rendering operation. [Meat Meal, Feather Meal, Protein Rendering Processing Equipment]. BACT is triggered for PM_{10}, VOC, and H_2S emissions from the fugitive emissions served by the room air scrubber but the guideline does not currently address those emissions. Additionally, the BACT guideline was last updated in May 2014. Therefore, the guideline must be updated and revised to address PM_{10}, VOC, and H_2S emissions from the fugitive emissions served by the room air scrubber. The revised BACT Guideline 8.3.2 is included in Appendix G.

C-9251-4 & -5:
The District does not currently have an approved BACT Guideline for this source category. Therefore, a project-specific BACT analysis is required for the proposed 63 MMBtu/hr natural gas/biogas-fired boilers (ATCs C-9251-4 & -5). The project-specific BACT analysis for the proposed boilers will be based on the District's review of information that was available when the application for this project was deemed complete.

3. Top-Down BACT Analysis

Per Permit Services Policies and Procedures for BACT, 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.

C-9251-1 & -2:
Pursuant to the attached Top-Down BACT Analysis (see Appendix G), BACT has been satisfied with the following:

Processing Equipment:
PM_{10}: Use a thermal oxidizer operating with a chamber temperature of at least 1400°F with a particulate removal system that consists of an air cooled condenser, a venturi scrubber, and a packed tower scrubber
VOC: Use of a thermal oxidizer operating with a chamber temperature of at least 1400°F

Room Air:
PM_{10}: Use of a cross-flow scrubber
VOC: Use of a cross-flow scrubber
H_2S: Use of a caustic cross-flow scrubber

As a mechanism to ensure compliance with the BACT requirements, the following conditions will be included on the ATCs:

- The RTO shall be operated with a combustion chamber temperature of no less than 1400 degrees F and the retention time shall be no less than one second. The RTO temperature shall be monitored and recorded utilizing a continuous monitoring and recording device. The monitoring and recording device shall be maintained in proper operating condition at all times. [District Rules 2201, 4102 and 4104]
- In the cross-flow scrubber, at least one stage shall be operated with the pH of the scrubbing solution shall be greater than or equal to 9. [District Rules 2201 and 4102]

Additionally, as a mechanism to ensure compliance with the BACT requirements, the equipment description will include and require the use of an air cooled condenser, a venturi scrubber, and a twin packed tower scrubber system to control the processing equipment.

C-9251-4 & -5:
As discussed above, the proposed boilers in this project trigger BACT for NO_X SO_X, PM_{10}, and VOC emissions. Pursuant to the attached Top-Down BACT Analysis (see Appendix H), BACT has been satisfied with the following:

NO_X: 2.5 ppmvd @ 3% O_2 or 0.003 lb/MMBtu during steady state and
30 ppmvd @ 3% O_2 or 0.036 lb/MMBtu during startup/shutdown
SO_X: 0.0034 lb/MMBtu
PM_{10}: 0.003 lb/MMBtu
VOC: 0.00285 lb/MMBtu

As a mechanism to ensure compliance with the BACT requirements, the following condition will be included on the ATCs:

- Except during start-up and shutdown, emissions from this unit shall not exceed any of the following limits: 2.5 ppmvd NOx @ 3% O2 (equivalent to 0.003 lb-NOx/MMBtu); 0.0034 lb-SOx/MMBtu; 0.003 lb-PM10/MMBtu; 100 ppmvd CO @ 3% O2 (equivalent to 0.074 lb-CO/MMBtu); or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]

B. Offsets

1. Offset Applicability

Offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The SSPE2 is compared to the offset thresholds in the following table.

Offset Determination (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
SSPE2	12,093	16,840	11,762	53,017	15,247
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	No	No	No	No	No

2. Quantity of Offsets Required

As seen above, the SSPE2 is not greater than the offset thresholds for all the pollutants; therefore offset calculations are not necessary and offsets will not be required for this project.

Additionally, since the increases in this project do not constitute a new Major Source or a Federal Major Modification shown in Sections VII.C.5 and VII.C.7 above, respectively, offsets for $PM_{2.5}$ are not required pursuant to Section 4.5.4 of Rule 2201.

Although, offsets are not required, the applicant is proposing to provide offsets to mitigate the increase in $PM_{2.5}$ emissions to satisfy Section 4.14 of Rule 2201. See Compliance Determination in Section VIII for Rule 2201.F.

C. Public Notification

1. Applicability

Public noticing is required for:
a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,

c. Any project which results in the offset thresholds being surpassed,
d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant, and/or
e. Any project which results in a Title V significant permit modification

a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications

New Major Sources are new facilities, which are also Major Sources. As shown in Section VII.C.5 above, the SSPE2 is not greater than the Major Source threshold for any pollutant. Therefore, public noticing is not required for this project for new Major Source purposes.

b. 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 seen in Section VII.C.2 above, this project does not include a new emissions unit which has daily emissions greater than 100 lb/day for any pollutant, therefore public noticing for PE > 100 lb/day purposes is not required.

c. Offset Threshold

Public notification is required if the pre-project Stationary Source Potential to Emit (SSPE1) is increased to a level exceeding the offset threshold levels. The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Thresholds				
Pollutant	**SSPE1 (lb/year)**	**SSPE2 (lb/year)**	**Offset Threshold**	**Public Notice Required?**
NO_X	0	11,181	20,000 lb/year	No
SO_X	0	12,486	54,750 lb/year	No
PM_{10}	0	11,762	29,200 lb/year	No
CO	0	51,218	200,000 lb/year	No
VOC	0	14,517	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.

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE = SSPE2 – SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table.

SSIPE Public Notice Thresholds					
Pollutant	**SSPE2 (lb/year)**	**SSPE1 (lb/year)**	**SSIPE (lb/year)**	**SSIPE Public Notice Threshold**	**Public Notice Required?**
NO_x	11,181	0	11,181	20,000 lb/year	No
SO_x	12,486	0	12,486	20,000 lb/year	No
PM_{10}	11,762	0	11,762	20,000 lb/year	No
$PM_{2.5}$	8,347	0	8,347	20,000 lb/year	No
CO	51,218	0	51,218	20,000 lb/year	Yes
VOC	14,517	0	14,517	20,000 lb/year	No
NH_3	4,962	0	4,962	20,000 lb/year	No
H_2S	3,532	0	3,532	20,000 lb/year	No

As demonstrated above, the SSIPE for CO was greater than 20,000 lb/year; therefore public noticing for SSIPE purposes is required.

e. Title V Significant Permit Modification

Since this facility does not have a Title V operating permit, this project is not a Title V Significant Modification, and therefore public noticing is not required for this purpose.

2. Public Notice Action

As discussed above, public noticing is required for this project for CO emissions in excess of 20,000 lb/year. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be electronically published on the District's website prior to the issuance of the ATCs for this equipment.

D. Daily Emission Limits (DELs)

DELs and other enforceable conditions are required by Rule 2201 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. 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.

Proposed Rule 2201 (DEL) Conditions:

C-9251-1 &-2:

- {271} 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]
- All material received shall be processed within 24 hours of receipt. Each delivery of material shall be monitored and records shall be maintained to ensure that processing is performed within this time limit. [District Rules 2201 and 4102]
- The condenser and each scrubber shall be inspected at least once per week and cleaned as needed based on inspection results. Liquids and any solids shall be disposed of in a manner to prevent release which may constitute a nuisance odor.
- Only natural gas shall be used in the RTO as supplemental fuel. [District Rule 2201]
- Vapors from the cookers shall be captured and vented to the air-cooled condensers, the venturi scrubber, twin packed bed scrubber, and the RTO, in series. [District Rules 2201, 4102 and 4104]
- Vapors from the drainers/sedimenters, presses, centrifuges and crax hoppers shall be captured and vented to the venturi scrubber, twin packed bed scrubber, and RTO, in series. [District Rules 2201, 4102 and 4104]
- In the event the RTO malfunctions, during raw material processing, all meat cooker emissions shall be routed to the venturi scrubber, twin packed bed scrubber and then to the cross-flow room air scrubber, in series. The RTO shall be restarted as soon as practical and upon reaching operating temperature the contaminated air stream shall be immediately re-routed to the RTO. [District Rules 2201 and 4102]
- In the cross-flow scrubber, the recirculation rate shall not be less than 600 gal/minute for each stage. [District Rules 2201 and 4102]
- In the cross-flow scrubber, at least one stage shall be operated with the pH of the scrubbing solution shall be greater than or equal to 9. [District Rules 2201 and 4102]
- In the cross-flow scrubber, the system chemistry pH shall be operated within the following parameters: (1) when utilizing an acidic approach, the pH of the scrubbing solution shall be less than or equal to 5, (2) when utilizing an alkaline approach, the pH of the scrubbing solution shall be greater than or equal to 9, or (3) when utilizing a neutral approach, the pH of the scrubbing solution will be greater than 5 and less than 9. [District Rules 2201 and 4102]
- In the venturi scrubber, the recirculation rate shall not be less than 40 gal/minute. [District Rules 2201 and 4102]
- In the twin packed bed scrubber, the recirculation rate shall not be less than 100 gal/minute. [District Rule 2201 and 4102]
- In the twin packed bed scrubber, the system chemistry pH shall be operated within the following parameters: (1) when utilizing an acidic approach, the pH of the scrubbing solution shall be less than or equal to 5, (2) when utilizing an alkaline approach, the pH of the scrubbing solution shall be greater than or equal to 9, or (3) when utilizing a neutral approach, the pH of the scrubbing solution will be greater than 5 and less than 9. [District Rules 2201 and 4102]

- The processing building shall be kept under negative pressure at all times when receiving or storing raw material or in the process of rendering, except during limited periods when the receiving area doors are open to allow for entry/exit of raw material delivery trucks. [District Rules 2201 and 4102]
- The RTO shall be operated with a combustion chamber temperature of no less than 1400 degrees F and the retention time shall be no less than one second. The RTO temperature shall be monitored and recorded utilizing a continuous monitoring and recording device. The monitoring and recording device shall be maintained in proper operating condition at all times. [District Rules 2201, 4102 and 4104]
- The RTO shall be heated to the proper operating temperature prior to introducing the contaminated air stream. [District Rules 2201, 4102 and 4104]
- Total facility raw material process rate shall not exceed either of the following limits: 850 tons/day (equivalent to 1,700,000 lbs/day) or 260,714 tons/year (equivalent to 521,428,000 lbs/year). [District Rule 2201]
- The controlled emissions rate from the exhaust of the RTO shall not exceed any of the following limits, in pounds per ton of finished product: 0.0069 lb-NOx/ton, 0.0137 lb-CO/ton, 0.0033 lb-PM_{10}/ton, 0.0052 lb-VOC/ton, or 0.0335 lb-SOx/ton. [District Rule 2201]
- The controlled emissions rate from the exhaust of the cross-flow scrubber serving the room air shall not exceed any of the following limits: PM10-0.001 gr/dscf; VOC-2.3 ppmv as CH4; or H2S-0.75 ppmv. [District Rule 2201]

C-9251-3:

- {271} 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]
- The bin vent filters shall be maintained and operated according to manufacturer's specifications. [District Rule 2201]
- The bin vent filters' cleaning frequency and duration shall be adjusted to optimize the control efficiency. [District Rule 2201]
- A spare set of filters shall be maintained for each bin vent filter at all times. [District Rule 2201]
- Material removed from the filters shall be disposed of in a manner preventing entrainment into the atmosphere. [District Rule 2201]
- The amount of protein loaded out shall not exceed either of the following limits: 322 tons/day or 101,678 tons/year. [District Rule 2201]
- PM10 emissions from the protein solids loadout operation shall not exceed 0.0008 lb/ton of protein loaded out. [District Rule 2201]

C-9251-4 &-5:

- {271} 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]
- The unit shall only be fired on either of the following: (1) PUC-regulated natural gas, or (2) a mixture of conditioned biogas from permit unit C-535-26 and PUC-regulated natural gas. [District Rules 2201 and 4320]
- Except during start-up and shutdown, emissions from this unit shall not exceed any of the following limits: 2.5 ppmvd NOx @ 3% O2 (equivalent to 0.003 lb-NOx/MMBtu); 0.0034 lb-

SOx/MMBtu; 0.003 lb-PM10/MMBtu; 50 ppmvd CO @ 3% O2 (equivalent to 0.037 lb-CO/MMBtu); or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]

- During startup and shutdown, emissions from this unit shall not exceed any of the following limits: 30 ppmvd NOx @ 3% O2 (equivalent to 0.036 lb-NOx/MMBtu); 0.0034 lb-SOx/MMBtu; 0.003 lb-PM10/MMBtu; 100 ppmvd CO @ 3% O2 (equivalent to 0.074 lb-CO/MMBtu); or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]
- The total duration of startup and shutdown time shall not exceed any of the following limits: 2 hours per startup, 2 hours per shutdown, and 4 hours of combined startup and shutdown time per day. [District Rules 2201, 4305, 4306, and 4320]
- The selective catalytic reduction system shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown periods. [District Rules 2201, 4305, 4306 and 4320]
- The ammonia emissions shall not exceed 10 ppmvd @ 3% O2. [District Rules 2201 and 4102]
- The sulfur content of the biogas (as H2S) shall not exceed 15.9 ppmv @ 3% O2 (equivalent to 1 gr/100 dscf). [District Rules 2201 and 4320]

E. Compliance Assurance

1. Source Testing

C-9251-1 & -2:
Emission units controlled by the RTO

Several emission units from the new rendering line will be served by a RTO. NO_x, SO_x, PM_{10}, CO, and VOC emissions are expected in the thermal oxidizer exhaust.

District Policy APR 1705, Source Testing Frequency, requires units equipped with an afterburner, thermal incinerator, or catalytic incinerator to be tested upon initial start-up and annually thereafter. Therefore, initial and annual PM_{10} and VOC testing will be required for this unit.

The applicant has proposed NO_x, SO_x, and CO emissions factors for the RTO exhaust that are not based on manufacturer's data, nor generally accepted emission factors; therefore, initial testing will also be required to verify compliance with the proposed NO_x, SO_x, and CO emission rates for the RTO.

Emission units controlled by the room air scrubber

Several emission units from the new rendering line will be served by a cross-flow scrubber. VOC, PM_{10}, and H_2S emissions are expected in the cross-flow scrubber exhaust.

The applicant has proposed VOC, PM_{10} and H_2S emissions factors for the room air scrubber exhaust that are not based on manufacturer's data, nor general accepted emission factors; therefore, initial testing will also be required to verify compliance with the proposed VOC, PM_{10}, and H_2S emission factors. Additionally, there is potential for the performance of the new room air scrubber to deteriorate over time, especially if not maintained properly. Since the scrubber is required to be inspected at least once per week and cleaned as needed based of the inspection results source testing VOC, PM_{10} and H_2S testing will be required at least once every 24 months.

The following conditions will be included on the ATCs:

- Source testing to measure the PM_{10} and VOC emissions from the RTO exhaust shall be conducted within 60 days of startup and at least once every 12 months. [District Rule 2201]
- Source testing to measure the NOx, CO, and SOx emissions from the RTO exhaust shall be conducted within 60 days of startup. [District Rule 2201]
- Source testing to measure the PM_{10}, VOC, and H_2S emissions from the cross-flow scrubber exhaust shall be conducted within 60 days of startup and at least once every 24 months thereafter. [District Rule 2201]
- Source testing shall be performed while processing raw material under full load conditions or another load previously approved by the District in writing. [District Rules 1081 and 2201]
- Source testing to measure the VOC emissions shall be conducted using EPA Methods 25, 25A, or 25B or CARB Method 100. EPA Method 18 may be used to remove methane and ethane in order to determine VOC concentrations. [District Rule 2201]
- Source testing to measure SOx emissions shall be conducted using EPA Method 6C, EPA Method 8, ARB Method 100, or SCAQMD Method 307.91. [District Rule 2201]
- Source testing to measure NOx emissions shall be conducted using EPA Method 7E or ARB Method 100. [District Rule 2201]
- Source testing to measure CO emissions shall be conducted using EPA Method 10 or ARB Method 100. [District Rule 2201]
- Source testing to measure PM_{10} emissions shall be conducted using EPA Methods 201 and 202, EPA Methods 201A and 202, or CARB Methods 501 and 5. [District Rule 2201]
- Source testing to measure H2S emissions shall be conducted using CARB Method 15 or 16A, EPA Method 11, or SCAQMD Method 307.91. [District Rule 2201]
- Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rule 2201]
- {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]
- The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

C-9251-3:
Pursuant to District Policy APR 1705, source testing is not required to demonstrate compliance with Rule 2201.

C-9251-4 & -5:
These units are subject to District Rule 4305, Boilers, Steam Generators and Process Heaters, Phase 2, 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. Source testing requirements, in accordance with District Rules 4305, 4306, and 4320 will be discussed in Section VIII, District Rule 4320 of this evaluation.

Since Rules 4305, 4306, and 4320 do not have testing methods for NH_3 or H_2S, the following conditions will be included on the ATCs:

- NH3 emissions for source test purposes shall be determined using BAAQMD method ST-1B. [District Rule 2201]
- Testing to demonstrate compliance with the biogas H2S content limit shall be conducted quarterly. Once eight (8) consecutive quarterly test show compliance, the H2S content testing frequency may be reduced to once every calendar year. If an annual test shows violation of the H2S content limit, then quarterly testing shall resume and continue until eight (8) consecutive tests show compliance. Once compliance is shown on eight (8) consecutive quarterly tests, then testing may return to once every calendar year. [District Rules 1081 and 2201]
- Testing to measure the H2S content of the fuel shall be conducted using either EPA Method 15, ASTM Method D1072, 03031, D4084, D3246, D5504 or with the use of the Testo 350 XL portable analyzer. [District Rule 2201]

Additionally, District practice is to require source testing on boilers for each type of fuel source. Therefore, the following conditions will be included on the ATCs:

- Source testing to measure NOx, CO and NH3 emissions from this unit, while fired on natural gas, shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
- Source testing to measure NOx, CO and NH3 emissions from this unit, while fired on a blend of natural gas and biogas, shall be conducted within 60 days of initially firing on a blend of natural gas and biogas. [District Rules 2201, 4305, 4306, and 4320]

2. Monitoring

C-9251-1 & -2:

- In the cross-flow scrubber, if either the recirculation rate is less than 700 gal/minute in each stage or the pH is outside the ranges specified in this permit, as measured by the permittee, the permittee shall correct the recirculation rate and/or the pH to acceptable levels, as soon as possible, but no longer than 1 hour of operation after detection. If the recirculation rate or pH levels in the scrubber continue(s) to be outside of acceptable ranges after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. Monitoring parameters found by District staff to be outside of established ranges constitutes a violation of this permit. [District Rules 2201 and 4102]
- In the venturi scrubber, if the recirculation rate is less than 40 gal/minute, the permittee shall correct the recirculation rate, as soon as possible, but no longer than 1 hour of operation after detection. If the recirculation rate in the scrubber continues to be outside of acceptable ranges after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. [District Rules 2201 and 4102]
- In the twin packed bed scrubber, if the pH is outside the ranges specified in this permit, the permittee shall correct the pH, as soon as possible, but no longer than 1 hour of operation after detection. If the pH in the scrubber continues to be outside of acceptable ranges after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. [District Rules 2201 and 4102]
- Continuous monitoring equipment shall be used to monitor the recirculation rate and pH in each of the cross-flow and twin packed bed scrubbers and the recirculation rate in venturi scrubber. The recirculation rates shall be measured in gallons per minute. The recirculation rates and pH from each scrubber shall be recorded at least once per day while the scrubbers are in operation. The continuous monitoring equipment shall be maintained in proper operating condition at all times. [District Rules 2201 and 4102]
- Permittee shall take monthly readings with a portable anemometer to verify that the main processing building is under negative pressure during periods of normal plant operation. The anemometer shall be calibrated per the manufacturer's recommendations. Additionally, the anemometer shall be made available to District inspection staff upon request. Records of anemometer measurements and calibrations shall be kept, maintained, and made readily available for District inspection upon request. [District Rules 2201 and 4102]
- The RTO shall be operated with a combustion chamber temperature of no less than 1400 degrees F and the retention time shall be no less than one second. The RTO temperature shall be monitored and recorded utilizing a continuous monitoring and recording device. The monitoring and recording device shall be maintained in proper operating condition at all times. [District Rules 2201, 4102 and 4104]

C-9251-3:

- Visible emissions from the bin vent filters serving the protein storage silos shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in one hour. [District Rules 2201 and 4101]

C-9251-4 & -5:

As required by District Rule 4305, Boilers, Steam Generators and Process Heaters, Phase 2, 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, these units are subject to monitoring requirements. Monitoring requirements, in accordance with District Rules 4305, 4306, and 4320 will be discussed in Section VIII, District Rule 4320 of this evaluation.

3. Recordkeeping

C-9251-1 & -2:

- Permittee shall keep a record of the daily and annual quantity of raw material processed, in tons. [District Rule 2201]
- All records shall be retained for a minimum of five years, and shall be made available for District inspection upon request. [District Rules 1070 and 2201]

C-9251-3:

- Permittee shall keep a record of the daily and annual amount of product loaded out, in tons. [District Rule 2201]
- Records of all maintenance of the bin vent filters, including all change outs of filter media, shall be maintained. [District Rule 2201]
- All records shall be retained for a minimum of five years, and shall be made available for District inspection upon request. [District Rules 1070 and 2201]

C-9251-4 & -5:

As required by District Rule 4305, Boilers, Steam Generators and Process Heaters, Phase 2, 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, these units are subject to recordkeeping requirements. Recordkeeping requirements, in accordance with District Rules 4305, 4306, and 4320 will be discussed in Section VIII, District Rule 4320 of this evaluation.

The following condition will be listed on the permits as follows:

- The permittee shall maintain records of: (1) the name of the sampler, and the date and time of biogas sampling for H2S, (2) the name of the tester, and the date and time of biogas testing for H2S, (3) test results showing the biogas concentration (in ppmv) of H2S. [District Rule 1081]
- 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, and 4320 and 40 CFR 60.48c(i)]

4. Reporting

C-9251-1, -2, -3, -4 & -5:
No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

An AAQA shall be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District's Technical Services Division conducted the required analysis. Refer to Appendix I of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NOx, CO, and SOx. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NOx, CO, or SOx.

The proposed location is in a non-attainment area for the state's PM_{10} as well as federal and state $PM_{2.5}$ thresholds. The increase in the ambient $PM_{2.5}$ concentration due to the project is shown on the table entitled Calculated Contribution. The District level of significance is shown on the table entitled Significance Levels.

Significance Levels		
Pollutant	District Significance Levels ($\mu g/m^3$)	
	24 hr	Annual
$PM_{2.5}$	1.2	0.2

Calculated Contribution		
Pollutant	District Significance Levels ($\mu g/m^3$)	
	24 hr	Annual
$PM_{2.5}$	2.7	0.5

As shown above, modeling results indicated that the calculated increase in the ambient $PM_{2.5}$ concentration from the project would exceed the District significance levels. Therefore, the fugitive $PM_{2.5}$ emissions from the project must be mitigated.

District Rule 2201 allows the District to consider offsets as mitigation when determining if there is a violation of the Ambient Air Quality Standard.

Section 4.14.1 of District Rule 2201 states:

> *Emissions from a new or modified Stationary Source shall not cause or make worse the violation of an Ambient Air Quality Standard. In making this determination, the APCO shall take into account the increases in minor and secondary source emissions as well as the mitigation of emissions through offsets obtained pursuant to this rule...*

Additionally, Section 4.8 of District Rule 2201 requires a distance offset ratio to be applied for offset calculations.

To mitigate potential adverse effects to Ambient Air Quality, the applicant has proposed to provide a sufficient amount of $PM_{2.5}$ ERCs to fully offset the $PM_{2.5}$ emission increases from the project as presented in Section VII.C.2 of this evaluation.

Total Offsets Required (lb/year) = ∑(PE2 for each permit unit x Distance Offset Ratio)

Assuming an offset ratio of 1.5:1, the amount of $PM_{2.5}$ ERCs that need to be surrendered is calculated below.

Offsets Required for:
Permit Units -1 and -2 (lb/year) = 4,990 lb-$PM_{2.5}$/year x 1.5 = 7,485 lb-$PM_{2.5}$/year

Permit Unit -3 (lb/year) = 45 lb-$PM_{2.5}$/year x 1.5 = 68 lb-$PM_{2.5}$/year

Permit Unit -4 (lb/year) = 1,656 lb-$PM_{2.5}$/year x 1.5 = 2,484 lb-$PM_{2.5}$/year

Permit Unit -5 (lb/year) = 1,656 lb-$PM_{2.5}$/year x 1.5 = 2,484 lb-$PM_{2.5}$/year

Total Offsets Required (lb/year) = (7,485 + 2,484 + 2,484) lb-$PM_{2.5}$/year
= 12,453 lb-$PM_{2.5}$/year

The appropriate quarterly emissions to be offset for each permit unit is calculated below.

Quarterly Offsets Required for:
Permit Units -1 and -2 (lb/qtr) = (7,485 lb-$PM_{2.5}$/year) ÷ (4 quarters/year)
= 1,871.25 lb-$PM_{2.5}$/qtr

Permit Unit -3 (lb/qtr) = (68 lb-$PM_{2.5}$/year) ÷ (4 quarters/year) = 17 lb-$PM_{2.5}$/qtr

Permit Unit -4 (lb/qtr) = (2,484 lb-$PM_{2.5}$/year) ÷ (4 quarters/year) = 621 lb-$PM_{2.5}$/qtr

Permit Unit -5 (lb/qtr) = (2,484 lb-$PM_{2.5}$/year) ÷ (4 quarters/year) = 621 lb-$PM_{2.5}$/qtr

As shown in the calculation above for permit units -1 and -2, the quarterly amount of offsets required for this project, when evenly distributed to each quarter, results in fractional pounds of offsets being required each quarter. Since offsets are required to be surrendered as whole pounds, the quarterly amounts of offsets need to be adjusted to ensure the quarterly values sum to the total annual amount of offsets required.

To adjust the quarterly amount of offsets required, the fractional amount of offsets required in each quarter will be summed and redistributed to each quarter based on the number of days in each quarter. The redistribution is based on the Quarter 1 having the fewest days and the Quarters 3 and 4 having the most days. Therefore the appropriate quarterly emissions to be offset for permit units -1 and -2 are as follows:

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total Annual
1,871	1,871	1,871	1,872	7,485

The total $PM_{2.5}$ offsets required for the entire project is summarized below:

Total $PM_{2.5}$ Offsets Required Including Distance Offset Ratio				
Permit Unit	**1st Quarter**	**2nd Quarter**	**3rd Quarter**	**4th Quarter**
C-9251-1-0*	1,871	1,871	1,871	1,872
C-9251-2-0*				
C-9251-3-0	17	17	17	17
C-9251-4-0	621	621	621	621
C-9251-5-0	621	621	621	621
TOTAL	**3,130**	**3,130**	**3,130**	**3,131**

* These permit units are served by a shared control device and the emissions cannot be separated.

The applicant has stated that the facility plans to use ERC certificates C-1472-4, C-1447-4, C-1449-4, N-1327-4, S-4944-4, and S-4765-4 (or certificates split from these) to offset the increases in $PM_{2.5}$ emissions associated with this project. The above certificates have available quarterly $PM_{2.5}$ credits as follows:

Total ERCs Provided				
ERC Certificate	**1st Quarter**	**2nd Quarter**	**3rd Quarter**	**4th Quarter**
C-1472-4	221	0	0	1,779
C-1447-4	205	297	219	172
C-1449-4	204	297	219	173
N-1327-4	254	228	279	271
S-4944-4	1,852	1,286	1,945	719
S-4765-4	394	1,022	468	17
TOTAL	**3,130**	**3,130**	**3,130**	**3,131**

As seen above, the facility has sufficient credits to fully offset the quarterly $PM_{2.5}$ emissions increases associated with this project.

The following conditions will be placed on the ATCs to ensure that adequate offsets are surrendered prior to operating the units approved in this project:

C-9251-1 & -2:

- Prior to operating any piece of equipment authorized by Authority to Construct permits C-9251-1-0 or -2-0, permittee shall surrender PM2.5 emission reduction credits for the following combined quantities: 1st quarter – 1,871 lbs, 2nd quarter – 1,871 lbs, 3rd quarter – 1,871 lbs, and 4th quarter – 1,872 lbs. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERCs specified below. [District Rule 2201]

C-9251-3:

- Prior to operating equipment under this Authority to Construct, permittee shall surrender PM2.5 emission reduction credits for the following quantities: 1st quarter – 17 lbs, 2nd quarter – 17 lbs, 3rd quarter – 17 lbs, and 4th quarter – 17 lbs. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERCs specified below. [District Rule 2201]

C-9251-4:

- Prior to operating equipment under this Authority to Construct, permittee shall surrender PM2.5 emission reduction credits for the following quantities: 1st quarter – 621 lbs, 2nd quarter – 621 lbs, 3rd quarter – 621 lbs, and 4th quarter – 621 lbs. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERCs specified below. [District Rule 2201]

C-9251-5:

- Prior to operating equipment under this Authority to Construct, permittee shall surrender PM2.5 emission reduction credits for the following quantities: 1st quarter – 621 lbs, 2nd quarter – 621 lbs, 3rd quarter – 621 lbs, and 4th quarter – 621 lbs. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERCs specified below. [District Rule 2201]

All Permits:

- ERC Certificate Numbers C-1472-4, C-1447-4, C-1449-4, N-1327-4, S-4994-4, and S-4765-4 (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, if any, shall be duplicated prior to reissuance of this ATC. [District Rule 2201]

Since sufficient offsets will be provided to fully mitigate the $PM_{2.5}$ emissions from this project, it is not expected to cause or make worse a violation of an air quality standard.

Rule 2410 Prevention of Significant Deterioration

As shown in Section VII.C.9 above, this project does not result in a new PSD major source or PSD major modification. No further discussion is required.

Rule 2520 Federally Mandated Operating Permits

Since this facility's potential emissions do not exceed any major source thresholds of Rule 2201, this facility is not a major source, and Rule 2520 does not apply.

Rule 4001 New Source Performance Standards (NSPS)

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.

C-9251-1, -2, & -3:
No subparts of 40 CFR Part 60 apply to these operations.

C-9251-4 & -5:
40 CFR Part 60 Subpart Db Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

NSPS Subpart Db applies to steam generating units that are constructed, reconstructed, or modified after June 19, 1984 and have a maximum design heat input greater than 100 MMBtu/hr.

Boilers C-9251-4 & -5 are rated less than 100 MMBtu/hr; therefore, Subpart Db does not apply to the boilers.

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_x and PM_{10}. The 63 MMBtu/hr boilers are subject to Subpart Dc requirements.

60.42c – Standards for Sulfur Dioxide

Since the boilers are not fired on coal, mixtures of coal with other fuels, or oil, the requirements of this section are not applicable.

60.43c – Standards for Particulate Matter

The boilers are not fired on coal, combust mixtures of coal with other fuels, combust wood, combust mixtured of wood with other fuels, or oil; therefore they will not be subject to the requirements of this section.

60.44c – Compliance and Performance Tests Methods and Procedures for Sulfur Dioxide.

Since the boilers in this project are not subject to the sulfur dioxide requirements of this subpart, no testing to show compliance is required. Therefore, the requirements of this section are not applicable to the boilers in this project.

60.45c – Compliance and Performance Test Methods and Procedures for Particulate Matter

Since the boilers in this project are not subject to the particulate matter requirements of this subpart, no testing to show compliance is required. Therefore, the requirements of this section are not applicable to the boilers in this project.

60.46c – Emission Monitoring for Sulfur Dioxide

Since the boilers in this project are not subject to the sulfur dioxide requirements of this subpart, no monitoring is required. Therefore, the requirements of this section are not applicable to the boilers in this project.

60.47c – Emission Monitoring for Particulate Matter

Since the boilers in this project are not subject to the particulate matter requirements of this subpart, no monitoring is required. Therefore, the requirements of this section are not applicable to the boilers in this project.

60.48c – Reporting and Recordingkeeping Requirements

Section 60.48c (a) states that the owner or operator of each affected facility shall submit notification of the date of construction or reconstruction, anticipated startup, and actual startup, as provided by §60.7 of this part. This notification shall include:

(1) The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

The design heat input capacity and type of fuel combusted at the facility will be listed on the units' equipment descriptions. No conditions are required to show compliance with this requirement.

(2) If applicable, a copy of any Federally enforceable requirement that limits the annual capacity factor for any fuel mixture of fuels under §60.42c or §40.43c.

This requirement is not applicable since the units are not subject to §60.42c or §40.43c.

(3) The annual capacity factor at which the owner or operator anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.

The facility has not proposed an annual capacity factor; therefore, one will not be required.

(4) Notification if an emerging technology will be used for controlling SO_2 emissions. The Administrator will examine the description of the control device and will determine whether the technology qualifies as an emerging technology. In making this determination, the Administrator may require the owner or operator of the affected facility to submit additional information concerning the control device. The affected facility is subject to the provisions of §60.42c(a) or (b)(1), unless and until this determination is made by the Administrator

This requirement is not applicable since the units will not be equipped with an emerging technology used to control SO_2 emissions.

Section 60.48 c (g) states that the owner or operator of each affected facility shall record and maintain records of the amounts of each fuel combusted during each day. The following conditions will be added to the permits as a mechanism to ensure compliance with this section.

- A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of each fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201 and 40 CFR 60.48 (c)(g)]
- Permittee shall maintain daily records of the type and quantity of each fuel combusted by the boiler. [District Rule 2201 and 40 CFR 60.48 (c)(g)]

Section 60.48 c (i) states that all records required under this section shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record. The following condition will ensure compliance with this section:

- All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rules 1070, 2201, 4305, 4306 and 4320, and 40 CFR 60.48c(i)]

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

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63. However, no subparts of 40 CFR Part 61 or 40 CFR Part 63 apply to animal rendering operations.

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

This subpart is applicable to boilers and process heaters located at Major Sources of hazardous air pollutant (HAP) emissions.

A Major HAP source is any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit any single HAP at a rate of 10 tons/year or any combination of HAPs at a rate of 25 tons/year.

Pursuant to the calculations in Appendix J, the facility is not a Major Sources of HAP emissions; therefore, this subpart does not apply.

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 JJJJJJ, 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 periodic testing on liquid fuel.

Pursuant to the calculations in Appendix J, the facility is not a Major Sources of HAP emissions; therefore, this subpart does not apply.

Rule 4101 Visible Emissions

As long as the equipment is properly maintained and operated, each operation will not discharge into the atmosphere any air contaminant for a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade as that designated as No. 1 on the Ringelmann Chart or equivalent to 20% opacity. The following condition will be placed on each permit:

- {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]

Additionally, per District Policy SSP 1005, Visible Emissions, the visible emissions from processes served by a baghouse or fabric filter shall not equal or exceed 5% opacity for a period or periods aggregating more than three (3) minutes in any one (1) hour. If the equipment is properly maintained this condition should not be exceeded. The following condition will be placed on permit -3:

- Visible emissions from the bin vent filters serving the protein storage silos shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in one hour. [District Rules 2201 and 4101]

Therefore, compliance with District Rule 4101 requirements is expected.

Rule 4102 Nuisance

Rule 4102 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. The following condition will be included on each permit:

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

Additionally, the following conditions, including some that were already discussed above, will be included on permits C-9251-1 &-2:

- The rendering facility, associated equipment, and the facility's surrounding property shall be operated and maintained in such a manner as to prevent the generation of odors which may constitute a nuisance. [District Rule 4102]
- The wastewater system shall be operated and maintained such that it does not cause a public nuisance. [District Rule 4102]
- Air pollution control equipment shall be maintained in good operating condition and shall be operated in accordance with the manufacturer's instructions when the process equipment is in operation. [District Rule 4102]
- All air pollution equipment and associated ducting shall be maintained in a leak-free manner to prevent the escape of air contaminants to the outside atmosphere prior to their treatment in the emissions/odor control system. [District Rule 4102]
- The plant shall not receive, store, or render raw material unless the odor control system is fully operating. All process-related potential points of odor shall be contained and/or treated to prevent escape into the atmosphere and shall only be vented to the odor control system. [District Rule 4102]
- Odor detection tubes shall be maintained in the cross-flow scrubber exhaust so samples of the discharge air may be evaluated at ground level. [District Rule 4102]
- Raw material delivery trucks shall be unloaded within 2 hours of being scaled. Raw material delivery trucks shall not be stored or staged without first being scaled. [District Rule 4102
- If raw material delivery trucks cannot be unloaded within 2 hours of being scaled, raw material shall be temporarily staged in a covered manner not to exceed 8 hours. [District Rule 4102]
- Incoming raw material trucks shall only be unloaded into the receiving area which is served by the cross flow scrubber. [District Rule 4102]
- All raw material trucks shall be maintained in condition to prevent leakage of solid or liquid material. [District Rule 4102]
- No outside storage of raw material is allowed, except as otherwise specified in this permit. Trucks waiting their turn to unload within the 2-hour unload time limitation are not considered outside storage. [District Rule 4102]
- All material received shall be processed within 24 hours of receipt. Each delivery of material shall be monitored and records shall be maintained to ensure that processing is performed within this time limit. [District Rules 2201 and 4102]

- If raw material cannot be processed within 24 hours of receipt, raw material shall be diverted to other facilities. No further deliveries shall be received until a 24 hour turnaround for raw material is achievable. [District Rule 4102]
- The condenser and each scrubber shall be inspected at least once per week and cleaned as needed based on inspection results. Liquids and any solids shall be disposed of in a manner to prevent release which may constitute a nuisance odor. [District Rules 2201 and 4102]
- All trucks delivering raw material shall be washed clean of raw material and raw material residue prior to exiting the raw material receiving area to minimize nuisance emissions. Truck tires shall be especially washed to limit trackout of raw material or raw material residue. [District Rule 4102]
- The raw material receiving area shall be washed as necessary to prevent any trackout of odor-causing materials. [District Rule 4102]
- The building doors shall remain closed except during actual entry or exit of trucks and/or personnel or in case of emergency. [District Rule 4102]
- Only natural gas shall be used in the RTO as supplemental fuel. [District Rule 2201]
- Vapors from the cookers shall be captured and vented to the air-cooled condensers, the venturi scrubber, twin packed bed scrubber, and the RTO, in series. [District Rules 2201, 4102 and 4104]
- Vapors from the drainers/sedimenters, presses, centrifuges and crax hoppers shall be captured and vented to the venturi scrubber, twin packed bed scrubber, and RTO, in series. [District Rules 2201, 4102 and 4104]
- In the event the RTO malfunctions during raw material processing, all meat cooker emissions shall be routed to the venturi scrubber, twin packed bed scrubber and then to the cross-flow room air scrubber, in series. The RTO shall be restarted as soon as practical and upon reaching operating temperature the contaminated air stream shall be immediately re-routed to the RTO. [District Rules 2201 and 4102]
- In the cross-flow scrubber, the recirculation rate shall not be less than 600 gal/minute for each stage. [District Rules 2201 and 4102]
- In the cross-flow scrubber, at least one stage shall be operated with the pH of the scrubbing solution shall be greater than or equal to 9. [District Rules 2201 and 4102]
- In the cross-flow scrubber, the system chemistry pH shall be operated within the following parameters: (1) when utilizing an acidic approach, the pH of the scrubbing solution shall be less than or equal to 5, (2) when utilizing an alkaline approach, the pH of the scrubbing solution shall be greater than or equal to 9, or (3) when utilizing a neutral approach, the pH of the scrubbing solution will be greater than 5 and less than 9. [District Rules 2201 and 4102]
- In the venturi scrubber, the recirculation rate shall not be less than 40 gal/minute. [District Rules 2201 and 4102]
- In the twin packed bed scrubber, the recirculation rate shall not be less than 100 gal/minute. [District Rule 2201 and 4102]

- In the twin packed bed scrubber, the system chemistry pH shall be operated within the following parameters: (1) when utilizing an acidic approach, the pH of the scrubbing solution shall be less than or equal to 5, (2) when utilizing an alkaline approach, the pH of the scrubbing solution shall be greater than or equal to 9, or (3) when utilizing a neutral approach, the pH of the scrubbing solution will be greater than 5 and less than 9. [District Rules 2201 and 4102]
- The processing building shall be kept under negative pressure at all times when receiving or storing raw material or in the process of rendering, except during limited periods when the receiving area doors are open to allow for entry/exit of raw material delivery trucks. [District Rules 2201 and 4102]
- The RTO shall be operated with a combustion chamber temperature of no less than 1400 degrees F and the retention time shall be no less than one second. The RTO temperature shall be monitored and recorded utilizing a continuous monitoring and recording device. The monitoring and recording device shall be maintained in proper operating condition at all times. [District Rules 2201, 4102 and 4104]
- The RTO shall be heated to the proper operating temperature prior to introducing the contaminated air stream. [District Rules 2201, 4102 and 4104]
- In the cross-flow scrubber, if either the recirculation rate is less than 600 gal/minute in each stage or the pH is outside the ranges specified in this permit, as measured by the permittee, the permittee shall correct the recirculation rate and/or the pH to acceptable levels, as soon as possible, but no longer than 1 hour of operation after detection. If the recirculation rate or pH levels in the scrubber continue(s) to be outside of acceptable ranges after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. Monitoring parameters found by District staff to be outside of established ranges constitutes a violation of this permit. [District Rules 2201 and 4102]
- In the venturi scrubber, if the recirculation rate is less than 40 gal/minute, the permittee shall correct the recirculation rate, as soon as possible, but no longer than 1 hour of operation after detection. If the recirculation rate in the scrubber continues to be outside of acceptable ranges after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. [District Rules 2201 and 4102]
- In the twin packed bed scrubber, if the pH is outside the ranges specified in this permit, the permittee shall correct the pH, as soon as possible, but no longer than 1 hour of operation after detection. If the pH in the scrubber continues to be outside of acceptable ranges after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. [District Rules 2201 and 4102]
- Continuous monitoring equipment shall be used to monitor the recirculation rate and pH in each of the cross-flow and twin packed bed scrubbers and the recirculation rate in venturi scrubber. The recirculation rates shall be measured in gallons per minute. The recirculation rates and pH from each scrubber shall be recorded at least once per day while the scrubbers are in operation. The continuous monitoring equipment shall be maintained in proper operating condition at all times. [District Rules 2201 and 4102]

- Permittee shall take monthly readings with a portable anemometer to verify that the main processing building is under negative pressure during periods of plant operation. The anemometer shall be calibrated per the manufacturer's recommendations. Additionally, the anemometer shall be made available to District inspection staff upon request. Records of anemometer measurements and calibrations shall be kept, maintained, and made readily available for District inspection upon request. [District Rules 2201 and 4102]

The following condition which was already discussed above will be included on C-9251-4 & -5:

- The ammonia emissions shall not exceed 10 ppmvd @ 3% O2. [District Rules 2201 and 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.

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

The cancer risk for this project is shown below:

HRA Summary		
Unit	**Cancer Risk**	**T-BACT Required**
C-9251-1-0	0.00156 per million	No
C-9251-2-0	0.00156 per million	No
C-9251-3-0	0.00000 per million	No
C-9251-4-0	0.0191 per million	No
C-9251-5-0	0.0257 per million	No

Discussion of T-BACT

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is not required for this project because the HRA indicates that the risk is not above the District's thresholds for triggering T-BACT requirements; therefore, compliance with the District's Risk Management Policy is expected.

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification not have acute or chronic indices, or a cancer risk greater than the District's significance levels (i.e. acute and/or chronic indices greater than 1 and a cancer risk greater than 20 in a million). As outlined by the HRA Summary in Appendix I of this report, the emissions increases for this project was determined to be less than significant.

The following conditions will be included on each permit, except permit C-9251-3:

- The exhaust stacks 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]

Rule 4104 Reduction of Animal Matter

C-9251-1 & -2:
The purpose of this rule is to limit air contaminants from source operations used for the reduction of animal matter. This rule shall apply to any source operation used for the reduction of animal matter. The animal rendering operations proposed in this project are subject to the requirements of this rule.

The requirements of this rule state that all gases and vapors released from the reduction of animal matter are vented to either: 1) an incinerator with a minimum operating temperature of 1200 degrees F and a retention time of at least 0.3 seconds; or, 2) process all gases, vapors, and gas-entrained effluent from the operation in such a manner determined by the APCO to be equally or more effective for the purpose of air pollution control than incineration.

This rule also requires that any person incinerating or processing gases, vapors, or gas-entrained effluent pursuant to this rule provide, properly install, and maintain in calibration, in good working order, and in operation, devices for indicating temperature, pressure, or other operating conditions.

Defined high intensity gases, vapors, and gas-entrained effluent from the animal rendering operation at this facility are vented to and controlled by the thermal oxidizer listed on the rendering line permit C-9251-1 and shared with the rendering line in permit -2 as well as other equipment. This equipment is proposed to operate in compliance with the requirements of this rule. The following conditions will be included on permits -1 and -2 as a mechanism to ensure compliance with the requirements of this rule:

- The RTO shall be operated with a combustion chamber temperature of no less than 1400 degrees F and the retention time shall be no less than one second. The RTO temperature shall be monitored and recorded utilizing a continuous monitoring and recording device. The monitoring and recording device shall be maintained in proper operating condition at all times. [District Rules 2201, 4102 and 4104]
- The thermal oxidizer shall be heated to the proper operating temperature prior to introducing the contaminated air stream. [District Rules 2201, 4102 and 4104]

Rule 4201 Particulate Matter Concentration

The purpose of this rule is to protect the ambient air quality by establishing a particulate matter emission standard. This rule applies to any source operation, which emits or may emit dust, fumes, or total suspended particulate matter. This rule states that a person shall not release or discharge into the atmosphere from any single source operation, dust, fumes, or total suspended particulate matter emissions in excess of 0.1 grain/dscf, as determined by the test methods in section 4.0.

The grain loading for the units is calculated below:

C-9251-1 & -2-:
RTO:
Assumptions:

F-Factor: 8,578 dscf/MMBtu at 60 °F
PM_{10} Emission Rate: 4.2 lb/day (From Section VII.B)
3% O_2 in exhaust stream
PM fraction: 50% of total PM is PM_{10}

Grain emission rate is calculated:
4.2 lb-PM_{10}/day x 2 lb-PM/lb-PM_{10} x 7000 gr/lb = 58,800 grain/day ÷ 1440 min/day = 40.8 gr/min

Exhaust flow is calculated:
4 MMBtu/hr x 8,578 ft^3/MMBtu x (20.9 ÷ (20.9 – 3)) = 40,063 dscf/hr ÷ 60 min/hr = 668 dscfm

Grain loading is calculated:
40.8 gr/min ÷ 668 dscfm = 0.06 gr/dscf < 0.1 gr/dscf

Cross-Flow Scrubber:
Assumptions:

Air Flow Rate: 100,000 cfm
PM_{10} Emission Rate: 10.3 lb/day (From Section VII.B)
PM fraction: 50% of total PM is PM_{10}

Grain emission rate is calculated:
20.3 lb-PM_{10}/day x 2 lb-PM/lb-PM_{10} x 7000 gr/lb = 284,200 grain/day ÷ 1440 min/day = 197 gr/min

Grain loading is calculated:
197 gr/min ÷ 100,000 dscfm = 0.0020 gr/dscf < 0.1 gr/dscf

C-9251-3:
The grain loading concentration from each bin vent filter is calculated as follows:

$$\frac{grain}{dscf} = \left(\frac{lb - PM}{ton\ of\ material}\right) \times \left(\frac{tons\ of\ material}{day}\right) \times \left(\frac{7{,}000\ grain}{lb}\right) / \left(\frac{dscf}{min}\right) \times \left(\frac{60\ min}{hour}\right) \times \left(\frac{24\ hour}{day}\right)$$

Where:
Percentage of PM as PM_{10} in Exhaust: 50% per Rule 2201, Section 4.11.2.
PM_{10} Emission Factor: 0.0008 lb-PM_{10}/ton of material for screens and hammermill
PM Emission Factor: 0.0016 lb-PM/ton of material for screens and hammermill
Throughput = 278 tons of material per day
Flowrate = ≤500 dscf/min (per applicant)

Therefore,

$$\frac{grain}{dscf} = \left(\frac{0.0016\ lb - PM}{ton\ of\ material}\right) \times \left(\frac{278\ tons\ of\ material}{day}\right) \times \left(\frac{7{,}000\ grain}{lb}\right) / \left(\frac{500\ dscf}{min}\right) \times \left(\frac{60\ min}{hour}\right) \times \left(\frac{24\ hour}{day}\right)$$

$$\frac{grain}{dscf} = 0.04 \frac{grain}{dscf} < 0.1\ grain/dscf$$

C-9251-4 & -5:
The maximum particulate matter factor for these units that results in compliance with the particulate matter concentration of 0.1 grain per cubic foot of gas at dry standard conditions can be calculated as follows:

For natural gas and biogas:
F-Factor: 8,578 dscf/MMBtu at 60 °F
PM_{10} Emission Factor: 0.003 lb-PM_{10}/MMBtu (From Section VII.B)
Percentage of PM as PM_{10} in Exhaust: 100%

$$Grain\ Loading\ (GL) = \left(\frac{0.003\ lb - PM}{MMBtu} \times \frac{7{,}000\ grain}{lb - PM}\right) \div \left(\frac{8{,}578\ ft^3}{MMBtu}\right)$$

$$GL = 0.002\ grain/dscf < 0.1\ grain/dscf$$

Therefore, the following condition will be listed on the permits to ensure compliance:

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

Rule 4301 Fuel Burning Equipment

This rule applies to fuel burning equipment except for air pollution control equipment. The only units that this rule applies to are C-9251-4 and -5.

C-9251-4 & -5:
This rule specifies maximum emission rates in lb/hr for SO_2, NO_2, and combustion contaminants (defined as total PM in Rule 1020). This rule also limits combustion contaminants to ≤ 0.1 gr/scf.

Natural gas/Biogas Combustion:
F-Factor: 8,578 dscf/MMBtu at 60 °F
PM10 Emission Factor: 0.003 lb-PM_{10}/MMBtu
Percentage of PM as PM_{10} in Exhaust: 100%
Exhaust Oxygen (O_2) Concentration: 3%

$$\text{Excess Air Correction to F Factor} = \frac{20.9}{(20.9 - 3)} = 1.17$$

$$\text{Combustion contaminants} = \left(\frac{0.003\ lb-PM}{MMBtu} \times \frac{7{,}000\ grain}{lb-PM}\right) \div \left(\frac{8{,}578\ ft^3}{MMBtu} \times 1.17\right)$$

$$\text{Combustion contaminants} = 0.002\ grain/dscf < 0.1\ grain/dscf$$

District Rule 4301 Limits				
ATC Number	Pollutants			
	Combustion Contaminants	NO_2	Total PM	SO_2
	gr/dscf	lb/hr	lb/hr	lb/hr
C-9251-4-0	0.002	2.3*	0.5**	0.2**
C-9251-5-0	0.002	2.3*	0.5**	0.2**
Rule Limit (lb/hr)	0.1	140	10	200

* Calculated as 0.036 lb/MMBtu x 63 MMBtu/hr = 2.3 lb/hr
** Calculated as EF x 63 MMBtu/hr, where the EF is as stated in Section VII.B.

Emissions from emission units C-9251-4-0 & -5-0 are less than rule limit. Therefore, compliance with Rule 4301 is expected.

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

C-9251-4 & -5:
The units are natural gas and/or biogas-fired with a maximum heat input of 63 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4305, the units are subject to District Rule 4305, Boilers, Steam Generators and Process Heaters – Phase 2.

In addition, the units are 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 requirements of District Rule 4305.

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

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

C-9251-4 & -5:
The units are natural gas and/or biogas-fired with a maximum heat input of 63 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4306, the unit is subject to District Rule 4306, Boilers, Steam Generators and Process Heaters – Phase 3.

In addition, the units are 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 requirements of District Rule 4306.

Therefore, compliance with District Rule 4306 requirements is expected and no further discussion is required.

Rule 4320 Advance Emission Reduction Options for Boilers, Steam Generators and Process Heaters Greater than 5 MMBtu/hr

C-9251-4 & -5:
The units are gaseous fuel-fired with a maximum heat input of 63 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4320, the units are subject to District Rule 4320.

Section 5.2, NOx and CO Emissions Limits

Section 5.2 requires that, except for units subject to Sections 5.3, NOx 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.

With a maximum heat input of 63 MMBtu/hr each, the applicable emission limit category is listed in Section 5.2, Table 1, Category B, from District Rule 4320.

Rule 4320 Emissions Limits		
Category	**Operated on gaseous fuel**	
	NO_X Limit	**CO Limit**
B. Units with a rated heat input > 20.0 MMBtu/hr, except for Categories C through G	a) Standard Schedule: 7 ppmv or 0.008 lb/MMBtu	400 ppmv
	b) Enhanced Schedule: 5 ppmv or 0.0062 lb/MMBtu	

For the subject units, the facility is proposing to comply with Category B – standard schedule but will have a NOx limit of 2.5 ppmv instead of the maximum allowable limit of 7 ppmv @ 3% O2 (0.008 lb/MMBtu). Additionally, the facility proposes a CO limit of 100 ppmv @ 3% O2. Therefore, compliance with the rule emission requirements is expected.

Section 5.2.4 applies to units firing on a combination of gaseous and liquid fuels. The facility is not proposing to fire on liquid fuels.

Therefore, compliance with Section 5.2 of District Rule 4320 is expected.

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

Section 5.3, Annual Fee Calculation

Annual Fees are required if the units will not be meeting the emission limits in Section 5.2 of this rule. Since the proposed units will meet the emissions 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 for each unit:

1. Fire the unit 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 (5) grains of total sulfur per one hundred (100) standard cubic feet;
3. Install and properly operate an emission control system that reduces SO_2 emissions by at least 95% by weight; or limit exhaust SO_2 to less than or equal to 9 ppmv corrected to 3.0% O_2;

The facility has proposed that the units be fired on PUC-quality natural gas and/or biogas. When fired exclusively on PUC-quality natural gas, compliance with Section 5.4.1.1 will be met.

Since the conditioned biogas is expected to have less than 1 gr/100 scf, the conditioned biogas is expected to comply with Section 5.4.1.2.

The following conditions will be added to the permit to ensure compliance with this section.

- The unit shall only be fired on either of the following: (1) PUC-regulated natural gas, or (2) a mixture of conditioned biogas from permit unit C-535-26 and PUC-regulated natural gas. [District Rules 2201 and 4320]
- The sulfur content of the biogas (as H2S) shall not exceed 15.9 ppmv (equivalent to 1 gr/100 dscf). [District Rules 2201 and 4320]

Section 5.5, Low Use

The units' annual heat input will exceed the 1.8 billion Btu heat input per calendar year criteria limit addressed by this section. Since the units are not subject to Section 5.5, the requirements of this section do not apply.

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 start-up or shutdown provided an operator complies with the requirements specified in Sections 5.6.1 through 5.6.5. Sections 5.6.1 through 5.6.5 require the following:

1. The duration of each startup or shutdown must not exceed two hours per event, unless the APCO approves a larger allowable startup or shutdown duration.
2. The emission control system must be in operation and emission be minimized insofar as technologically feasible during startup and shutdown.

The following conditions will be included on the permits to ensure compliance with the startup and shutdown requirements:

- The total duration of startup and shutdown time shall not exceed any of the following limits: 2 hours per startup, 2 hours per shutdown, and 4 hours of combined startup and shutdown time per day. [District Rules 2201, 4305, 4306, and 4320]
- The selective catalytic reduction system shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown periods. [District Rules 2201, 4305, 4306 and 4320]

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_x, CO and O_2, or install and maintain APCO-approved alternate monitoring.

The applicant has proposed to use the pre-approved alternate monitoring scheme A (pursuant to District Policy SSP-1105, Alternate Monitoring), which requires that monitoring of NOx, CO, and O_2 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 listed on the permits in order to ensure compliance with the requirements of the proposed alternate monitoring plan:

- The permittee shall monitor and record the stack concentration of NOx, CO, NH3 and O2 at least once every month (in which a source test is not performed). NOx, CO and O2 monitoring shall be conducted utilizing a portable analyzer that meets District specifications. NH3 monitoring shall be conducted utilizing Draeger tubes or a District approved equivalent method at the time NOx, CO and O2 readings are taken. 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, 4306, and 4320]
- If the NOx, CO or NH3 concentrations corrected to 3% O2, as measured by the portable analyzer and District approved ammonia monitoring equipment, 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 or ammonia monitoring equipment show that emissions 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 performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320]
- {4317} 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, 4306, and 4320]
- The permittee shall maintain records of: (1) the date and time of NOx, CO, NH3 and O2 measurements, (2) the O2 concentration in percent and the measured NOx, CO and NH3 concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, (5) the method of determining the NH3 concentration, and (6) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306, and 4320]

Since these units are not subject to the requirements listed in Section 5.5.1 or 5.5.2, they are not subject to Section 5.7.2 and 5.7.3 requirements.

Section 5.7.4 allows units operated at seasonal sources and subject to 40 CFR 60 Subpart Db to install a parametric monitoring system in lieu of a CEMS. The proposed units are not operated at a seasonal source. Therefore, these units are not subject to 5.7.4 requirements.

Section 5.7.6 outlines requirements for monitoring SOx emissions. Section 5.7.6.1 states that operators complying with Sections 5.4.1.1 or 5.4.1.2 shall provide an annual fuel analysis to the District unless a more frequent sampling and reporting period is included in the Permit to Operate. Sulfur analysis shall be performed in accordance with the test methods in Section 6.2.

Section 5.7.6.2 states that operators complying with Section 5.4.1.3 by installing and operating a control device with 95% SOx reduction shall propose the key system operating parameters and frequency of the monitoring and recording. The monitoring option proposed shall be submitted for approval by the APCO.

Section 5.7.6.3 that operators complying with Section 5.4.1.3 shall perform an annual source test unless a more frequent sampling and reporting period is included in the Permit to Operate. Source tests shall be performed in accordance with the test methods in Section 6.2.

The facility has proposed to show compliance using the requirement in sections 5.4.1.1, firing exclusively on PUC-quality natural gas, and 5.4.1.2, limiting the fuel sulfur content to no more than 5 grains of total sulfur per one hundred (100) standard cubic feet. The following conditions will be added to the permit to ensure compliance with this section.

- {4356} Permittee shall determine sulfur content of combusted gas annually or shall demonstrate that the combusted gas is provided from a PUC or FERC regulated source. [District Rules 1081 and 4320]
- If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rule 4320]
- Testing to demonstrate compliance with the biogas H2S content limit shall be conducted quarterly. Once eight (8) consecutive quarterly test show compliance, the H2S content testing frequency may be reduced to once every calendar year. If an annual test shows violation of the H2S content limit, then quarterly testing shall resume and continue until eight (8) consecutive tests show compliance. Once compliance is shown on eight (8) consecutive quarterly tests, then testing may return to once every calendar year. [District Rules 2201 and 4320]

Section 5.8, Compliance Determination

Section 5.8.1 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 permits as follows:

- {2976} The source plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 2201, 4305, 4306 and 4320]

Section 5.8.2 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 condition will be listed on the permits as follows:

- 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. Unless otherwise 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 4320. For the purposes of permittee-performed alternate monitoring, emissions measurements may be performed at any time after the unit reaches conditions representative of normal operation. [District Rules 4305, 4306 and 4320]

Section 5.8.4 requires that for emissions monitoring 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 condition will be listed on the permits as follows:

- {4317} 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, 4306 and 4320]

Section 5.8.5 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 condition will be listed on the permits as follows:

- 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 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 noncompliance with the applicable requirements of this rule shall constitute a violation of this rule.

A condition will be listed on the permits as follows:

- 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, 4306 and 4320 and 40 CFR 60.48c(i)]

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. Since the units are not subject to the requirements listed in Section 5.5, they are not subject to Section 6.1.2 requirements.

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. The units are not subject to Section 6.1.3. Therefore, the requirements of this section do not apply to these units.

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.

A condition will be listed on the permits as follows:

- Permittee shall keep daily and cumulative annual records of the startup and shutdown durations and number of startup and shutdown occurrences. [District Rules 2201, 4305, 4306, and 4320]

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. The facility has not proposed the use of curtailment fuels; therefore, the requirements of this section do not apply to these units.

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
NOx	ppmv	EPA Method 7E or ARB Method 100
NOx	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 conditions will be listed on the permits 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]
- The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, NOx (lb./MMBtu) - EPA Method 19; CO (ppmv) - EPA Method 10 or ARB Method 100; Stack gas oxygen (O2) - EPA Method 3 or 3A or ARB Method 100; stack gas velocities – EPA Method 2; Stack gas moisture content – EPA Method 4; SOx – EPA Method 6C or 8 or ARB Method 100; fuel gas sulfur as H2S content – EPA Method 15, ASTM Method D1072, D3031, D4084, D3246, D5504 or with the use of the Testo 350 XL portable analyzer; and fuel hhv (MMBtu) –ASTM D1826 or D1945 in conjunction with ASTM D3588. [District Rules 2201, 4305, 4306 and 4320]

Section 6.3, Compliance Testing

Section 6.3.1 requires that these units 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 following source test may be deferred for up to thirty-six months.

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

- Source testing to measure NOx, CO and NH3 emissions from this unit, while fired on natural gas, shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
- Source testing to measure NOx, CO and NH3 emissions from this unit, while fired on a blend of natural gas and biogas, shall be conducted within 60 days of initially firing on a blend of natural gas and biogas. [District Rules 2201, 4305, 4306, and 4320]

- Source testing to measure NOx, CO and NH3 emissions from this unit 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, 4306, and 4320]
- The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

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 4320.

The proposed units will be in compliance with the emissions limits listed in table 1, Section 5.2 of this rule and with periodic monitoring and source testing requirements. Therefore, this current application for the new proposed units satisfies the requirements of the Emission Control Plan, as listed in Section 6.4 of District Rule 4320. No further discussion is required.

Section 7.0, Compliance Schedule

Section 7.0 indicates that an operator of a unit subject to this rule must be in compliance with both the ATC deadline and compliance deadlines listed in Table 1 of Section 5.2.

The units will be in compliance with the emissions limits listed in table 1, Section 5.2 of this rule, and periodic monitoring and source testing as required by District Rule 4320. Therefore, requirements of the compliance schedule, as listed in Section 7.1 of District Rule 4320, are satisfied. No further discussion is required.

Conclusion

Conditions will be incorporated into the permits as a mechanism to ensure compliance with each section of this rule. Therefore, compliance with District Rule 4320 requirements is expected.

Rule 4801 Sulfur Compounds

Rule 4801 prohibits discharge into the atmosphere of sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: two-tenths (0.2) percent by volume calculated as sulfur dioxide (SO_2), on a dry basis averaged over 15 consecutive minutes. As will be demonstrated below, compliance is expected with this rule.

C-9251-1 &-2:
RTO:
Assumptions:

F-Factor: 8,578 dscf/MMBtu at 60 °F
SO_X Emission Rate: 42.7 lb/day (From Section VII.B)
3% O_2 in exhaust stream

Volume $SO_2 = \frac{n\,RT}{P}$

Using the ideal gas equation, the sulfur compound emissions are calculated as follows.

With:

N = moles SO_2
T (Standard Temperature) = 60°F = 520°R
P (Standard Pressure) = 14.7 psi
R (Universal Gas Constant) = $\frac{10.73 psi \cdot ft^3}{lb \cdot mol \cdot °R}$
EPA F-Factor: 8,578 dscf/MMBtu at 60 °F

Rule SO_2 Limit:

$$Volume\ SO_2 = \frac{0.2}{100} \times \frac{14.7\ psi}{520°R} \times \frac{lb - mol - °R}{10.73\ psi - ft^3} \times \frac{64\ lb - SO_2}{lb - mol}$$

$$Volume\ SO_2 = 0.0003 \frac{lb - SO_2}{ft^3}$$

Proposed SO_2 Emissions
The SOx (as SO_2) emission factor is converted to volume as follows.

Volume SO_2 = 42.7 lb-SOx/day ÷ 24 hr/day × 1 lb-SO_2/lb-SOx ÷ [4 MMBtu/hr x 8,578 ft^3/MMBtu x (20.9 ÷ (20.9 – 3))]
= 0.000044 lb-SO_2/ft^3

Since 0.000044 lb-SO_2/ft^3 is less than 0.0003 lb-SO_2/ft^3, compliance with District Rule 4801 requirements is expected.

Cross-Flow Scrubber:

There is 9.7 ppmv-H_2S in the scrubber exhaust:

$$\frac{0.75\ parts - H_2S}{10^6} \times \frac{64\ g - SO_2}{34\ g - H_2S} \times \frac{1 mol\ SO_2}{64\ g - SO_2} \times 10^6 = 0.02\ \frac{parts}{million}$$

Sulfur concentration = 0.02 ppmv < 2,000 ppmv (or 0.2%)

Therefore, compliance with District Rule 4801 requirements is expected.

C-9251-4 & -5:
Rule 4801 requires that sulfur compound emissions (as SO_2) shall not exceed 0.2% by volume. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

$$\text{Volume } SO_2 = \frac{n\,RT}{P}$$

With:

N = moles SO_2
T (Standard Temperature) = 60°F = 520°R
P (Standard Pressure) = 14.7 psi
R (Universal Gas Constant) = $\frac{10.73 \text{psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot {}^\circ\text{R}}$
EPA F-Factor: 8,578 dscf/MMBtu at 60 °F

$$\frac{0.0034\ lb - SO_x}{MMBtu} x\ \frac{MMBtu}{8{,}578\ dscf} x\ \frac{1\ lb - mol}{64\ lb} x\ \frac{10.73\ psi \cdot ft^3}{lb \cdot mol \cdot °R} x\ \frac{520°R}{14.7\ psi} x\ \frac{1{,}000{,}000\ parts}{million} = \frac{2.4\ parts}{million}$$

$$Sulfur\ Concentration = \frac{2.4\ parts}{million} < 2{,}000 \text{ ppmv (or 0.2\%)}$$

Therefore, compliance with District Rule 4801 requirements is expected.

California Health & Safety Code 42301.6 (School Notice)

The District has verified that this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

California Environmental Quality Act (CEQA)

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 another agency has prepared an environmental review document for the project. The District is a Responsible Agency for the project because of its discretionary approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CEQA Guidelines §15381). As a Responsible Agency, the District is limited to mitigating or avoiding impacts for which it has statutory authority. The District does not have statutory authority for regulating greenhouse gas emissions. The District has determined that the applicant is responsible for implementing greenhouse gas mitigation measures, if any, imposed by the Lead Agency.

District CEQA Findings

The City of Fresno (City) is the public agency having principal responsibility for approving the Fresno Rendering Plant Relocation Project which covers District ATC project number C-1172884. As such, the City served as the Lead Agency for the Fresno Rendering Plant Relocation Project. On August 15, 2019, the City certified the Environmental Impact Report (EIR), finding the Fresno Rendering Plant Relocation Project would have a less than significant impact on air quality. The City approved the Fresno Rendering Relocation Project and adopted a Statement of Overriding Consideration (SOC).

The District is a Responsible Agency for the project because of its discretionary approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CEQA Guidelines §15381). As a Responsible Agency the District complies with CEQA by considering the EIR prepared by the Lead Agency, and by reaching its own conclusion on whether and how to approve the project involved (CEQA Guidelines §15096). The District has considered the Final EIR certified by the City.

The District has considered the Lead Agency's environmental document. Furthermore, the District has conducted an engineering evaluation of the project, this document, which demonstrates that Stationary Source emissions from the project would be below the District's thresholds of significance for criteria pollutants. Thus, the District finds that through a combination of project design elements, compliance with applicable District rules and regulations, and compliance with District air permit conditions, project specific stationary source emissions will have a less than significant impact on air quality.

The City concluded that Agricultural Resources would have a significant impact on the environment. The District has no statutory authority over Agricultural Resources and cannot impose additional mitigation measures to reduce impact from those sources.

As a Responsible Agency the District is required to issue findings for significant air quality impacts detailed in the Lead Agency's EIR and adopt an SOC. The District has required all feasible mitigation measures to lessen stationary source emissions impacts to air quality from this project. As a single purpose agency, the District lacks the Lead Agency's broader scope of authority over the project and does not believe that it should overrule the decisions made by the Lead Agency. Accordingly, after considering the Lead Agency's EIR, the SOC, and the substantial evidence the Lead Agency relied on in

adopting the SOC, the District finds that it had no basis on which to disagree with the SOC and evidence relied on therein. The District therefore adopts the Lead Agency's SOC by reference as its own.

Indemnification Agreement/Letter of Credit Determination

According to District Policy APR 2010 (CEQA Implementation Policy), when the District is the Lead or Responsible Agency for CEQA purposes, an indemnification agreement and/or a letter of credit may be required. The decision to require an indemnity agreement and/or a letter of credit is based on a case-by-case analysis of a particular project's potential for litigation risk, which in turn may be based on a project's potential to generate public concern, its potential for significant impacts, and the project proponent's ability to pay for the costs of litigation without a letter of credit, among other factors.

The criteria pollutant emissions and toxic air contaminant emissions associated with the proposed project are not significant, however, there is potential for public concern for this particular type of facility/operation. Therefore, an Indemnification Agreement will be required for this project.

The following condition will be included on each ATC to assure compliance with the CEQA mitigation measure requirements:

- As required by Mitigation Measure 4.4-5 and the Mitigation Monitoring Reporting Program established by the City of Fresno in the Fresno Rendering Plant Relocation Project's Final Environmental Impact Report (FEIR), the Odor Control Plan (OCP) shall be submitted to the District for review to ensure odor control equipment identified in the OCP does not conflict with requirements of Best Available Control Technology (BACT). [Public Resources Code 21000-21177: California Environmental Quality Act]

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful public noticing period, issue ATCs C-9251-1-0, -2-0, -3-0, -4-0, & -5-0 subject to the permit conditions on the attached draft ATCs in Appendix A.

X. Billing Information

Pursuant to District Rule 3020, Permit Fee Schedules, in the event that more than one fee schedule is applicable to a permit unit, the governing schedule shall be that which results in the higher fee, with the exception of fuel servicing equipment.

C-9251-1-0
Based on 2,284.5 electric motor horsepower for permit C-9251-1-0 (including all equipment shared between permit units -1 and -2), schedule 3020-01-H indicates $1,238 for the annual fee, and based on the 4 MMBtu/hr for the shared RTO, schedule 3020-02-E indicates $637 for the annual fee.

Therefore, we will consider schedule 3020-01-H related to the maximum electrical motor horsepower rating, as the applicable schedule to this permit unit.

C-9251-2-0
Based on 1,663 electric motor horsepower for permit C-9251-2-0, schedule 3020-01-H indicates $1,238 for the annual fee, and based on the 4 MMBtu/hr for the shared RTO, schedule 3020-02-E indicates $637 for the annual fee.

Therefore, we will consider schedule 3020-01-H related to the maximum electrical motor horsepower rating, as the applicable schedule to this permit unit.

Annual Permit Fees			
Permit Number	**Fee Schedule**	**Fee Description**	**Annual Fee**
C-9251-1-0	3020-01-H	2,284.5 electrical hp	$1,238
C-9251-2-0	3020-01-H	1,663 electrical hp	$1,238
C-9251-3-0	3030-05-E	282,016 (2 x 141,008) gallon storage tanks	$296
C-9251-4-0	3020-02-H	63 MMBtu/hr	$1,238
C-9251-5-0	3020-02-H	63 MMBtu/hr	$1,238

Appendices

A: Draft ATCs
B: Process Flow Diagram
C: Biogas Fuel Analysis
D: Calculated Process Rate for Emission Factor Conversion
E: Emission Factor Conversions
F: Quarterly Net Emissions Change
G: BACT Analysis for Rendering Operations (ATCs C-9251-1 & -2)
H: BACT Analysis for Natural Gas/Biogas-Fired Boilers (ATCs C-9251-4 & -5)
I: HRA/AAQA Summary
J: Summary of Hazardous Air Pollutant Emissions

Appendices

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I: HRA/AAQA Summary
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APPENDIX A
Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-9251-1-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: DARLING INGREDIENTS, INC
MAILING ADDRESS: 5601 N MACARTHUR BLVD
IRVING, TX 75038

LOCATION: 5449 W JENSEN AVE
FRESNO, CA 93706

EQUIPMENT DESCRIPTION:
FOOD PROCESSING BYPRODUCT CONVERSION OPERATION (LINE #1) WITH ONE RAW MATERIAL FEED HOPPER AND TRANSFER SYSTEM, ONE DUPPS MODEL 320U COOKER WITH ENTRAINMENT TRAP, DISCHARGE SCREWS, AND DRAINERS, ONE AIR-COOLED CONDENSER, ONE DRAINER/SEDIMENTER, ONE CENTRIFUGE, THREE CRAX PRESSES, ONE CRAX HOPPER, ONE FINISHING CENTRIFUGE, ONE SCREEN AND ONE CRAX GRINDER/HAMMERMILL, A WASTEWATER TREATMENT SYSTEM WITH ROTARY SCREEN, EQUALIZATION TANK AND DISSOLVED AIR FLOATATION SYSTEM SHARED WITH PERMIT C-9251-2, AND AN EMISSIONS/ODOR CONTROL SYSTEM CONSISTING OF A VENTURI SCRUBBER, A TWIN PACKED TOWER SCRUBBER AND A 4 MMBTU/HR REGENERATIVE THERMAL OXIDIZER (RTO) IN SERIES (EMISSIONS/ODOR CONTROL SYSTEM SHARED WITH PERMIT C-9251-2) AND PERMIT EXEMPT FAT STORAGE TANKS (NOT A SOURCE OF AIR CONTAMINANTS). ROOM AIR WILL BE SERVED BY A 100,000 CFM CROSS-FLOW SCRUBBER SHARED WITH PERMIT C-9251-2

CONDITIONS

1. Prior to operating any piece of equipment authorized by Authority to Construct permits C-9251-1-0 or -2-0, permittee shall surrender PM2.5 emission reduction credits for the following combined quantities: 1st quarter - 1,871 lbs, 2nd quarter - 1,871 lbs, 3rd quarter - 1,871 lbs, and 4th quarter - 1,872 lbs. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERCs specified below. [District Rule 2201]
2. ERC Certificate Numbers C-1472-4, C-1447-4, C-1449-4, N-1327-4, S-4994-4, and S-4765-4 (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, if any, shall be duplicated prior to reissuance of this ATC. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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.

Samir Sheikh, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726 • (559) 230-5900 • Fax (559) 230-6061

3. As required by Mitigation Measure 4.4-5 and the Mitigation Monitoring Reporting Program established by the City of Fresno in the Fresno Rendering Plant Relocation Project's Final Environmental Impact Report (FEIR), the Odor Control Plan (OCP) shall be submitted to the District for review, and implemented as approved, to ensure odor control equipment identified in the OCP does not conflict with requirements of Best Available Control Technology (BACT). [Public Resources Code 21000-21177: California Environmental Quality Act]
4. As required by Mitigation Measure 4.4-5 and the Mitigation Monitoring Reporting Program established by the City of Fresno in the Fresno Rendering Plant Relocation Project's FEIR, the OCP may be modified and submitted to the District for review, and implemented to include additional measures to minimize odor generation such that the potential for project-related odor complaints from existing residents would be reduced to the degree feasible. [Public Resources Code 21000-21177: California Environmental Quality Act]
5. {271} 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]
6. If permittee wishes to seek breakdown relief under District Rule 1100, permittee shall notify the District of any breakdown condition as defined in the rule as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100]
7. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
8. {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]
9. No air contaminant or compound shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
10. The exhaust stacks 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]
11. The rendering facility, associated equipment, and the facility's surrounding property shall be operated and maintained in such a manner as to prevent the generation of odors which may constitute a nuisance. [District Rule 4102]
12. The wastewater system shall be operated and maintained such that it does not cause a public nuisance. [District Rule 4102]
13. Air pollution control equipment shall be maintained in good operating condition and shall be operated in accordance with the manufacturer's instructions when the process equipment is in operation. [District Rule 4102]
14. All air pollution equipment and associated ducting shall be maintained in a leak-free manner to prevent the escape of air contaminants to the outside atmosphere prior to their treatment in the emissions/odor control system. [District Rule 4102]
15. The plant shall not receive, store, or render raw material unless the odor control system is fully operating, except during periods of equipment breakdown as determined by the District under Rule 1100. All process-related potential points of odor shall be contained and/or treated to prevent escape into the atmosphere and shall only be vented to the odor control system. [District Rule 4102]
16. Odor detection tubes shall be maintained in the cross-flow scrubber exhaust so samples of the discharge air may be evaluated at ground level. [District Rule 4102]
17. Raw material delivery trucks shall be unloaded within 2 hours of being scaled. Raw material delivery trucks shall not be stored or staged without first being scaled. [District Rule 4102]
18. If raw material delivery trucks cannot be unloaded within 2 hours of being scaled due to an equipment malfunction, raw material shall be temporarily staged in a covered manner not to exceed 8 hours. [District Rule 4102]
19. Incoming raw material trucks shall only be unloaded into the receiving area which is served by the cross flow scrubber. [District Rule 4102]
20. All raw material trucks shall be maintained in condition to prevent leakage of solid or liquid material. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

21. No outside storage of raw material is allowed, except as otherwise specified in this permit. Trucks waiting their turn to unload within the 2-hour unload time limitation are not considered outside storage. [District Rule 4102]

22. All material received shall be processed within 24 hours of receipt. Each delivery of material shall be monitored and records shall be maintained to ensure that processing is performed within this time limit. [District Rules 2201 and 4102]

23. If raw material cannot be processed within 24 hours of receipt, raw material shall be diverted to other facilities. No further deliveries shall be received until a 24 hour turnaround for raw material is achievable. [District Rule 4102]

24. The condenser and each scrubber shall be inspected at least once per week and cleaned as needed based on inspection results. Liquids and any solids shall be disposed of in a manner to prevent release which may constitute a nuisance odor. [District Rules 2201 and 4102]

25. All trucks delivering raw material shall be washed clean of raw material and raw material residue prior to exiting the raw material receiving area to minimize nuisance emissions. Truck tires shall be especially washed to limit trackout of raw material or raw material residue. [District Rule 4102]

26. The raw material receiving area shall be washed as necessary to prevent any trackout of odor-causing materials. [District Rule 4102]

27. The building doors shall remain closed except during actual entry or exit of trucks and/or personnel or in case of emergency. [District Rule 4102]

28. Only natural gas shall be used in the RTO as supplemental fuel. [District Rule 2201]

29. Vapors from the cookers shall be captured and vented to the air-cooled condensers, the venturi scrubber, twin packed bed scrubber, and the RTO, in series. [District Rules 2201, 4102 and 4104]

30. Vapors from the drainers/sedimenters, presses, centrifuges and crax hoppers shall be captured and vented to the venturi scrubber, twin packed bed scrubber, and RTO, in series. [District Rules 2201, 4102 and 4104]

31. In the event the RTO malfunctions during raw material processing, all meat cooker emissions shall be routed to the venturi scrubber, twin packed bed scrubber and then to the cross-flow room air scrubber, in series. The RTO shall be restarted as soon as practical and upon reaching operating temperature the contaminated air stream shall be immediately re-routed to the RTO. [District Rules 2201 and 4102]

32. In the cross-flow scrubber, the recirculation rate shall not be less than 600 gal/minute for each stage. [District Rules 2201 and 4102]

33. In the cross-flow scrubber, at least one stage shall be operated with the pH of the scrubbing solution shall be greater than or equal to 9. [District Rules 2201 and 4102]

34. In the cross-flow scrubber, the system chemistry pH shall be operated within the following parameters: (1) when utilizing an acidic approach, the pH of the scrubbing solution shall be less than or equal to 5, (2) when utilizing an alkaline approach, the pH of the scrubbing solution shall be greater than or equal to 9, or (3) when utilizing a neutral approach, the pH of the scrubbing solution will be greater than 5 and less than 9. [District Rules 2201 and 4102]

35. In the venturi scrubber, the recirculation rate shall not be less than 40 gal/minute. [District Rules 2201 and 4102]

36. In the twin packed bed scrubber, the recirculation rate shall not be less than 100 gal/minute. [District Rules 2201 and 4102]

37. In the twin packed bed scrubber, the system chemistry pH shall be operated within the following parameters: (1) when utilizing an acidic approach, the pH of the scrubbing solution shall be less than or equal to 5, (2) when utilizing an alkaline approach, the pH of the scrubbing solution shall be greater than or equal to 9, or (3) when utilizing a neutral approach, the pH of the scrubbing solution will be greater than 5 and less than 9. [District Rules 2201 and 4102]

38. The processing building shall be kept under negative pressure at all times when receiving or storing raw material or in the process of rendering, except during limited periods when the receiving area doors are open to allow for entry/exit of raw material delivery trucks or during an equipment breakdown as defined in Rule 1100. [District Rule 2201 and 4102]

CONDITIONS CONTINUE ON NEXT PAGE

39. The RTO shall be operated with a combustion chamber temperature of no less than 1400 degrees F and the retention time shall be no less than one second. The RTO temperature shall be monitored and recorded utilizing a continuous monitoring and recording device. The monitoring and recording device shall be maintained in proper operating condition at all times. [District Rules 2201, 4102, and 4104]
40. The RTO shall be heated to the proper operating temperature prior to introducing the contaminated air stream. [District Rules 2201, 4102, and 4104]
41. Total facility raw material process rate shall not exceed either of the following limits: 850 tons/day (equivalent to 1,700,000 lbs/day) or 260,714 tons/year (equivalent to 521,428,000 lbs/year). [District Rule 2201]
42. The controlled emissions rate from the exhaust of the RTO shall not exceed any of the following limits, in pounds per ton processed: 0.0069 lb-NOx/ton, 0.0137 lb-CO/ton, 0.0033 lb-PM10/ton, 0.0052 lb-VOC/ton, or 0.0335 lb-SOx/ton. [District Rule 2201]
43. The controlled emissions rate from the exhaust of the cross-flow scrubber serving the room air shall not exceed any of the following limits: PM10-0.001 gr/dscf; VOC-2.3 ppmv as CH4; or H2S-0.75 ppmv. [District Rule 2201]
44. Source testing to measure the PM10 and VOC emissions from the RTO exhaust shall be conducted within 60 days of startup and at least once every 12 months. [District Rule 2201]
45. Source testing to measure the NOx, CO, and SOx emissions from the RTO exhaust shall be conducted within 60 days of startup. [District Rule 2201]
46. Source testing to measure the PM10, VOC, and H2S emissions from the cross-flow scrubber exhaust shall be conducted within 60 days of startup and at least once every 24 months thereafter. [District Rule 2201]
47. Source testing shall be performed while processing raw material under full load conditions or another load previously approved by the District in writing. [District Rules 1081 and 2201]
48. Source testing to measure the VOC emissions shall be conducted using EPA Methods 18, 25, 25A, or 25B or CARB Method 100. EPA Method 18 may be used to remove methane and ethane in order to determine the VOC concentration. [District Rule 2201]
49. Source testing to measure SOx emissions shall be conducted using EPA Method 6C, EPA Method 8, ARB Method 100, or SCAQMD Method 307.91. [District Rule 2201]
50. Source testing to measure NOx emissions shall be conducted using EPA Method 7E or ARB Method 100. [District Rule 2201]
51. Source testing to measure CO emissions shall be conducted using EPA Method 10 or ARB Method 100. [District Rule 2201]
52. Source testing to measure PM10 emissions shall be conducted using EPA Methods 201 and 202, EPA Methods 201A and 202, or CARB Methods 501 and 5. [District Rule 2201]
53. Source testing to measure H2S emissions shall be conducted using CARB Method 15 or 16A, EPA Method 11, or SCAQMD Method 307.91. [District Rule 2201]
54. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rule 2201]
55. {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]
56. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

CONDITIONS CONTINUE ON NEXT PAGE

57. In the cross-flow scrubber, if either the recirculation rate is less than 600 gal/minute in each stage or the pH is outside the ranges specified in this permit, as measured by the permittee, the permittee shall correct the recirculation rate and/or the pH to acceptable levels, as soon as possible, but no longer than 1 hour of operation after detection. If the recirculation rate or pH levels in the scrubber continue(s) to be outside of acceptable ranges after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. Monitoring parameters found by District staff to be outside of established ranges constitutes a violation of this permit. [District Rules 2201 and 4102]

58. In the venturi scrubber, if the recirculation rate is less than 40 gal/minute, the permittee shall correct the recirculation rate, as soon as possible, but no longer than 1 hour of operation after detection. If the recirculation rate in the scrubber continues to be outside of acceptable ranges after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. [District Rules 2201 and 4102]

59. In the twin packed bed scrubber, if the pH is outside the ranges specified in this permit, the permittee shall correct the pH, as soon as possible, but no longer than 1 hour of operation after detection. If the pH in the scrubber continues to be outside of acceptable ranges after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. [District Rules 2201 and 4102]

60. Continuous monitoring equipment shall be used to monitor the recirculation rate and pH in each of the cross-flow and twin packed bed scrubbers and the recirculation rate in venturi scrubber. The recirculation rates shall be measured in gallons per minute. The recirculation rates and pH from each scrubber shall be recorded at least once per day while the scrubbers are in operation. The continuous monitoring equipment shall be maintained in proper operating condition at all times. [District Rules 2201 and 4102]

61. Permittee shall take monthly readings with a portable anemometer to verify that the main processing building is under negative pressure during periods of normal plant operation. The anemometer shall be calibrated per the manufacturer's recommendations. Additionally, the anemometer shall be made available to District inspection staff upon request. Records of anemometer measurements and calibrations shall be kept, maintained, and made readily available for District inspection upon request. [District Rules 2201 and 4102]

62. Permittee shall keep a record of the daily and annual quantity of raw material processed, in tons. [District Rule 2201]

63. All records shall be retained for a minimum of five years, and shall be made available for District inspection upon request. [District Rules 1070 and 2201]

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-9251-2-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: DARLING INGREDIENTS, INC
MAILING ADDRESS: 5601 N MACARTHUR BLVD
IRVING, TX 75038

LOCATION: 5449 W JENSEN AVE
FRESNO, CA 93706

EQUIPMENT DESCRIPTION:
FOOD PROCESSING BYPRODUCT CONVERSION OPERATION (LINE #2) WITH ONE RAW MATERIAL FEED HOPPER AND TRANSFER SYSTEM, ONE DUPPS MODEL 320U COOKER WITH ENTRAINMENT TRAP, DISCHARGE SCREWS, AND DRAINERS, ONE AIR-COOLED CONDENSER, ONE DRAINER/SEDIMENTER, ONE CENTRIFUGE, THREE CRAX PRESSES, ONE CRAX HOPPER, ONE FINISHING CENTRIFUGE, ONE SCREEN AND ONE CRAX GRINDER/HAMMERMILL, A WASTEWATER TREATMENT SYSTEM WITH ROTARY SCREEN, EQUALIZATION TANK AND DISSOLVED AIR FLOATATION SYSTEM SHARED WITH PERMIT C-9251-1, AND AN EMISSIONS/ODOR CONTROL SYSTEM CONSISTING OF A VENTURI SCRUBBER, A TWIN PACKED TOWER SCRUBBER AND A 4 MMBTU/HR REGENERATIVE THERMAL OXIDIZER (RTO) IN SERIES (EMISSIONS/ODOR CONTROL SYSTEM SHARED WITH PERMIT C-9251-1) AND PERMIT EXEMPT FAT STORAGE TANKS (NOT A SOURCE OF AIR CONTAMINANTS). ROOM AIR WILL BE SERVED BY A 100,000 CFM CROSS-FLOW SCRUBBER SHARED WITH PERMIT C-9251-1

CONDITIONS

1. Prior to operating any piece of equipment authorized by Authority to Construct permits C-9251-1-0 or -2-0, permittee shall surrender PM2.5 emission reduction credits for the following combined quantities: 1st quarter - 1,871 lbs, 2nd quarter - 1,871 lbs, 3rd quarter - 1,871 lbs, and 4th quarter - 1,872 lbs. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERCs specified below. [District Rule 2201]
2. ERC Certificate Numbers C-1472-4, C-1447-4, C-1449-4, N-1327-4, S-4994-4, and S-4765-4 (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, if any, shall be duplicated prior to reissuance of this ATC. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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.

Samir Sheikh, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

C-9251-2-0 : Sep 19 2019 1:52PM – GARCIAJ : Joint Inspection NOT Required

3. As required by Mitigation Measure 4.4-5 and the Mitigation Monitoring Reporting Program established by the City of Fresno in the Fresno Rendering Plant Relocation Project's Final Environmental Impact Report (FEIR), the Odor Control Plan (OCP) shall be submitted to the District for review, and implemented as approved, to ensure odor control equipment identified in the OCP does not conflict with requirements of Best Available Control Technology (BACT). [Public Resources Code 21000-21177: California Environmental Quality Act]
4. As required by Mitigation Measure 4.4-5 and the Mitigation Monitoring Reporting Program established by the City of Fresno in the Fresno Rendering Plant Relocation Project's FEIR, the OCP may be modified and submitted to the District for review, and implemented to include additional measures to minimize odor generation such that the potential for project-related odor complaints from existing residents would be reduced to the degree feasible. [Public Resources Code 21000-21177: California Environmental Quality Act]
5. {271} 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]
6. If permittee wishes to seek breakdown relief under District Rule 1100, permittee shall notify the District of any breakdown condition as defined in the rule as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100]
7. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
8. {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]
9. No air contaminant or compound shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
10. The exhaust stacks 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]
11. The rendering facility, associated equipment, and the facility's surrounding property shall be operated and maintained in such a manner as to prevent the generation of odors which may constitute a nuisance. [District Rule 4102]
12. The wastewater system shall be operated and maintained such that it does not cause a public nuisance. [District Rule 4102]
13. Air pollution control equipment shall be maintained in good operating condition and shall be operated in accordance with the manufacturer's instructions when the process equipment is in operation. [District Rule 4102]
14. All air pollution equipment and associated ducting shall be maintained in a leak-free manner to prevent the escape of air contaminants to the outside atmosphere prior to their treatment in the emissions/odor control system. [District Rule 4102]
15. The plant shall not receive, store, or render raw material unless the odor control system is fully operating, except during periods of equipment breakdown as determined by the District under Rule 1100. All process-related potential points of odor shall be contained and/or treated to prevent escape into the atmosphere and shall only be vented to the odor control system. [District Rule 4102]
16. Odor detection tubes shall be maintained in the cross-flow scrubber exhaust so samples of the discharge air may be evaluated at ground level. [District Rule 4102]
17. Raw material delivery trucks shall be unloaded within 2 hours of being scaled. Raw material delivery trucks shall not be stored or staged without first being scaled. [District Rule 4102]
18. If raw material delivery trucks cannot be unloaded within 2 hours of being scaled due to an equipment malfunction, raw material shall be temporarily staged in a covered manner not to exceed 8 hours. [District Rule 4102]
19. Incoming raw material trucks shall only be unloaded into the receiving area which is served by the cross flow scrubber. [District Rule 4102]
20. All raw material trucks shall be maintained in condition to prevent leakage of solid or liquid material. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

21. No outside storage of raw material is allowed, except as otherwise specified in this permit. Trucks waiting their turn to unload within the 2-hour unload time limitation are not considered outside storage. [District Rule 4102]

22. All material received shall be processed within 24 hours of receipt. Each delivery of material shall be monitored and records shall be maintained to ensure that processing is performed within this time limit. [District Rules 2201 and 4102]

23. If raw material cannot be processed within 24 hours of receipt, raw material shall be diverted to other facilities. No further deliveries shall be received until a 24 hour turnaround for raw material is achievable. [District Rule 4102]

24. The condenser and each scrubber shall be inspected at least once per week and cleaned as needed based on inspection results. Liquids and any solids shall be disposed of in a manner to prevent release which may constitute a nuisance odor. [District Rules 2201 and 4102]

25. All trucks delivering raw material shall be washed clean of raw material and raw material residue prior to exiting the raw material receiving area to minimize nuisance emissions. Truck tires shall be especially washed to limit trackout of raw material or raw material residue. [District Rule 4102]

26. The raw material receiving area shall be washed as necessary to prevent any trackout of odor-causing materials. [District Rule 4102]

27. The building doors shall remain closed except during actual entry or exit of trucks and/or personnel or in case of emergency. [District Rule 4102]

28. Only natural gas shall be used in the RTO as supplemental fuel. [District Rule 2201]

29. Vapors from the cookers shall be captured and vented to the air-cooled condensers, the venturi scrubber, twin packed bed scrubber, and the RTO, in series. [District Rules 2201, 4102 and 4104]

30. Vapors from the drainers/sedimenters, presses, centrifuges and crax hoppers shall be captured and vented to the venturi scrubber, twin packed bed scrubber, and RTO, in series. [District Rules 2201, 4102 and 4104]

31. In the event the RTO malfunctions during raw material processing, all meat cooker emissions shall be routed to the venturi scrubber, twin packed bed scrubber and then to the cross-flow room air scrubber, in series. The RTO shall be restarted as soon as practical and upon reaching operating temperature the contaminated air stream shall be immediately re-routed to the RTO. [District Rules 2201 and 4102]

32. In the cross-flow scrubber, the recirculation rate shall not be less than 600 gal/minute for each stage. [District Rules 2201 and 4102]

33. In the cross-flow scrubber, at least one stage shall be operated with the pH of the scrubbing solution shall be greater than or equal to 9. [District Rules 2201 and 4102]

34. In the cross-flow scrubber, the system chemistry pH shall be operated within the following parameters: (1) when utilizing an acidic approach, the pH of the scrubbing solution shall be less than or equal to 5, (2) when utilizing an alkaline approach, the pH of the scrubbing solution shall be greater than or equal to 9, or (3) when utilizing a neutral approach, the pH of the scrubbing solution will be greater than 5 and less than 9. [District Rules 2201 and 4102]

35. In the venturi scrubber, the recirculation rate shall not be less than 40 gal/minute. [District Rules 2201 and 4102]

36. In the twin packed bed scrubber, the recirculation rate shall not be less than 100 gal/minute. [District Rules 2201 and 4102]

37. In the twin packed bed scrubber, the system chemistry pH shall be operated within the following parameters: (1) when utilizing an acidic approach, the pH of the scrubbing solution shall be less than or equal to 5, (2) when utilizing an alkaline approach, the pH of the scrubbing solution shall be greater than or equal to 9, or (3) when utilizing a neutral approach, the pH of the scrubbing solution will be greater than 5 and less than 9. [District Rules 2201 and 4102]

38. The processing building shall be kept under negative pressure at all times when receiving or storing raw material or in the process of rendering, except during limited periods when the receiving area doors are open to allow for entry/exit of raw material delivery trucks or during an equipment breakdown as defined in Rule 1100. [District Rule 2201 and 4102]

CONDITIONS CONTINUE ON NEXT PAGE

39. The RTO shall be operated with a combustion chamber temperature of no less than 1400 degrees F and the retention time shall be no less than one second. The RTO temperature shall be monitored and recorded utilizing a continuous monitoring and recording device. The monitoring and recording device shall be maintained in proper operating condition at all times. [District Rules 2201, 4102, and 4104]
40. The RTO shall be heated to the proper operating temperature prior to introducing the contaminated air stream. [District Rules 2201, 4102, and 4104]
41. Total facility raw material process rate shall not exceed either of the following limits: 850 tons/day (equivalent to 1,700,000 lbs/day) or 260,714 tons/year (equivalent to 521,428,000 lbs/year). [District Rule 2201]
42. The controlled emissions rate from the exhaust of the RTO shall not exceed any of the following limits, in pounds per ton processed: 0.0069 lb-NOx/ton, 0.0137 lb-CO/ton, 0.0033 lb-PM10/ton, 0.0052 lb-VOC/ton, or 0.0335 lb-SOx/ton. [District Rule 2201]
43. The controlled emissions rate from the exhaust of the cross-flow scrubber serving the room air shall not exceed any of the following limits: PM10-0.001 gr/dscf; VOC-2.3 ppmv as CH4; or H2S-0.75 ppmv. [District Rule 2201]
44. Source testing to measure the PM10 and VOC emissions from the RTO exhaust shall be conducted within 60 days of startup and at least once every 12 months. [District Rule 2201]
45. Source testing to measure the NOx, CO, and SOx emissions from the RTO exhaust shall be conducted within 60 days of startup. [District Rule 2201]
46. Source testing to measure the PM10, VOC, and H2S emissions from the cross-flow scrubber exhaust shall be conducted within 60 days of startup and at least once every 24 months thereafter. [District Rule 2201]
47. Source testing shall be performed while processing raw material under full load conditions or another load previously approved by the District in writing. [District Rules 1081 and 2201]
48. Source testing to measure the VOC emissions shall be conducted using EPA Methods 18, 25, 25A, or 25B or CARB Method 100. EPA Method 18 may be used to remove methane and ethane in order to determine the VOC concentration. [District Rule 2201]
49. Source testing to measure SOx emissions shall be conducted using EPA Method 6C, EPA Method 8, ARB Method 100, or SCAQMD Method 307.91. [District Rule 2201]
50. Source testing to measure NOx emissions shall be conducted using EPA Method 7E or ARB Method 100. [District Rule 2201]
51. Source testing to measure CO emissions shall be conducted using EPA Method 10 or ARB Method 100. [District Rule 2201]
52. Source testing to measure PM10 emissions shall be conducted using EPA Methods 201 and 202, EPA Methods 201A and 202, or CARB Methods 501 and 5. [District Rule 2201]
53. Source testing to measure H2S emissions shall be conducted using CARB Method 15 or 16A, EPA Method 11, or SCAQMD Method 307.91. [District Rule 2201]
54. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rule 2201]
55. {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]
56. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

CONDITIONS CONTINUE ON NEXT PAGE

57. In the cross-flow scrubber, if either the recirculation rate is less than 600 gal/minute in each stage or the pH is outside the ranges specified in this permit, as measured by the permittee, the permittee shall correct the recirculation rate and/or the pH to acceptable levels, as soon as possible, but no longer than 1 hour of operation after detection. If the recirculation rate or pH levels in the scrubber continue(s) to be outside of acceptable ranges after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. Monitoring parameters found by District staff to be outside of established ranges constitutes a violation of this permit. [District Rules 2201 and 4102]

58. In the venturi scrubber, if the recirculation rate is less than 40 gal/minute, the permittee shall correct the recirculation rate, as soon as possible, but no longer than 1 hour of operation after detection. If the recirculation rate in the scrubber continues to be outside of acceptable ranges after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. [District Rules 2201 and 4102]

59. In the twin packed bed scrubber, if the pH is outside the ranges specified in this permit, the permittee shall correct the pH, as soon as possible, but no longer than 1 hour of operation after detection. If the pH in the scrubber continues to be outside of acceptable ranges after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. [District Rules 2201 and 4102]

60. Continuous monitoring equipment shall be used to monitor the recirculation rate and pH in each of the cross-flow and twin packed bed scrubbers and the recirculation rate in venturi scrubber. The recirculation rates shall be measured in gallons per minute. The recirculation rates and pH from each scrubber shall be recorded at least once per day while the scrubbers are in operation. The continuous monitoring equipment shall be maintained in proper operating condition at all times. [District Rules 2201 and 4102]

61. Permittee shall take monthly readings with a portable anemometer to verify that the main processing building is under negative pressure during periods of normal plant operation. The anemometer shall be calibrated per the manufacturer's recommendations. Additionally, the anemometer shall be made available to District inspection staff upon request. Records of anemometer measurements and calibrations shall be kept, maintained, and made readily available for District inspection upon request. [District Rules 2201 and 4102]

62. Permittee shall keep a record of the daily and annual quantity of raw material processed, in tons. [District Rule 2201]

63. All records shall be retained for a minimum of five years, and shall be made available for District inspection upon request. [District Rules 1070 and 2201]

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-9251-3-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: DARLING INGREDIENTS, INC
MAILING ADDRESS: 5601 N MACARTHUR BLVD
IRVING, TX 75038

LOCATION: 5449 W JENSEN AVE
FRESNO, CA 93706

EQUIPMENT DESCRIPTION:
PROTEIN STORAGE AND LOADOUT OPERATION WITH TWO 18,850 CU FT STORAGE SILOS, EACH SERVED BY A BIN VENT FILTER

CONDITIONS

1. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM2.5 emission reduction credits for the following quantities: 1st quarter - 17 lbs, 2nd quarter - 17 lbs, 3rd quarter - 17 lbs, and 4th quarter - 17 lbs. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERCs specified below. [District Rule 2201]
2. ERC Certificate Numbers C-1472-4, C-1447-4, C-1449-4, N-1327-4, S-4994-4, and S-4765-4 (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, if any, shall be duplicated prior to reissuance of this ATC. [District Rule 2201]
3. As required by Mitigation Measure 4.4-5 and the Mitigation Monitoring Reporting Program established by the City of Fresno in the Fresno Rendering Plant Relocation Project's Final Environmental Impact Report (FEIR), the Odor Control Plan (OCP) shall be submitted to the District for review, and implemented as approved, to ensure odor control equipment identified in the OCP does not conflict with requirements of Best Available Control Technology (BACT). [Public Resources Code 21000-21177: California Environmental Quality Act]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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.

Samir Sheikh, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

C-9251-3-0 : Sep 19 2019 11:33AM – GARCIAJ : Joint Inspection NOT Required

4. As required by Mitigation Measure 4.4-5 and the Mitigation Monitoring Reporting Program established by the City of Fresno in the Fresno Rendering Plant Relocation Project's FEIR, the OCP may be modified and submitted to the District for review, and implemented to include additional measures to minimize odor generation such that the potential for project-related odor complaints from existing residents would be reduced to the degree feasible. [Public Resources Code 21000-21177: California Environmental Quality Act]
5. {271} 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]
6. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
7. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
8. {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]
9. Visible emissions from the bin vent filters serving the protein storage silos shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in one hour. [District Rules 2201 and 4101]
10. The bin vent filters shall be maintained and operated according to manufacturer's specifications. [District Rule 2201]
11. The bin vent filters' cleaning frequency and duration shall be adjusted to optimize the control efficiency. [District Rule 2201]
12. A spare set of filters shall be maintained for each bin vent filter at all times. [District Rule 2201]
13. Material removed from the filters shall be disposed of in a manner preventing entrainment into the atmosphere. [District Rule 2201]
14. The amount of protein loaded out shall not exceed either of the following limits: 322 tons/day or 101,678 tons/year. [District Rule 2201]
15. PM10 emissions from the protein solids loadout operation shall not exceed 0.0008 lb/ton of protein loaded out. [District Rule 2201]
16. Permittee shall keep a record of the daily and annual amount of product loaded out, in tons. [District Rule 2201]
17. Records of all maintenance of the bin vent filters, including all change outs of filter media, shall be maintained. [District Rule 2201]
18. All records shall be retained for a minimum of five years, and shall be made available for District inspection upon request. [District Rules 1070 and 2201]

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-9251-4-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: DARLING INGREDIENTS, INC
MAILING ADDRESS: 5601 N MACARTHUR BLVD
IRVING, TX 75038

LOCATION: 5449 W JENSEN AVE
FRESNO, CA 93706

EQUIPMENT DESCRIPTION:
63 MMBTU/HR VICTORY BOILER MODEL F2-1500HP-S200 NATURAL GAS/BIOGAS-FIRED BOILER WITH A WEBSTER MODEL HDR(X)-RF23-750 LOW-NOX BURNER FLUE GAS RECIRCULATION (FGR) SYSTEM AND WITH A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM

CONDITIONS

1. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM2.5 emission reduction credits for the following quantities: 1st quarter - 621 lbs, 2nd quarter - 621 lbs, 3rd quarter - 621 lbs, and 4th quarter - 621 lbs. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERCs specified below. [District Rule 2201]
2. ERC Certificate Numbers C-1472-4, C-1447-4, C-1449-4, N-1327-4, S-4994-4, and S-4765-4 (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, if any, shall be duplicated prior to reissuance of this ATC. [District Rule 2201]
3. As required by Mitigation Measure 4.4-5 and the Mitigation Monitoring Reporting Program established by the City of Fresno in the Fresno Rendering Plant Relocation Project's Final Environmental Impact Report (FEIR), the Odor Control Plan (OCP) shall be submitted to the District for review, and implemented as approved, to ensure odor control equipment identified in the OCP does not conflict with requirements of Best Available Control Technology (BACT). [Public Resources Code 21000-21177: California Environmental Quality Act]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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.

Samir Sheikh, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

C-9251-4-0 : Sep 19 2019 11:33AM – GARCIAJ : Joint Inspection NOT Required

4. As required by Mitigation Measure 4.4-5 and the Mitigation Monitoring Reporting Program established by the City of Fresno in the Fresno Rendering Plant Relocation Project's FEIR, the OCP may be modified and submitted to the District for review, and implemented to include additional measures to minimize odor generation such that the potential for project-related odor complaints from existing residents would be reduced to the degree feasible. [Public Resources Code 21000-21177: California Environmental Quality Act]
5. The permittee shall obtain APCO approval for the use of any equivalent boiler and/or burner not specifically approved by this Authority to Construct. Approval of an equivalent boiler and/or burner shall only be made after the APCO's determination that the submitted design and performance data for the proposed boiler and/or burner is equivalent to the approved boiler and/or burner. [District Rule 2201]
6. The permittee's request for approval of an equivalent boiler and/or burner shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2201]
7. No emission factor and no emissions shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]
8. The permittee's request for approval of an equivalent boiler and/or burner shall be submitted to the District at least 90 days prior to the planned installation date. The permittee shall also notify the District at least 30 days prior to the actual installation of the District approved equivalent boiler and/or burner. [District Rule 2201]
9. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
10. {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]
11. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
12. {271} 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]
13. {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]
14. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of each fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201 and 40 CFR 60.48 (c)(g)]
15. The unit shall only be fired on either of the following: (1) PUC-regulated natural gas, or (2) a mixture of conditioned biogas from permit unit C-535-26 and PUC-regulated natural gas. [District Rules 2201 and 4320]
16. Except during start-up and shutdown, emissions from this unit shall not exceed any of the following limits: 2.5 ppmvd NOx @ 3% O2 (equivalent to 0.003 lb-NOx/MMBtu); 0.0034 lb-SOx/MMBtu; 0.003 lb-PM10/MMBtu; 50 ppmvd CO @ 3% O2 (equivalent to 0.037 lb-CO/MMBtu); or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306 and 4320]
17. During startup and shutdown, emissions from this unit shall not exceed any of the following limits: 30 ppmvd NOx @ 3% O2 (equivalent to 0.036 lb-NOx/MMBtu); 0.0034 lb-SOx/MMBtu; 0.003 lb-PM10/MMBtu; 100 ppmvd CO @ 3% O2 (equivalent to 0.074 lb-CO/MMBtu); or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306 and 4320]
18. The total duration of startup and shutdown time shall not exceed any of the following limits: 2 hours per startup, 2 hours per shutdown, and 4 hours of combined startup and shutdown time per day. [District Rules 2201, 4305, 4306 and 4320]
19. The selective catalytic reduction system shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown periods. [District Rules 2201, 4305, 4306 and 4320]
20. The ammonia emissions shall not exceed 10 ppmvd @ 3% O2. [District Rules 2201 and 4102]
21. The sulfur content of the biogas (as H2S) shall not exceed 15.9 ppmv @ 3% O2 (equivalent to 1 gr/100 dscf). [District Rules 2201 and 4320]

CONDITIONS CONTINUE ON NEXT PAGE

22. 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. Unless otherwise 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 4320. For the purposes of permittee-performed alternate monitoring, emissions measurements may be performed at any time after the unit reaches conditions representative of normal operation. [District Rules 4305, 4306 and 4320]

23. Testing to demonstrate compliance with the biogas H2S content limit shall be conducted quarterly. Once eight (8) consecutive quarterly test show compliance, the H2S content testing frequency may be reduced to once every calendar year. If an annual test shows violation of the H2S content limit, then quarterly testing shall resume and continue until eight (8) consecutive tests show compliance. Once compliance is shown on eight (8) consecutive quarterly tests, then testing may return to once every calendar year. [District Rules 1081 and 2201]

24. Source testing to measure NOx, CO and NH3 emissions from this unit, while fired on natural gas, shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]

25. Source testing to measure NOx, CO and NH3 emissions from this unit, while fired on a blend of natural gas and biogas, shall be conducted within 60 days of initially firing on a blend of natural gas and biogas. [District Rules 2201, 4305, 4306, and 4320]

26. Source testing to measure NOx, CO and NH3 emissions from this unit 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 2201, 4305, 4306, and 4320]

27. {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]

28. The source plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 2201, 4305, 4306, and 4320]

29. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, NOx (lb./MMBtu) - EPA Method 19; CO (ppmv) - EPA Method 10 or ARB Method 100; Stack gas oxygen (O2) - EPA Method 3 or 3A or ARB Method 100; stack gas velocities - EPA Method 2; Stack gas moisture content - EPA Method 4; SOx - EPA Method 6C or 8 or ARB Method 100; fuel gas sulfur as H2S content - EPA Method 15, ASTM Method D1072, D3031, D4084, D3246, D5504 or with the use of the Testo 350 XL portable analyzer; and fuel hhv (MMBtu) -ASTM D1826 or D1945 in conjunction with ASTM D3588 [District Rules 2201, 4305, 4306 and 4320]

30. NH3 emissions for source test purposes shall be determined using BAAQMD method ST-1B. [District Rule 2201]

31. Testing to measure the H2S content of the fuel shall be conducted using either EPA Method 15, ASTM Method D1072, 03031, D4084, D3246, D5504 or with the use of the Testo 350 XL portable analyzer. [District Rule 2201]

32. 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 and 4320]

33. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

34. The permittee shall monitor and record the stack concentration of NOx, CO, NH3 and O2 at least once every month (in which a source test is not performed). NOx, CO and O2 monitoring shall be conducted utilizing a portable analyzer that meets District specifications. NH3 monitoring shall be conducted utilizing Draeger tubes or a District approved equivalent method at the time NOx, CO and O2 readings are taken. . 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, 4306, and 4320]

CONDITIONS CONTINUE ON NEXT PAGE

35. If the NOx, CO or NH3 concentrations corrected to 3% O2, as measured by the portable analyzer and District approved ammonia monitoring equipment, 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 or ammonia monitoring equipment show that emissions 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 performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320]

36. {4317} 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, 4306, and 4320]

37. The permittee shall maintain records of: (1) the date and time of NOx, CO, NH3 and O2 measurements, (2) the O2 concentration in percent and the measured NOx, CO and NH3 concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, (5) the method of determining the NH3 concentration, and (6) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306, and 4320]

38. {4356} Permittee shall determine sulfur content of combusted gas annually or shall demonstrate that the combusted gas is provided from a PUC or FERC regulated source. [District Rules 1081 and 4320]

39. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rule 4320]

40. Permittee shall maintain daily records of the type and quantity of each fuel combusted by the boiler. [District Rule 2201 and 40 CFR 60.48 (c)(g)]

41. The permittee shall maintain records of: (1) the name of the sampler, and the date and time of biogas sampling for H2S, (2) the name of the tester, and the date and time of biogas testing for H2S, (3) test results showing the biogas concentration (in ppmv) of H2S. [District Rule 1081]

42. Permittee shall keep daily and cumulative annual records of the startup and shutdown durations and number of startup and shutdown occurrences. [District Rules 2201, 4305, 4306, and 4320]

43. 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, and 4320 and 40 CFR 60.48c(i)]

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-9251-5-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: DARLING INGREDIENTS, INC
MAILING ADDRESS: 5601 N MACARTHUR BLVD
IRVING, TX 75038

LOCATION: 5449 W JENSEN AVE
FRESNO, CA 93706

EQUIPMENT DESCRIPTION:
63 MMBTU/HR VICTORY BOILER MODEL F2-1500HP-S200 NATURAL GAS/BIOGAS-FIRED BOILER WITH A WEBSTER MODEL HDR(X)-RF23-750 LOW-NOX BURNER FLUE GAS RECIRCULATION (FGR) SYSTEM AND WITH A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM

CONDITIONS

1. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM2.5 emission reduction credits for the following quantities: 1st quarter - 621 lbs, 2nd quarter - 621 lbs, 3rd quarter - 621 lbs, and 4th quarter - 621 lbs. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERCs specified below. [District Rule 2201]
2. ERC Certificate Numbers C-1472-4, C-1447-4, C-1449-4, N-1327-4, S-4994-4, and S-4765-4 (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, if any, shall be duplicated prior to reissuance of this ATC. [District Rule 2201]
3. As required by Mitigation Measure 4.4-5 and the Mitigation Monitoring Reporting Program established by the City of Fresno in the Fresno Rendering Plant Relocation Project's Final Environmental Impact Report (FEIR), the Odor Control Plan (OCP) shall be submitted to the District for review, and implemented as approved, to ensure odor control equipment identified in the OCP does not conflict with requirements of Best Available Control Technology (BACT). [Public Resources Code 21000-21177: California Environmental Quality Act]

CONDITIONS CONTINUE ON NEXT PAGE

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Samir Sheikh, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

C-9251-5-0 : Sep 19 2019 11:34AM -- GARCIAJ : Joint Inspection NOT Required

4. As required by Mitigation Measure 4.4-5 and the Mitigation Monitoring Reporting Program established by the City of Fresno in the Fresno Rendering Plant Relocation Project's FEIR, the OCP may be modified and submitted to the District for review, and implemented to include additional measures to minimize odor generation such that the potential for project-related odor complaints from existing residents would be reduced to the degree feasible. [Public Resources Code 21000-21177: California Environmental Quality Act]
5. The permittee shall obtain APCO approval for the use of any equivalent boiler and/or burner not specifically approved by this Authority to Construct. Approval of an equivalent boiler and/or burner shall only be made after the APCO's determination that the submitted design and performance data for the proposed boiler and/or burner is equivalent to the approved boiler and/or burner. [District Rule 2201]
6. The permittee's request for approval of an equivalent boiler and/or burner shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2201]
7. No emission factor and no emissions shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]
8. The permittee's request for approval of an equivalent boiler and/or burner shall be submitted to the District at least 90 days prior to the planned installation date. The permittee shall also notify the District at least 30 days prior to the actual installation of the District approved equivalent boiler and/or burner. [District Rule 2201]
9. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
10. {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]
11. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
12. {271} 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]
13. {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]
14. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of each fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201 and 40 CFR 60.48 (c)(g)]
15. The unit shall only be fired on either of the following: (1) PUC-regulated natural gas, or (2) a mixture of conditioned biogas from permit unit C-535-26 and PUC-regulated natural gas. [District Rules 2201 and 4320]
16. Except during start-up and shutdown, emissions from this unit shall not exceed any of the following limits: 2.5 ppmvd NOx @ 3% O2 (equivalent to 0.003 lb-NOx/MMBtu); 0.0034 lb-SOx/MMBtu; 0.003 lb-PM10/MMBtu; 50 ppmvd CO @ 3% O2 (equivalent to 0.037 lb-CO/MMBtu); or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306 and 4320]
17. During startup and shutdown, emissions from this unit shall not exceed any of the following limits: 30 ppmvd NOx @ 3% O2 (equivalent to 0.036 lb-NOx/MMBtu); 0.0034 lb-SOx/MMBtu; 0.003 lb-PM10/MMBtu; 100 ppmvd CO @ 3% O2 (equivalent to 0.074 lb-CO/MMBtu); or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306 and 4320]
18. The total duration of startup and shutdown time shall not exceed any of the following limits: 2 hours per startup, 2 hours per shutdown, and 4 hours of combined startup and shutdown time per day. [District Rules 2201, 4305, 4306 and 4320]
19. The selective catalytic reduction system shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown periods. [District Rules 2201, 4305, 4306 and 4320]
20. The ammonia emissions shall not exceed 10 ppmvd @ 3% O2. [District Rules 2201 and 4102]
21. The sulfur content of the biogas (as H2S) shall not exceed 15.9 ppmv @ 3% O2 (equivalent to 1 gr/100 dscf). [District Rules 2201 and 4320]

CONDITIONS CONTINUE ON NEXT PAGE

22. 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. Unless otherwise 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 4320. For the purposes of permittee-performed alternate monitoring, emissions measurements may be performed at any time after the unit reaches conditions representative of normal operation. [District Rules 4305, 4306 and 4320]

23. Testing to demonstrate compliance with the biogas H2S content limit shall be conducted quarterly. Once eight (8) consecutive quarterly test show compliance, the H2S content testing frequency may be reduced to once every calendar year. If an annual test shows violation of the H2S content limit, then quarterly testing shall resume and continue until eight (8) consecutive tests show compliance. Once compliance is shown on eight (8) consecutive quarterly tests, then testing may return to once every calendar year. [District Rules 1081 and 2201]

24. Source testing to measure NOx, CO and NH3 emissions from this unit, while fired on natural gas, shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]

25. Source testing to measure NOx, CO and NH3 emissions from this unit, while fired on a blend of natural gas and biogas, shall be conducted within 60 days of initially firing on a blend of natural gas and biogas. [District Rules 2201, 4305, 4306, and 4320]

26. Source testing to measure NOx, CO and NH3 emissions from this unit 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 2201, 4305, 4306, and 4320]

27. {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]

28. The source plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 2201, 4305, 4306, and 4320]

29. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, NOx (lb./MMBtu) - EPA Method 19; CO (ppmv) - EPA Method 10 or ARB Method 100; Stack gas oxygen (O2) - EPA Method 3 or 3A or ARB Method 100; stack gas velocities - EPA Method 2; Stack gas moisture content - EPA Method 4; SOx - EPA Method 6C or 8 or ARB Method 100; fuel gas sulfur as H2S content - EPA Method 15, ASTM Method D1072, D3031, D4084, D3246, D5504 or with the use of the Testo 350 XL portable analyzer; and fuel hhv (MMBtu) -ASTM D1826 or D1945 in conjunction with ASTM D3588 [District Rules 2201, 4305, 4306 and 4320]

30. NH3 emissions for source test purposes shall be determined using BAAQMD method ST-1B. [District Rule 2201]

31. Testing to measure the H2S content of the fuel shall be conducted using either EPA Method 15, ASTM Method D1072, 03031, D4084, D3246, D5504 or with the use of the Testo 350 XL portable analyzer. [District Rule 2201]

32. 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 and 4320]

33. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

34. The permittee shall monitor and record the stack concentration of NOx, CO, NH3 and O2 at least once every month (in which a source test is not performed). NOx, CO and O2 monitoring shall be conducted utilizing a portable analyzer that meets District specifications. NH3 monitoring shall be conducted utilizing Draeger tubes or a District approved equivalent method at the time NOx, CO and O2 readings are taken. . 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, 4306, and 4320]

CONDITIONS CONTINUE ON NEXT PAGE

35. If the NOx, CO or NH3 concentrations corrected to 3% O2, as measured by the portable analyzer and District approved ammonia monitoring equipment, 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 or ammonia monitoring equipment show that emissions 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 performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320]

36. {4317} 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, 4306, and 4320]

37. The permittee shall maintain records of: (1) the date and time of NOx, CO, NH3 and O2 measurements, (2) the O2 concentration in percent and the measured NOx, CO and NH3 concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, (5) the method of determining the NH3 concentration, and (6) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306, and 4320]

38. {4356} Permittee shall determine sulfur content of combusted gas annually or shall demonstrate that the combusted gas is provided from a PUC or FERC regulated source. [District Rules 1081 and 4320]

39. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rule 4320]

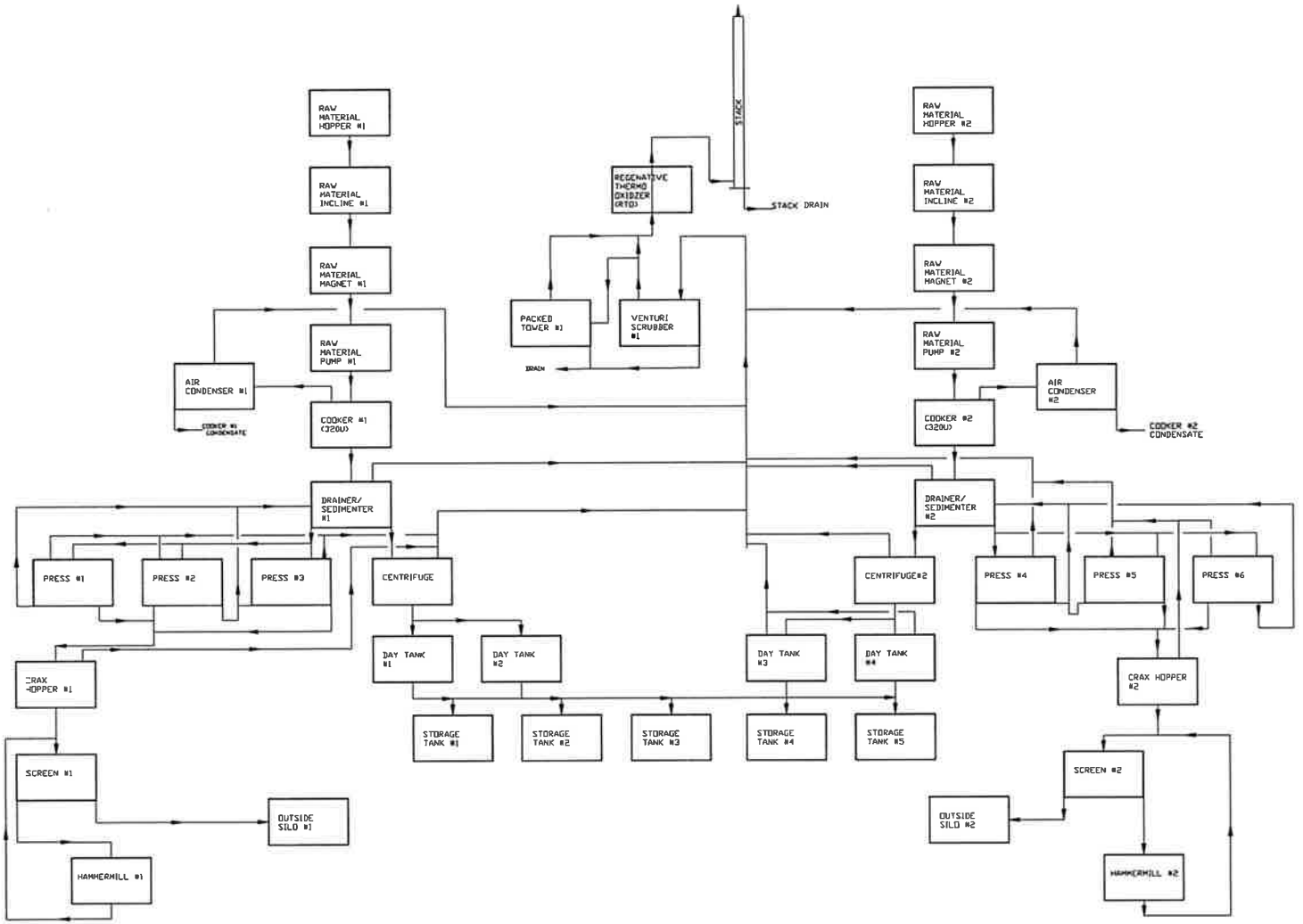
40. Permittee shall maintain daily records of the type and quantity of each fuel combusted by the boiler. [District Rule 2201 and 40 CFR 60.48 (c)(g)]

41. The permittee shall maintain records of: (1) the name of the sampler, and the date and time of biogas sampling for H2S, (2) the name of the tester, and the date and time of biogas testing for H2S, (3) test results showing the biogas concentration (in ppmv) of H2S. [District Rule 1081]

42. Permittee shall keep daily and cumulative annual records of the startup and shutdown durations and number of startup and shutdown occurrences. [District Rules 2201, 4305, 4306, and 4320]

43. 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, and 4320 and 40 CFR 60.48c(i)]

APPENDIX B
Process Flow Diagram



REV	COMMENTS	NAME	DATE	CHKD

DARLING INGREDIENTS INC.

4221 Alexandria Pike
Cold Spring, Kentucky 41076-1821
www.darlingii.com
Phone: 859.781.2010
Fax: 859.344.2250

DESCRIPTION: PROCESS FLOW DIAGRAM
FRESNO, Ca.

DRAWN BY	DATE	JC JOB #	ASSY NO.	DOC TYPE
JLC	7/31/17		N/A	MECH
APPROVED BY	DATE	CIP #	OLD NO.	JC INV NO.

SIZE	SCALE	PLANT NO.	PAGE	OF	DRAWING NO.	REV
D	NONE	670	–	–	67015003	

APPENDIX C
Biogas Fuel Analysis

ZALCO LABORATORIES, INC.
4309 Armour Avenue, Bakersfield, CA 93308 (661) 395-0539 FAX (661) 395-3069 www.zalcolabs.com
2186 Eastman Avenue, Suite 103, Ventura, CA 93003 (805) 477-0114 Fax (805) 477-0125

City of Fresno
5607 W. Jensen Ave
Fresno CA 93706-9458

Laboratory No: 1204052-01
Date Received: 04/04/12
Date Analyzed: 04/05/12

Attention: Ray Arthur

Sample Description: Conditioned Digester Gas
Sampled: 04/04/2012 @ 13:15 PM by Rick Ogletree

Chromatographic Analysis, ASTM D-1945-03, ASTM D-3246-11

Constituent:	Result	Units
Hydrogen Sulfide	< 1.0	ppm
Total Sulfur	< 0.06	grs S/100 SCF

Chromatographic Analysis, ASTM D-1945-03, ASTM D-3588-98, GPA 2145-09, ASTM D-3246-11

Constituent:	Mole %	Weight %	GPM (Gallons per 1000 cubic feet)	GPM Fractions	CHONS%
					Carbon, C
Oxygen	0.079	0.15			72.29
Nitrogen	1.531	2.62			
					Hydrogen, H
Carbon Dioxide	0.399	1.07			24.16
Carbon Monoxide	0.000	0.00			
Hydrogen Sulfide	0.000	0.00			Oxygen, O
Methane	97.970	96.04			0.93
Ethane	0.000	0.00			
Propane	0.000	0.00	0.00	(C3....C3) = 0.00	Nitrogen, N
IsoButane	0.000	0.00	0.00		2.62
n-Butane	0.000	0.00	0.00	(C3....C4) = 0.00	
IsoPentane	0.000	0.00	0.00		Sulfur, S
n-Pentane	0.000	0.00	0.00	(C3....C5) = 0.00	0.00
Hexanes	0.022	0.11	0.01	(C3....C6+) = 0.01	
Totals:	100.00	100.00	0.01	0.01	100.00

Flammable Gases:		97.991	
Gas Properties calculated @ STP:	degrees F.	60	
Measurement Base Pressure @ STP:	psia	14.696	H/C Ratio: 0.33

Gas State	Dry Btu / Cu. Ft	Dry Btu / lb	Wet Btu / Cu. Ft
Gross, Ideal Gas	990.52	22968.45	973.28
Net, Ideal Gas	891.88	20680.96	876.37
Gross, Real Gas	992.46		975.19
Net, Real Gas	893.63		878.08

Relative Gas Density; [Air=1] Ideal:	0.5651		"F" Factor, DSCF/MMBtu @ 60F	8511.2	9452.6
Specific Gravity, [Air=1] Real gas:	0.5658		"F" Factor, DSCF/MMBtu @ 68F	8640.8	9596.5
Real Gas Density, Lb/Cu.Ft.:	0.0432		"F" Factor, DSCF/MMBtu @ 70F	8673.6	9633.0
Specific Volume, Cu.Ft./Lb:	23.1427		"FC" Factor, DSCF CO2/MMBtu @ 60F	995.1	1105.2
Relative Liquid Density @ 60F/60F:	0.3077		"FC" Factor, DSCF CO2/MMBtu @ 68F	1010.3	1122.0
Compressibility, 'z':	0.9980				
Fuel kg per kg-mole Molecular wt avg	16.365				

APPENDIX D
Calculated Process Rate for Emission Factor Conversion

Calculated Throughputs

Cooker Location	Cooker	Surface Area	lbs Water/Sq Ft	Product Water Yield %	Evap Capacity lbs water/hr	Raw lbs/hr	
Los Angeles	Dupps 320U	3,200	6.5	0.42	20,800	49,524	
		3,200	7	0.42	22,400	53,333	
		3,200	7.5	0.42	24,000	57,143	AVG
		3,200	8	0.42	25,600	60,952	
		3,200	8.5	0.42	27,200	64,762	
	Dupps 320U	3,200	6.5	0.45	20,800	46,222	
		3,200	7	0.45	22,400	49,778	
		3,200	7.5	0.45	24,000	53,333	AVG
		3,200	8	0.45	25,600	56,889	
		3,200	8.5	0.45	27,200	60,444	

Cooker Location	Cooker	Surface Area	lbs Water/Sq Ft	Product Water Yield %	Evap Capacity lbs water/hr	Raw lbs/hr	
Fresno	Atlas-Stord TST-2264	4,207	6.5	0.42	27,346	65,108	
		4,207	7	0.42	29,449	70,117	
		4,207	7.5	0.42	31,553	75,125	AVG
		4,207	8	0.42	33,656	80,133	
		4,207	8.5	0.42	35,760	85,142	
	Atlas-Stord TST-2264	4,207	6.5	0.45	27,346	60,768	
		4,207	7	0.45	29,449	65,442	
		4,207	7.5	0.45	31,553	70,117	AVG
		4,207	8	0.45	33,656	74,791	
		4,207	8.5	0.45	35,760	79,466	

The applicant has proposed to use a process rate 49,000 lbs/hr. As shown above, the 49,000 lbs/hr is a conservatively low assumption.

APPENDIX E
Emission Factor Conversions

	SELECTION #
COAL (ANTHRACITE)	0
COAL (BITUMINOUS)	1
COAL (LIGNITE)	2
OIL (CRUDE, RESIDUAL, OR DISTILLATE)	3
GAS (NATURAL)	4
GAS (PROPANE)	5
GAS (BUTANE)	6
WOOD	7
WOOD BARK	8
MUNICIPAL SOLID WASTE	9

STANDARD O2 CORRECTION FOR EXTERNAL COMBUSTION IS 3%		
Type of fuel (use table above)	4	GAS
O2 correction (i.e., 3%)	3	%
Enter concentrations		
NOx	2.5	ppmv
CO	50	ppmv
VOC (as methane)	0	ppmv

CALCULATED EQUIVALENT LB/MMBTU VALUES		
NOx	0.003	LB/MMBTU
CO	0.037	LB/MMBTU
VOC (as methane)	0.0000	LB/MMBTU

pV = R*T		
pressure (p)	1	atm
universal gas constant (R*)	0.7302	atm-scf/lbmole-oR
temperature (oF)	60	oF
calculated		
molar specific volume (V)	379.5	scf/lbmole
Molecular weights		
NOx	46	lb/lb-mole
CO	28	lb/lb-mole
VOC (as methane)	16	lb/lb-mole

F FACTORS FROM EPA METHOD 19			
COAL (ANTHRACITE)	10100	DSCF/MMBTU	COAL
COAL (BITUMINOUS)	9780	DSCF/MMBTU	COAL
COAL (LIGNITE)	9860	DSCF/MMBTU	COAL
OIL (CRUDE, RESIDUAL, OR DISTILLATE)	9190	DSCF/MMBTU	OIL
GAS (NATURAL)	8710	DSCF/MMBTU	GAS
GAS (PROPANE)	8710	DSCF/MMBTU	GAS
GAS (BUTANE)	8710	DSCF/MMBTU	GAS
WOOD	9240	DSCF/MMBTU	WOOD
WOOD BARK	9600	DSCF/MMBTU	WOOD BARK
MUNICIPAL SOLID WASTE	9570	DSCF/MMBTU	SOLID WASTE
F FACTOR USED IN CALCULATIONS	8710	DSCF/MMBTU	GAS

	SELECTION #
COAL (ANTHRACITE)	0
COAL (BITUMINOUS)	1
COAL (LIGNITE)	2
OIL (CRUDE, RESIDUAL, OR DISTILLATE)	3
GAS (NATURAL)	4
GAS (PROPANE)	5
GAS (BUTANE)	6
WOOD	7
WOOD BARK	8
MUNICIPAL SOLID WASTE	9

STANDARD O2 CORRECTION FOR EXTERNAL COMBUSTION IS 3%		
Type of fuel (use table above)	4	GAS
O2 correction (i.e., 3%)	3	%
Enter concentrations		
NOx	30	ppmv
CO	100	ppmv
VOC (as methane)	0	ppmv

CALCULATED EQUIVALENT LB/MMBTU VALUES		
NOx	0.036	LB/MMBTU
CO	0.074	LB/MMBTU
VOC (as methane)	0.0000	LB/MMBTU

pV = R*T		
pressure (p)	1	atm
universal gas constant (R*)	0.7302	atm-scf/lbmole-oR
temperature (oF)	60	oF
calculated		
molar specific volume (V)	379.5	scf/lbmole
Molecular weights		
NOx	46	lb/lb-mole
CO	28	lb/lb-mole
VOC (as methane)	16	lb/lb-mole

F FACTORS FROM EPA METHOD 19			
COAL (ANTHRACITE)	10100	DSCF/MMBTU	COAL
COAL (BITUMINOUS)	9780	DSCF/MMBTU	COAL
COAL (LIGNITE)	9860	DSCF/MMBTU	COAL
OIL (CRUDE, RESIDUAL, OR DISTILLATE)	9190	DSCF/MMBTU	OIL
GAS (NATURAL)	8710	DSCF/MMBTU	GAS
GAS (PROPANE)	8710	DSCF/MMBTU	GAS
GAS (BUTANE)	8710	DSCF/MMBTU	GAS
WOOD	9240	DSCF/MMBTU	WOOD
WOOD BARK	9600	DSCF/MMBTU	WOOD BARK
MUNICIPAL SOLID WASTE	9570	DSCF/MMBTU	SOLID WASTE
F FACTOR USED IN CALCULATIONS	8710	DSCF/MMBTU	GAS

APPENDIX F
Quarterly Net Emissions Change

Quarterly Net Emissions Change (QNEC)

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

QNEC = PE2 - PE1, where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.
PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr.
PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr.

Using the values in Sections VII.C.2 and VII.C.1 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

$PE2_{quarterly}$ = $PE2_{annual}$ ÷ 4 quarters/year

$PE1_{quarterly}$= $PE1_{annual}$ ÷ 4 quarters/year

Since the emissions for both units -1 and -2 are shared, for the QNEC, the emissions will be split between them.

Quarterly NEC [QNEC] for C-9251-1 & -2					
Pollutant	**PE2 (lb/qtr)**	**PE1 (lb/qtr)**	**QNEC (lb/qtr)**	**QNEC for -1 (lb/qtr)**	**QNEC for -2 (lb/qtr)**
NO_X	450	0	450	225	225
SO_X	2,184	0	2,184	1,092	1,092
PM_{10}	3,031	0	3,031	1,515	1,516
CO	893	0	893	446	447
VOC	2,112	0	2,112	1,056	1,056

Quarterly NEC [QNEC] for C-9251-3			
Pollutant	**PE2 (lb/qtr)**	**PE1 (lb/qtr)**	**QNEC (lb/qtr)**
NO_X	0	0	0
SO_X	0	0	0
PM_{10}	20	0	20
CO	0	0	0
VOC	0	0	0

Quarterly NEC [QNEC] for C-9251-4 & -5, each			
Pollutant	**PE2 (lb/qtr)**	**PE1 (lb/qtr)**	**QNEC (lb/qtr)**
NO_X	1,173	0	1,173
SO_X	469	0	469
PM_{10}	414	0	414
CO	5,956	0	5,956
VOC	759	0	759

APPENDIX G
BACT Analysis for Rendering Operations
(ATCs C-9251-1 & -2)

BACT ANALYSIS
Rendering Operations

I. Proposal

Darling Ingredients Inc has requested Authority to Construct (ATC) permits for the construction of a new animal rendering facility which includes two rendering lines with a shared emissions control system consisting of a venturi scrubber, a twin packed bed scrubber and a regenerative thermal oxidizer (RTO) in series with a cross-flow scrubber serving the fugitive emissions within the processing building (ATCs C-9251-1 & -2).

II. Process Description

Raw materials for recycling are collected and delivered to the facility in Darling or customer owned trucks, as well as by contract haulers. The raw materials include fat, bone, offal, and used cooking oil from food processing establishments. Once weighed, the raw materials are delivered into receiving pits of either one of two identical rendering lines.

From there, the raw materials travel up an inclined conveyor, past a magnet to remove metal and into a grinder that reduces the particle size to a nominal 1-1/2 inch. Ground material is pumped to the cooker. The cooker uses steam from the boilers listed in permits C-9251-4 & -5 to evaporate the moisture and provide a partial separation of the fat (liquid fraction) from the protein (solids fraction). The materials are cooked at 260 to 290 degrees Fahrenheit (°F). The liquids and solids generated flow to the drainer/sedimenter to separate free-flowing liquid fats from solids.

Solids from the drainer/sedimenter are conveyed to the screw presses which squeeze residual liquid fats from the solids. The liquid fats are returned to the drainer/sedimenter. The dry solids are conveyed to the crax hopper for temporary storage pending further processing. The crax is processed in a hammermill for size reduction and a screen for size classification. Oversized materials are returned to the hammermill and finished product (solids portion) is conveyed to the finished product storage silo. Liquid fats from the drainer/sedimenter flow to the centrifuge to remove fine particles from the liquids. The liquid fat is then pumped to day tanks which are processing tanks. Some of the liquid fat is recycled back to the cooker to maintain liquidity. Finished fats are pumped to the fat storage tanks.

The water vapor evaporated by the cooker is pulled through a condensing system where the water vapor is condensed out of the gas stream before discharge to the Fresno municipal wastewater treatment system. Wash water, blowdown water, and other process related waste water will be processed through a rotary screen, equalization tank, and a dissolved air flotation (DAF) with chemistry prior to being discharged to the Fresno municipal wastewater treatment system. Liquid fats from the DAF are returned to the raw material feed and/or hauled offsite for beneficial use.

The proposed fat storage tanks are used to store fat produced from the rendering process. Finished fat is first stored in the four fat day tanks before being pumped into the five fat storage tanks. The fat storage tanks are heated with the steam from the boilers listed in permits C-9251-4 & -5 to prevent solidification.

The proposed fat loadout line consists of a pumping station that connects the five fat storage tanks to the tank truck loading station.

Some emission units will emit fugitive emissions directly into the building that houses the rendering lines. These emissions points include raw material receiving pit, conveyors, transfer points, magnet, pump, and grinder. Room air from the building housing this equipment will be routed to a cross-flow scrubber for control of fugitive emissions and odors. The scrubber is sized sufficiently to maintain the room under negative pressure.

Operating schedule: 24 hr/day, 365 day/year

III. EMISSION CONTROL TECHNOLOGY EVALUATION:

A. BACT Applicability

District Rule 2201 Section 4.1 requires that BACT shall be applied to any unit with a PE of any pollutant greater than 2 lb/day. The PE is greater than 2.0 lb/day for the following pollutants and emissions units:

Rendering Process Equipment Venting Through RTO: PM_{10}, VOC
Fugitive Room Air Venting Through Cross-Flow Scrubber: PM_{10}, VOC, H_2S

Therefore, BACT is triggered for the units above for the listed pollutants.

B. BACT Policy

Current BACT Guideline 8.3.2 (see Attachment I) applies to animal rendering operations and currently lists only technology feasible controls for VOC and PM_{10} emitted from rendering process equipment venting through the RTO and does not consider fugitive emissions in the room air vented to the cross-flow scrubber. The purpose of this analysis is to add controls for the room air to the BACT Guideline 8.3.2 and to proactively update the existing controls to reflect the current control technologies used in practice.

C. BACT Analysis for VOC Emissions

Step 1 - Identify All Possible Control Technologies

The U.S. Environmental Protection Agency (USEPA) RACT/BACT/LAER Clearinghouse, the California Air Pollution Control Officers Association (CAPCOA) BACT Clearinghouse, the South Coast Air Quality Management District (SCAQMD), San Diego Air Pollution Control District (SDAPCD), Ventura County Air Pollution Control District (VCAPCD), the Bay Area Air Quality Management District (BAAQMD), Sacramento Metropolitan Air Quality Management District (Sac Metro AQMD), and Texas Commission on Environmental

Control (TCEQ) were considered to determine potential control technologies for this class and category. Only SCAQMD and TCEQ listed a BACT guideline for animal matter rendering operations. TCEQ only lists controls for odors for which the San Joaquin Valley Air Pollution Control District (District) regulates through a different process (Rule 4102 - Nuisance) and not through Rule 2201 and the BACT requirements. SCAQMD BACT guideline does not list any control for VOC emissions. Each of the above listed agencies, except for TCEQ, require, by rule, that all gases, vapors and gas-entrained effluents from such an article, machine, equipment or other contrivance are incinerated at temperatures of not less than 1200 degrees Fahrenheit or greater for a period of not less than 0.3 seconds (or an approved equivalent).

Additionally, the District's permitting database was queried for animal matter rendering operations which yielded the results presented below.

As can be seen in the following table, emissions from processing equipment and fugitive room air emissions are not typically controlled by the same type of control device. The emissions from processing equipment are considered to be high intensity emissions and are typically controlled by a thermal oxidizer. The most typical control device for fugitive room air emissions is a wet scrubber or combination of wet scrubbers.

Facility Name (Facility ID)	Location	Room Air Control Device	Processing Equipment Control Device*
Baker Commodities, Inc (C-72)	Fresno, CA	None	Incineration with Thermal Oxidizer
Beef Packers (C-3463)	Fresno, CA	Wet Scrubbers	Wet Scrubbers
Darling International Inc (C-406)	Fresno, CA	Wet Scrubbers	Incineration with Thermal Oxidizer
Darling International Inc (N-2107)	Turlock, CA	Wet Scrubbers	Incineration with Thermal Oxidizer
Foster Foods (N-1252)	Livingston, CA	Wet Scrubbers	Incineration with Thermal Oxidizer
Modesto Tallow (N-2049)	Modesto, CA	Wet Scrubbers	Incineration with Thermal Oxidizer and High Intensity Odor Scrubbers
Yosemite Foods Inc (N-164)	Stockton, CA	Wet Scrubbers	Wet Scrubbers

* In this table, thermal oxidizers and regenerative thermal oxidizers are used interchangeably.

The District typically considers incineration to be able to control VOC emissions by 95%. This control efficiency has been verified by a source test on Darling International Inc's animal rendering operation in Los Angeles in July 2018 (See Attachment II for a copy of the test results).

Rendering operations install emission control devices on their equipment for odor control. Studies funded by the Georgia Department of Agriculture and industry partners as well as SCAQMD's staff report for Rule 415, Table 1-1 – Odors from Rendering Facilities[5]

[5] https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/415/pr-415-dsr.pdf?sfvrsn=4

identified various odor causing compounds in the waste streams of animal rendering operations. EPA Air Pollution Control Fact Sheets EPA-452/F-03-015[6] and EPA-452/F-03-016[7] both indicate a higher control efficiency range for inorganic gases (95-99%) than for VOCs (70-95% for Packed-Bed/Packed-Tower Wet Scrubbers and for 50-95% Spray-Chamber/Spray-Tower Wet Scrubbers). Since the scrubbers serving the room air are mainly for odor control, and not necessarily VOC emissions, it is conservatively assumed that 70% control for organic compounds is able to be achieved and is also what is required by SCAQMD's Rule 415, Table 1-1 – Odors from Rendering Facilities.

Summary:

For control of processing equipment:

- Thermal Incinerator operating with a chamber temperature of at least 1400°F (95% control efficiency) – achieved in practice.
- Wet Scrubber (70% control efficiency) – technologically feasible. Although this option is technologically feasible, since it has a lower control efficiency than the achieved in practice option above, it will be removed from further consideration.

For control of room air:

- Thermal/catalytic incinerator (95% control efficiency). – technologically feasible.
- Wet Scrubber (70% control efficiency) – achieved in practice.

Alternate Basic Equipment: None

Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options to eliminate from step 1.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

For control of processing equipment:

Option 1: Thermal oxidizer operating with a chamber temperature of at least 1400 degrees F (95% control efficiency) – achieved in practice.

For control of room air:

Option 1: Thermal oxidizer operating with a chamber temperature of at least 1400 degrees F (95% control efficiency) – technologically feasible.

Option 2: Packed bed scrubber, or cross-flow scrubber or any combination thereof (70% control efficiency) – achieved in practice.

Step 4 - Cost Effectiveness Analysis

A cost effective analysis must be performed for all control options that have not been determined to be achieved in practice in the list from Step 3 above, in the order of their ranking, to determine the cost effective option with the lowest emissions. Since the room

[6] https://www3.epa.gov/ttncatc1/dir1/fpack.pdf
[7] https://www3.epa.gov/ttn/catc/dir1/fsprytwr.pdf

air controls is the only process that has a control option ranking higher than the achieved in practice option, only a cost effective analysis is required for the room air controls.

District BACT Policy APR 1305 establishes annual cost thresholds for imposed control based upon the amount of pollutants reduced by the controls. If the cost of control is at or below the threshold, it is considered a cost effective control. If the cost exceeds the threshold, it is not cost effective and the control is not required. Per District BACT Policy, the maximum cost limit for VOC reduction is $17,500 per ton of VOC emissions reduced.

Emission Reductions:
For the purposes of District cost-effectiveness analysis, the amount of emissions reduced is defined as the emissions from the technologically feasible control option versus district standard emissions from this class and category of operation. For new emission units, district standard emissions are equal to the emissions level allowed by an applicable District rule once the final compliance date for the rule has passed. Since the District does not have a rule that specifically limits VOC emissions from this class and category, the achieved in practice control efficiency will be assumed to be the district standard emissions. Therefore, district standard emissions = 11,745 lb-VOC/year, as proposed in this project while using a scrubber to control emissions.

The emissions reduced from the technologically feasible option is determined by first calculating an uncontrolled emission rate and then applying the 95% control efficiency and taking the difference between the emission rates with a 95% control efficiency and 70% control efficiency:

Uncontrolled emission rate:
11,745 lb-VOC/year ÷ (1 – 0.70) = 39,150 lb-VOC/year
95% Controlled emission rate:
39,150 lb-VOC/year x (1 – 0.95) = 1,958 lb-VOC/year
Difference between technologically feasible and industry standard:
(11,745 – 1,958) lb-VOC/year = 9,787 lb-VOC/year or 4.9 tons-VOC/year

Cost of Controls:
It will be shown that the cost of the natural gas alone will be adequate to cause an incinerator to be not cost effective per District BACT policy. This estimate does not include the capital cost of purchasing the unit or any additional operational and maintenance costs.

The cost of natural gas for this operation is calculated based on an operating schedule of 24 hr/day and 365 day/year (288,000 min/year). A heat exchanger efficiency of 95% is assumed.

Natural Gas Usage = Flow Rate × Cp_{Air} × ΔT × (1 – HEF)

Where: Flow Rate = Air flow through the incinerator (100,000 cfm)
Cp_{Air} = specific heat of air is 0.194 Btu/scf - °F
ΔT = increase in the temperature of the contaminated air stream required for oxidation to occur (Conservatively, it will be assumed

that the air stream would increase in temperature from 77°F to 600°F for catalytic oxidation.)

HEF = heat exchanger factor (0.95)

Natural Gas Usage = 100,000 cfm × 0.194 Btu/ scf - °F × (600 °F - 77 °F) × × 8,760 hr/year x 60 min/hr × MMBtu/10^6 Btu × (1 - 0.95) = 266,642 MMBtu/year

Natural Gas Cost = 266,642 MMBtu/year × $7.4/MMBtu[8] = **$1,973,151**

Cost Effectiveness of Incineration for Room Air:

The cost in dollars per ton of VOCs reduced is:

Cost/ton = $1,973,151/year ÷ 4.9 tons/year
Cost/ton = $402,684/ton of VOC

The cost for the use of an incinerator to control the room air is greater than the cost effectiveness threshold of $17,500/ton of VOC. Furthermore, the cost/ton for the incinerator did not include the capital cost of the equipment or any other operating/maintenance costs that would further increase the cost/ton of VOC reduced. Thus, the use of an incinerator to control the room air is determined to not be cost effective.

Step 5 - Select BACT

Based on the analysis above, the only option to control emissions from the process equipment is the achieved in practice option which is a thermal oxidizer operating with a chamber temperature of at least 1400 degrees F. The facility is proposing to use a thermal oxidizer operating with a chamber temperature of at least 1400 degrees F. Therefore, BACT requirements are satisfied. A condition will be included on the permit to enforce this requirement.

The use of an incinerator to control emissions from the room air was determined to not be cost effective. The only remaining option, packed bed scrubber, or cross-flow scrubber or any combination thereof, is achieved in practice. The facility has proposed to control the emissions from the room air with a cross-flow scrubber; therefore, BACT requirements are satisfied. A condition will be included on the permit to enforce this requirement.

[8] The natural gas price used is based on the average of the California industrial natural gas price over 12 months (April 2018 through April 2019 since no data is available from August 2018) as published by the U.S. Energy Information Administration in their latest monthly natural gas report. See https://www.eia.gov/dnav/ng/hist/n3035ca3M.htm

D. BACT Analysis for PM_{10} Emissions

Step 1 - Identify All Possible Control Technologies

The U.S. Environmental Protection Agency (USEPA) RACT/BACT/LAER Clearinghouse, the California Air Pollution Control Officers Association (CAPCOA) BACT Clearinghouse, the South Coast Air Quality Management District (SCAQMD), San Diego Air Pollution Control District (SDAPCD), Ventura County Air Pollution Control District (VCAPCD), the Bay Area Air Quality Management District (BAAQMD), Sacramento Metropolitan Air Quality Management District (Sac Metro AQMD), and Texas Commission on Environmental Control (TCEQ) were considered to determine potential control technologies for this class and category. Only SCAQMD and TCEQ listed a BACT guideline for animal matter rendering operations. TCEQ only lists controls for odors for which the San Joaquin Valley Air Pollution Control District (District) regulates through a different process (Rule 4102 - Nuisance) and not through Rule 2201 and the BACT requirements. SCAQMD listed a BACT guideline for animal matter rendering operations and only lists one PM_{10} control, which is the use of an afterburner or boiler firebox with 0.3 seconds retention time and chamber temperature of 1200 degrees Fahrenheit or greater.

The District's current technologically feasible PM_{10} control listed on the BACT Guideline 8.3.1 is the use of a PM_{10} control system with at least 95% total PM_{10} control. That analysis was performed for the Foster Food Products (Facility N-1252) project to install a new meat meal (rendering) plant (Project N-1140512). Foster Food Products has since installed the proposed meat meal (rendering) plant and the respective control system has operated for more than five years; therefore, the PM_{10} control system from rendering process equipment waste streams is now achieved in practice.

Additionally, fugitive room air emissions are typically controlled through the use of a high efficiency packed bed scrubber, a high efficiency cross-flow scrubber, or any combination of these scrubbers in series. Several facilities including Beef Packers (C-3483), Darling Ingredients (C-406), Foster Food Products (Facility N-1252) and Yosemite Foods Inc. (N-164 – currently shutdown) operate fugitive room air control devices consisting of scrubbers; therefore, scrubbers controlling fugitive room air emissions is achieved in practice.

Summary:

For control of processing equipment:

- Use of an odor scrubber with a particulate removal system that consists of a particulate scrubber, shell and tube condenser, a venturi scrubber, a cyclone, an air cooled condenser, and a contact condenser or a combination thereof (95% control efficiency), or
- Use of a thermal oxidizer utilizing natural gas with a minimum chamber temperature of 1400 degree F with a particulate removal system that consists of a particulate scrubber, shell and tube condenser, a venturi scrubber, a cyclone, an air cooled condenser, and a contact condenser or a combination thereof (95% control efficiency) – achieved in practice.

For control of room air:

- Packed bed scrubber, or cross-flow scrubber or any combination thereof (70% control efficiency) – achieved in practice.

Alternate Basic Equipment: None

Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options to eliminate from step 1.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

For control of processing equipment:

Option 1: Use of an odor scrubber with a particulate removal system that consists of a particulate scrubber, shell and tube condenser, a venturi scrubber, a cyclone, an air cooled condenser, and a contact condenser or a combination thereof (95% control efficiency), or
Use of a thermal oxidizer utilizing natural gas with a minimum chamber temperature of 1400 degree F with a particulate removal system that consists of a particulate scrubber, shell and tube condenser, a venturi scrubber, a cyclone, an air cooled condenser, and a contact condenser or a combination thereof (95% control efficiency) – achieved in practice.

For control of room air:

Option 1: Packed bed scrubber, or cross-flow scrubber or any combination thereof (70% control efficiency) – achieved in practice.

Step 4 - Cost Effectiveness Analysis

A cost effective analysis must be performed for all control options that have not been determined to be achieved in practice in the list from Step 3 above. Since there are no other control options other than the achieved in practice options, no cost effective analysis is required for PM_{10} emissions.

Step 5 - Select BACT

Based on the analysis above, the only option to control emissions from the process equipment is the achieved in practice option which is either of the following two options:

- Use of an odor scrubber with a particulate removal system that consists of a particulate scrubber, shell and tube condenser, a venturi scrubber, a cyclone, an air cooled condenser, and a contact condenser or a combination thereof , or
- Use of a thermal oxidizer utilizing natural gas with a minimum chamber temperature of 1400 degree F with a particulate removal system that consists of a particulate scrubber, shell and tube condenser, a venturi scrubber, a cyclone, an air cooled condenser, and a contact condenser or a combination thereof.

The facility is proposing to use a thermal oxidizer operating with a chamber temperature of at least 1400 degree F with a particulate removal system that consists of an air cooled condenser, a venturi scrubber, and a packed tower scrubber. Therefore, BACT requirements are satisfied. A condition will be included on the permit to enforce this requirement.

Based on analysis above, the only option to control emissions from the room air is the achieved in practice option which is a packed bed scrubber, or cross-flow scrubber or any combination thereof. The facility is proposing to use a cross-flow scrubber. Therefore, BACT requirements are satisfied. A condition will be included on the permit to enforce this requirement.

E. BACT Analysis for H_2S Emissions

Step 1 - Identify All Possible Control Technologies

The U.S. Environmental Protection Agency (USEPA) RACT/BACT/LAER Clearinghouse, the California Air Pollution Control Officers Association (CAPCOA) BACT Clearinghouse, the South Coast Air Quality Management District (SCAQMD), San Diego Air Pollution Control District (SDAPCD), Ventura County Air Pollution Control District (VCAPCD), the Bay Area Air Quality Management District (BAAQMD), Sacramento Metropolitan Air Quality Management District (Sac Metro AQMD), and Texas Commission on Environmental Control (TCEQ) were considered to determine potential control technologies for this class and category. Only SCAQMD and TCEQ listed a BACT guideline for animal matter rendering operations. TCEQ only lists controls for odors for which the San Joaquin Valley Air Pollution Control District (District) regulates through a different process (Rule 4102 - Nuisance) and not through Rule 2201 and the BACT requirements. SCAQMD BACT guideline does not list any control for H_2S emissions.

Additionally, the District's permitting database was queried for animal matter rendering operations which yielded the results presented below.

Facility Name (Facility ID)	Location	Room Air Control Device
Baker Commodities, Inc (C-72)	Fresno, CA	None
Beef Packers (C-3463)	Fresno, CA	Wet Scrubbers
Darling International Inc (C-406)	Fresno, CA	Wet Scrubbers
Darling International Inc (N-2107)	Turlock, CA	Wet Scrubbers
Foster Foods (N-1252)	Livingston, CA	Wet Scrubbers
Modesto Tallow (N-2049)	Modesto, CA	Wet Scrubbers
Yosemite Foods Inc (N-164)	Stockton, CA	Wet Scrubbers

Scrubbers used at rendering plants typically control sulfur bearing compounds from the room air with great efficiency. Pursuant to the District's "Preliminary Draft Best Available Control Technology (BACT) for Dairy Operations (4/27/04)[9]", page 52, a 99% control efficiency using a caustic scrubber is typical according to several sources listed in the document. Therefore, 99% control of H_2S using a caustic scrubber is achieved in practice.

Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options to eliminate from step 1.

[9] https://www.valleyair.org/farmpermits/updates/draft_dairy_bact.pdf

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

For control of room air:

Option 1: Caustic H_2S scrubber (99% control efficiency) – achieved in practice.

Step 4 - Cost Effectiveness Analysis

A cost effective analysis must be performed for all control options that have not been determined to be achieved in practice in the list from Step 3 above. Since there are no other control options other than the achieved in practice options, no cost effective analysis is required for H_2S emissions.

Step 5 - Select BACT

Based on analysis above, the only option to control emissions from the room air is the achieved in practice option which is a caustic H_2S scrubber. The facility is proposing to use a caustic H_2S scrubber. Therefore, BACT requirements are satisfied. A condition will be included on the permit to enforce this requirement.

Attachment I
Current BACT Guideline 8.3.2

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 8.3.2*

Emission Unit: Meat Meal, Feather Meal, Protein Rendering Processing Equipment

Industry Type: Animal Rendering

Last Update: TBD

Equipment Rating: All

	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
PM_{10}		Use of an odor scrubber with a particulate removal system that consists of a particulate scrubber, shell and tube condenser, a Venturi scrubber, a cyclone, an air cooled condenser, and a contact condenser or a combination thereof with a minimum overall control of 95%, or Use of a thermal oxidizer utilizing natural gas with a minimum chamber temperature of 1400°F and minimum retention time of 1.0 seconds with a particulate removal system that consists of a particulate scrubber, shell and tube condenser, a Venturi scrubber, a cyclone, an air cooled condenser, and a contact condenser or a combination thereof with a minimum overall control of 95%.	
VOC		Use of an odor scrubbing system with a minimum overall control of 95% or better, or Use of a thermal oxidizer utilizing natural gas with a minimum chamber temperature of 1400°F and minimum retention time of 1.0 second with a minimum overall control of 95% by weight.	
SOx	Except during periods of Equipment Breakdown, process all raw materials within 24 hours of reciept.	Use of a pre-combustion sulfur scrubber with a minimum overall SOx control of 95%, by weight.	

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

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

Attachment II
Los Angeles Site Source Test Results

TABLE 2-1

TEST RESULTS

LOCATION	TEST CONDITION	PARAMETER	UNITS	RESULTS	LIMIT
Thermal Oxidizer Inlet	Normal Operation	Flow Rate	dscfm	4,676	
		Oxygen	%	21.0	
		Moisture Content	%	6.48	
		Temperature	°F	101.1	
		TGNMOC	ppm	352	
			lb/hr	3.72	
Thermal Oxidizer Outlet	Combustion Only	NOx	ppm	0.74 (1.00)**	
			ppm@3%O_2	19.0 (25.6)**	30
		CO	ppm	45.1	2000
			ppm@3%O_2	1156	
		Oxygen	%	20.08	
		CO_2	ppm	4,492	
	Normal Operation	NOx	ppm	4.55 (5.00)**	
			ppm@3%O_2	104 (114)**	
		CO	ppm	1.11 (20)**	2000
			ppm@3%O_2	25.4 (458)**	
		Oxygen	%	20.48	
		CO_2	ppm	4,969	
		Total Particulate as PM_{10}	lb/hr	1.06	
			gr/dscf	0.024	
		Flow Rate	dscfm	5,124	
		TGNMOC	ppm	6.8	
			lb/hr	0.08	
		VOC Destruction Efficiency*	%	97.9	≥95%

* Destruction Efficiency, % = 100 * [(Inlet, lb/hr) – (Outlet, lb/hr)] / Inlet, lb/hr.

** The NO_x and CO measured concentrations were below 20% of analyzer range while the O_2 measured concentrations were ambient (>19%). The actual values for NO_x and CO in parentheses are presented as well as values equal to 20% of the analyzer's range. The CO_2 concentrations used to correct NO_x and CO concentrations to 3% O_2 were calculated using the following equation:

ppm@3%O_2 = stack ppm * 10.23 / (stack CO_2 – ambient CO_2, 500ppm)

Attachment III
Revised BACT Guideline 8.3.2

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 8.3.2

Emission Unit: Meat Meal, Feather Meal, Protein Rendering Processing Equipment

Industry Type: Animal Rendering

Equipment Rating: All

Last Update: TBD

	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
PM_{10}	Control of "Fugitive" Room Air Emissions: Packed bed scrubber, or cross-flow scrubber or any combination thereof. Control of Rendering Processing Equipment: Use of an odor scrubber with a particulate removal system that consists of a particulate scrubber, shell and tube condenser, a venturi scrubber, a cyclone, an air cooled condenser, and a contact condenser or a combination thereof, or Use of a thermal oxidizer utilizing natural gas with a minimum chamber temperature of 1400 degree F with a particulate removal system that consists of a particulate scrubber, shell and tube condenser, a venturi scrubber, a cyclone, an air cooled condenser, and a contact condenser or a combination thereof.		
VOC	Control of "Fugitive" Room Air Emissions: Pack bed scrubber, cross-flow scrubber, or any combination thereof. Control of Rendering Processing Equipment: Thermal oxidizer operation with a chamber temperature of at least 1400 degrees F.	Control of "Fugitive" Room Air Emissions: Thermal oxidizer operation with a chamber temperature of at least 1400 degrees F.	
H_2S	Control of "Fugitive" Room Air Emissions: Caustic scrubber.		

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

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

APPENDIX H
BACT Analysis for Natural Gas/Biogas-Fired Boilers
(ATCs C-9251-4 & -5)

BACT ANALYSIS
Natural Gas/Biogas-Fired Boilers

I. Proposal

Darling Ingredients Inc has requested Authority to Construct (ATC) permits for the construction of a new animal rendering facility which includes two 63 MMBtu/hr boilers fired on natural gas or a blend of natural gas and biogas.

II. Process Description

The proposed natural gas and/or natural gas/biogas-fired boilers are used to provide steam to steam-jacketed cookers on both rendering lines proposed in permits C-9251-1 & -2.

Operating schedule: 24 hr/day, 365 day/year

III. EMISSION CONTROL TECHNOLOGY EVALUATION:

A. BACT Applicability

District Rule 2201 Section 4.1 requires that BACT shall be applied to any unit with a PE of any pollutant greater than 2 lb/day. Since the PE is greater than 2.0 lb/day for all criteria pollutants for this project, BACT is triggered for NO_X, SO_X, PM_{10}, and VOC. However BACT is not triggered for CO since the SSPE2 for CO is not greater than 200,000 lb/year, as demonstrated in Section VII.C.5 of the application review above.

B. BACT Policy

Since there is no BACT Guideline in the most recent District BACT Clearinghouse which governs this class and category of emissions unit, a new BACT Analysis shall be performed.

The U.S. Environmental Protection Agency (USEPA) RACT/BACT/LAER Clearinghouse, the California Air Pollution Control Officers Association (CAPCOA) BACT Clearinghouse, the South Coast Air Quality Management District (SCAQMD), San Diego Air Pollution Control District (SDAPCD), Ventura County Air Pollution Control District (VCAPCD), the Bay Area Air Quality Management District (BAAQMD), and Sacramento Metropolitan Air Quality Management District (Sac Metro AQMD) were considered to determine potential control technologies for this class and category.

The South Coast Air Quality Management District (SCAQMD), San Diego Air Pollution Control District (SDAPCD), the Bay Area Air Quality Management District (BAAQMD), and Sacramento Metropolitan Air Quality Management District (Sac Metro AQMD) are the only agencies listing BACT determinations for boilers.

South Coast Air Quality Management District (SCAQMD) BACT Guidelines were reviewed to determine potential control technologies for this size, class and category of operation and applicable guidelines are summarized in the following table:

SCAQMD Boiler BACT Guideline for 39 MMBtu/hr		
Pollutant	**Achieved in Practice**	**Technologically Feasible**
NO_X	9 ppmvd @ 3% O_2	
CO	100 ppmvd @ 3% O_2	

San Diego Air Pollution Control District (SDAPCD) BACT Guidelines were reviewed to determine potential control technologies for this size, class and category of operation and applicable guidelines are summarized in the following table:

SDAPCD Boiler BACT Guideline for Boiler (50 to <250 MMBtu/hr)		
Pollutant	**Achieved in Practice**	**Technologically Feasible**
NO_X	5 ppmvd @ 3% O_2	
SO_X	natural gas or LPG fuel	
PM_{10}	natural gas fuel	
VOC	natural gas or LPG fuel	

Bay Area Air Quality Management District (BAAQMD) BACT Guidelines were reviewed to determine potential control technologies for this class and category of operation and applicable guidelines are summarized in the following table:

BAAQMD Boiler BACT Guideline for (≥50 MMBtu/hr)		
Pollutant	**Achieved in Practice**	**Technologically Feasible**
NO_X	25 ppmvd @ 3% O_2	
SO_X	Natural gas fuel or treated refinery gas w/ <100 ppmvd total reduced sulfur	
PM_{10}	Natural gas fuel or treated refinery gas	
CO	100 ppmvd @ 3% O_2	
VOC	Good combustion practice	

Sacramento Metropolitan Air Quality Management District (Sac Metro AQMD) BACT Guidelines were reviewed to determine potential control technologies for this class and category of operation and applicable guidelines are summarized in the following table:

Sac Metro AQMD Boiler BACT Guideline for Application 24398 (≥50 MMBtu/hr)		
Pollutant	**Achieved in Practice**	**Technologically Feasible**
NO_X	5 ppmvd @ 3% O_2	
SO_X	0.6 lb/MMcf equivalent to natural gas combustion	
PM_{10}	4.97 lb/MMcf = 0.00497 lb/MMBtu	
CO	283.8 ppmvd @ 3% O_2	
VOC	3.77 lb/MMcf achieved with good combustion practices	

Santa Barbara County Air Pollution Control District (SBAPCD) BACT Guidelines were reviewed to determine potential control technologies for this class and category of operation and applicable guidelines are summarized in the following table:

SBAPCD Boiler BACT Guideline (≥26 MMBtu/hr)		
Pollutant	**Achieved in Practice**	**Technologically Feasible**
NO_X	5 ppmvd @ 3% O_2	
CO	50 ppmvd @ 3% O_2	

The **San Joaquin Valley Air Pollution Control District's (SJVAPCD's)** permitting database was queried (see Attachment I) for boilers that have been source tested. After reviewing the results, it has been determined that NO_X emissions at or below 2.5 ppmvd @ 3% O_2 have been achieved and can consistently and reliably be achieved with a margin of compliance included in the limit.

C. BACT Analysis for NOx Emissions

Nitrous oxides are emitted when nitrogen in the air and nitrogen compounds in the fuel are oxidized during combustion.

Step 1 - Identify All Possible Control Technologies

- 2.5 ppmvd @ 3% O_2 during steady state operation and 30 ppmvd @ 3% O_2 during startup/shutdown – achieved in practice[10]

No technologically feasible options are being listed at this time as there are none that would be able to consistently achieve a lower emission limit than the achieved in practice limit while maintaining a reasonable margin of compliance when considering the proposed unit is a load following unit with high turndown ratio.

Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options to eliminate from step 1.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

- 2.5 ppmvd @ 3% O_2 during steady state operation and 30 ppmvd @ 3% O_2 during startup/shutdown – achieved in practice

Step 4 - Cost Effectiveness Analysis

The only control technology in the ranking list from Step 3 has been achieved in practice. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.D.2, the cost effectiveness analysis is not required.

Step 5 - Select BACT

The applicant is proposing the only option listed above which is to limit the NO_x emissions to 2.5 ppmvd @ 3% O_2 during steady state operation and 30 ppmvd @ 3% O_2 during startup/shutdown; therefore, BACT is satisfied for NO_x.

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[10] Although 2.5 ppmvd @ 3% O_2 has been determined to be achieved in practice for steady state operations, there is no available data available for units when operating during startup or shutdown since source testing is not performed during startup or shutdown. Therefore, the applicant's proposal, which is the manufacturer's guarantee for the burner operating with no controls (SCR), will be assumed to be achieved in practice.

D. BACT Analysis for SO_X and PM_{10} Emissions

Sulfur oxides are emitted when sulfur present in the fuel is converted to sulfates during combustion. PM_{10} emissions are due to incomplete combustion of the fuel and formation of sulfates; therefore, control for these two pollutants will be considered identical.

Step 1 - Identify All Possible Control Technologies

- Fired on PUC-quality natural gas, commercial propane, or LPG – achieved in practice.
- Fired on gaseous fuel treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 dscf – achieved in practice.
- The use of a continuously operating SO_2 scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 9 ppmvd SO_2 at 3% O_2 – achieved in practice.

Step 2 - Eliminate Technologically Infeasible Options

All of the technologies identified in Step 1 are technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

These control options are all considered approximately equivalent; therefore:

- Fired on PUC-quality natural gas, commercial propane, LPG; gaseous fuel treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO_2 scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 9 ppmvd SO_2 at 3% O_2

Step 4 - Cost Effectiveness Analysis

The only control technology in the ranking list from Step 3 has been achieved in practice. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.D.2, the cost effectiveness analysis is not required.

Step 5 - Select BACT

The applicant is proposing the only option listed above which is to fire on PUC-quality natural gas or fire on a blend of natural gas and conditioned biogas, which is limited to less than 1 gr/100 dscf; therefore, BACT is satisfied for SO_x and PM_{10}.

E. BACT Analysis for VOC Emissions

Volatile organic compounds emissions are generated from the incomplete combustion of the fuel.

Step 1 - Identify All Possible Control Technologies

- Gaseous fuel – achieved in practice.

Step 2 - Eliminate Technologically Infeasible Options

There are no technologies to eliminate from Step 1.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

- Gaseous fuel – achieved in practice.

Step 4 - Cost Effectiveness Analysis

The only control technology in the ranking list from Step 3 has been achieved in practice. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.D.2, the cost effectiveness analysis is not required.

Step 5 - Select BACT

The applicant is proposing the only option listed above which is to fire on PUC-quality natural gas or fire on a blend of natural gas and conditioned biogas; therefore, BACT is satisfied for VOC emissions.

Attachment I
Source Test Results of Permitted Boilers in District

Permit				Equipment Description[1]	Date Test Performed	NOx Results (ppmv @ 3% O2)	CO Results (ppmv @ 3% O2)
S	33	348	11	200 MMBTU/HR NATURAL GAS/REFINERY FUEL GAS FIRED BOILER 81-H9 WITH JOHN ZINK CMR LOW NOX BURNER AND A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM - AREA 2	23-May-08	2	0
S	33	348	14	200 MMBTU/HR NATURAL GAS/REFINERY FUEL GAS FIRED BOILER 81-H9 WITH JOHN ZINK CMR LOW NOX BURNER AND A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM - AREA 2	02-Jun-16	2.42	N/A
N	283	1	3	34.6 MMBTU/HR ERIE CITY IRON WORKS MODEL TYPE VC BOILER #1 WITH A COEN MODEL ULN ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION	23-Sep-11	1	3.38
N	283	2	2	34.6 MMBTU/HR ERIE CITY IRON WORKS MODEL TYPE VC BOILER #2 WITH A COEN MODEL ULN ULTRA LOW NOX BURNER WITH FLUE GAS RECIRCULATION	06-Apr-11	1.9	7.05
N	314	5	3	62.02 MMBTU/HR KEELER MODEL 1-DS-10-10 BOILER (#2A) WITH A COEN MODEL FYR COMPAK BURNER, FLUE GAS RECIRCULATION, AND A SELECTIVE CATALYTIC REDUCTION SYSTEM	01-Aug-06	0.57	14.1
N	314	5	4	62.02 MMBTU/HR KEELER MODEL 1-DS-10-10 BOILER (#2A) WITH A COEN MODEL FYR COMPAK BURNER, FLUE GAS RECIRCULATION, AND A SELECTIVE CATALYTIC REDUCTION SYSTEM	11-Aug-10	1.23	18.64
N	314	5	4	62.02 MMBTU/HR KEELER MODEL 1-DS-10-10 BOILER (#2A) WITH A COEN MODEL FYR COMPAK BURNER, FLUE GAS RECIRCULATION, AND A SELECTIVE CATALYTIC REDUCTION SYSTEM	16-Aug-16	1.21	12.27
N	314	9	4	94.84 MMBTU/HR MURRAY IRON WORKS BOILER WITH A JOHN ZINK/HOLMAN BURNER, AN INDUCED FLUE GAS RECIRCULATION SYSTEM, AND A PEERLESS GREEN MACHINE SELECTIVE CATALYTIC REDUCTION SYSTEM	01-Aug-06	1.71	0
N	314	9	5	94.84 MMBTU/HR MURRAY IRON WORKS BOILER WITH A JOHN ZINK/HOLMAN BURNER, AN INDUCED FLUE GAS RECIRCULATION SYSTEM, AND A PEERLESS GREEN MACHINE SELECTIVE CATALYTIC REDUCTION SYSTEM	12-Aug-10	2.43	1.03
N	314	10	1	90 MMBTU/HR TRANE MURRAY MODEL MCF4-70 NATURAL GAS-FIRED BOILER WITH A COEN MODEL 260 FYR COMPAK LOW NOX BURNER, INDUCED FLUE GAS RECIRCULATION SYSTEM, AND A SELECTIVE CATALYTIC REDUCTION SYSTEM	01-Aug-06	0.68	0
N	314	11	0	99 MMBTU/HR MURRAY IRON WORKS MODEL MCFS-81 BOILER WITH A SELECTIVE CATALYTIC REDUCTION SYSTEM	01-Aug-06	1.15	4.38

[1] The equipment description is the description listed in the most current permit and not necessarily the equipment that was installed at the time of the test.

Permit				Equipment Description[1]	Date Test Performed	NOx Results (ppmv @ 3% O2)	CO Results (ppmv @ 3% O2)
N	314	11	0	99 MMBTU/HR MURRAY IRON WORKS MODEL MCFS-81 BOILER WITH A SELECTIVE CATALYTIC REDUCTION SYSTEM	18-Aug-06	1.62	5.3
N	314	11	1	99 MMBTU/HR MURRAY IRON WORKS MODEL MCFS-81 BOILER WITH A SELECTIVE CATALYTIC REDUCTION SYSTEM	12-Aug-10	2.5	1.04
C	366	2	9	128 MMBTU/HR NEBRASKA MODEL 2D1724 LOAD FOLLOWING NATURAL GAS-FIRED BOILER WITH A COEN MODEL DAF32 LOW NOX BURNER, FLUE GAS RECIRCULATION SYSTEM, AND A NATIONWIDE CATASTAK SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	08-Apr-09	2.5	0.8
C	366	2	10	128 MMBTU/HR NEBRASKA MODEL 2D1724 LOAD FOLLOWING NATURAL GAS-FIRED BOILER WITH A COEN MODEL DAF32 LOW NOX BURNER, FLUE GAS RECIRCULATION SYSTEM, AND A NATIONWIDE CATASTAK SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	05-May-10	1.9	0.71
C	366	3	7	182 MMBTU/HR BABCOCK & WILCOX MODEL NAT'L BD31 NATURAL GAS-FIRED BOILER #3 WITH COEN MODEL DAF39 LOW-NOX BURNER AND CATASTAK SCR SYSTEM	26-Jun-07	0.33	15.45
C	366	3	10	182 MMBTU/HR BABCOCK & WILCOX MODEL NAT'L BD31 NATURAL GAS-FIRED BOILER #3 WITH COEN MODEL DAF39 LOW-NOX BURNER AND CATASTAK SCR SYSTEM	30-May-13	2.3	28.3
C	406	3	9	30.9 MMBTU/HR NEBRASKA MODEL NS-B-40 NATURAL GAS-FIRED BOILER WITH A COEN MODEL SDAF-18N (FILE #12873-1) LOW-NOX BURNER, FLUE GAS RECIRCULATION, AND SELECTIVE CATALYTIC REDUCTION	20-Nov-07	0.7	8.9
S	416	37	0	62 MMBTU/HR HURST SG-G-1500-200 NATURAL GAS FIRED BOILER WITH SELECTIVE CATALYTIC REDUCTION (BOILER #5)	16-Mar-17	1.3	2.6
C	447	1	5	62.0 MMBTU/HR B & W BIOGAS/NATURAL GAS-FIRED BOILER EQUIPPED WITH A TODD LOW-NOX BURNER, FLUE GAS RECIRCULATION, O2 AND CO TRIM CONTROLLERS, A CRI COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM MODEL SHELL DNOX LFR, AND A NOX AND O2 IN-STACK EMISSION MONITORING SYSTEM	17-May-07	0.2	1.4
C	447	1	5	62.0 MMBTU/HR B & W BIOGAS/NATURAL GAS-FIRED BOILER EQUIPPED WITH A TODD LOW-NOX BURNER, FLUE GAS RECIRCULATION, O2 AND CO TRIM CONTROLLERS, A CRI COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM MODEL SHELL DNOX LFR, AND A NOX AND O2 IN-STACK EMISSION MONITORING SYSTEM	03-Jun-08	0.9	1.8
C	447	1	8	62.0 MMBTU/HR B & W BIOGAS/NATURAL GAS-FIRED BOILER EQUIPPED WITH A TODD LOW-NOX BURNER, FLUE GAS RECIRCULATION, O2 AND CO TRIM CONTROLLERS, A CRI COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM MODEL SHELL DNOX LFR, AND A NOX AND O2 IN-STACK EMISSION MONITORING SYSTEM	31-Mar-09	0.1	3.5

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Permit				Equipment Description[1]	Date Test Performed	NOx Results (ppmv @ 3% O2)	CO Results (ppmv @ 3% O2)
C	447	1	8	62.0 MMBTU/HR B & W BIOGAS/NATURAL GAS-FIRED BOILER EQUIPPED WITH A TODD LOW-NOX BURNER, FLUE GAS RECIRCULATION, O2 AND CO TRIM CONTROLLERS, A CRI COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM MODEL SHELL DNOX LFR, AND A NOX AND O2 IN-STACK EMISSION MONITORING SYSTEM	02-Apr-09	0.6	6.5
C	447	1	12	62.0 MMBTU/HR B & W BIOGAS/NATURAL GAS-FIRED BOILER EQUIPPED WITH A TODD LOW-NOX BURNER, FLUE GAS RECIRCULATION, O2 AND CO TRIM CONTROLLERS, A CRI COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM MODEL SHELL DNOX LFR, AND A NOX AND O2 IN-STACK EMISSION MONITORING SYSTEM	12-Mar-13	1.8	6
C	447	1	12	62.0 MMBTU/HR B & W BIOGAS/NATURAL GAS-FIRED BOILER EQUIPPED WITH A TODD LOW-NOX BURNER, FLUE GAS RECIRCULATION, O2 AND CO TRIM CONTROLLERS, A CRI COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM MODEL SHELL DNOX LFR, AND A NOX AND O2 IN-STACK EMISSION MONITORING SYSTEM	30-Apr-14	1.9	1.1
C	447	1	12	62.0 MMBTU/HR B & W BIOGAS/NATURAL GAS-FIRED BOILER EQUIPPED WITH A TODD LOW-NOX BURNER, FLUE GAS RECIRCULATION, O2 AND CO TRIM CONTROLLERS, A CRI COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM MODEL SHELL DNOX LFR, AND A NOX AND O2 IN-STACK EMISSION MONITORING SYSTEM	12-Apr-13	2.4	16
C	447	2	10	142.0 MMBTU/HR NEBRASKA MODEL 84 NATURAL GAS-FIRED BOILER WITH A TODD LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, CRI COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, AND AN ABB MODEL AO2000 CEMS	31-May-05	2.46	180
C	447	2	12	142.0 MMBTU/HR NEBRASKA MODEL 84 NATURAL GAS-FIRED BOILER WITH A TODD LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, CRI COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, AND AN ABB MODEL AO2000 CEMS	17-May-06	1.95	4.738
C	447	2	13	142.0 MMBTU/HR NEBRASKA MODEL 84 NATURAL GAS-FIRED BOILER WITH A TODD LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, CRI COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, AND AN ABB MODEL AO2000 CEMS	12-Jun-17	1.8	1
C	447	3	5	75.0 MMBTU/HR BIGELOW BIOGAS/NATURAL GAS-FIRED BOILER, S/N 12722, WITH A TODD MODEL V.485.FGX LOW NOX BURNER, FLUE GAS RECIRCULATION SYSTEM, O2 TRIM CONTROLLER, AND CO TRIM CONTROLLER SERVED BY A CRI COMPANY MODEL SHELL DNOX LFR SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND A NOX AND O2 IN-STACK EMISSION MONITORING SYSTEM	18-May-06	0.3	3.557

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Permit				Equipment Description[1]	Date Test Performed	NOx Results (ppmv @ 3% O2)	CO Results (ppmv @ 3% O2)
C	447	3	5	75.0 MMBTU/HR BIGELOW BIOGAS/NATURAL GAS-FIRED BOILER, S/N 12722, WITH A TODD MODEL V.485.FGX LOW NOX BURNER, FLUE GAS RECIRCULATION SYSTEM, O2 TRIM CONTROLLER, AND CO TRIM CONTROLLER SERVED BY A CRI COMPANY MODEL SHELL DNOX LFR SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND A NOX AND O2 IN-STACK EMISSION MONITORING SYSTEM	05-Jun-07	1.7	1.8
C	447	4	5	75.0 MMBTU/HR BIGELOW NATURAL GAS-FIRED BOILER, S/N 576, WITH A TODD MODEL V.485.FGX LOW NOX BURNER, FLUE GAS RECIRCULATION SYSTEM, O2 TRIM CONTROLLER, AND CO TRIM CONTROLLER SERVED BY A CRI COMPANY MODEL SHELL DNOX LFR SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND A NOX AND O2 IN-STACK EMISSION MONITORING SYSTEM	18-May-06	0.157	12.7
C	447	4	5	75.0 MMBTU/HR BIGELOW NATURAL GAS-FIRED BOILER, S/N 576, WITH A TODD MODEL V.485.FGX LOW NOX BURNER, FLUE GAS RECIRCULATION SYSTEM, O2 TRIM CONTROLLER, AND CO TRIM CONTROLLER SERVED BY A CRI COMPANY MODEL SHELL DNOX LFR SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND A NOX AND O2 IN-STACK EMISSION MONITORING SYSTEM	14-Jun-06	1.5	10.1
C	447	4	8	75.0 MMBTU/HR BIGELOW NATURAL GAS-FIRED BOILER, S/N 576, WITH A TODD MODEL V.485.FGX LOW NOX BURNER, FLUE GAS RECIRCULATION SYSTEM, O2 TRIM CONTROLLER, AND CO TRIM CONTROLLER SERVED BY A CRI COMPANY MODEL SHELL DNOX LFR SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND A NOX AND O2 IN-STACK EMISSION MONITORING SYSTEM	27-May-10	2.2	22
C	447	295	0	99 MMBTU/HR VICTORY ENERGY OPERATIONS NATURAL GAS/BIOGAS-FIRED BOILER EQUIPPED WITH A TODD VERIFLAME MODEL TODD VERIFLAME 99 LOW NOX BURNER, FLUE GAS RECIRCULATION SYSTEM, AND O2 CONTROLLER SERVED BY A NATIONWIDE MODEL CATASTAK SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM (BOILER #4)	13-Aug-13	0.9	1.9
C	447	295	2	99 MMBTU/HR VICTORY ENERGY OPERATIONS NATURAL GAS/BIOGAS-FIRED BOILER EQUIPPED WITH A TODD VERIFLAME MODEL TODD VERIFLAME 99 LOW NOX BURNER, FLUE GAS RECIRCULATION SYSTEM, AND O2 CONTROLLER SERVED BY A NATIONWIDE MODEL CATASTAK SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM (BOILER #4)	11-Sep-17	2	2.8
N	594	3	3	154 MMBTU/HR BABCOCK & WILCOX D TYPE FM 103 NATURAL GAS FIRED BOILER WITH A COEN DAF-36FGR BURNER, A COMPU-NOX CONTROL SYSTEM AND A HALDOR TOPSOE MODEL DNX-920 SELECTIVE CATALYTIC REDUCTION SYSTEM (BOILER #3)	09-Jul-08	1.6	0

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Permit				Equipment Description[1]	Date Test Performed	NOx Results (ppmv @ 3% O2)	CO Results (ppmv @ 3% O2)
C	628	4	7	97 MMBTU/HR NEBRASKA MODEL NS-F-81 NATURAL GAS-FIRED BOILER (WEST) WITH AN ALZETA MODEL CSB-1210 ULTRA LOW NOX BURNER	13-Jul-07	2.3	0
C	628	4	7	97 MMBTU/HR NEBRASKA MODEL NS-F-81 NATURAL GAS-FIRED BOILER (WEST) WITH AN ALZETA MODEL CSB-1210 ULTRA LOW NOX BURNER	17-Sep-07	1.9	0
C	628	5	7	97 MMBTU/HR NEBRASKA MODEL NS-F-81 NATURAL GAS-FIRED BOILER (EAST) WITH AN ALZETA MODEL CSB-1210 ULTRA LOW NOX BURNER	28-Jun-06	2.3	0
C	628	5	7	97 MMBTU/HR NEBRASKA MODEL NS-F-81 NATURAL GAS-FIRED BOILER (EAST) WITH AN ALZETA MODEL CSB-1210 ULTRA LOW NOX BURNER	13-Jul-07	2.4	0
C	628	5	7	97 MMBTU/HR NEBRASKA MODEL NS-F-81 NATURAL GAS-FIRED BOILER (EAST) WITH AN ALZETA MODEL CSB-1210 ULTRA LOW NOX BURNER	17-Sep-07	2.2	0
C	629	2	9	47.8 MMBTU/HR BABCOCK AND WILCOX NATURAL GAS-FIRED BOILER (SERIAL #NB21232) WITH AN AMERICAN COMBUSTION TECH MODEL ACI-04G LOW NOX BURNER, INDUCED FLUE GAS RECIRCULATION, AND SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	30-Aug-17	1.5	5.3
C	705	1	7	71.4 MMBTU/HR UNION IRON WORKS MODEL SPG-50-FS NATURAL GAS FIRED BOILER WITH LOW-NOX BURNER AND SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND FLUE GAS RECIRCULATION (FGR) SYSTEM	11-Dec-12	2.5	0.4
C	705	1	7	71.4 MMBTU/HR UNION IRON WORKS MODEL SPG-50-FS NATURAL GAS FIRED BOILER WITH LOW-NOX BURNER AND SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND FLUE GAS RECIRCULATION (FGR) SYSTEM	04-Dec-13	2.3	0.05
C	705	1	8	71.4 MMBTU/HR UNION IRON WORKS MODEL SPG-50-FS NATURAL GAS FIRED BOILER WITH LOW-NOX BURNER AND SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND FLUE GAS RECIRCULATION (FGR) SYSTEM	02-Dec-14	1.5	0.16
C	787	1	5	94.7 MMBTU/HR CLEAVER BROOKS NATURAL GAS-FIRED BOILER #1, MODEL DL-94E, S/N W3615, EQUIPPED WITH A FUEL TECH/TODD DYNASWIRL BURNER, ECONOMIZER AND R.F. MCDONALD COMPANY SELECTIVE CATALYTIC REDUCTION SYSTEM WITH HITACHI CATALYST	31-Jul-07	2.4	24.3
C	787	2	5	94.7 MMBTU/HR CLEAVER BROOKS NATURAL GAS-FIRED BOILER #2, MODEL DL-94E, S/N WL1001, EQUIPPED WITH A FUEL TECH/TODD DYNASWIRL BURNER, ECONOMIZER AND R.F. MACDONALD COMPANY SELECTIVE CATALYTIC REDUCTION SYSTEM WITH HITACHI CATALYST	15-Aug-06	1	213

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Permit				Equipment Description[1]	Date Test Performed	NOx Results (ppmv @ 3% O2)	CO Results (ppmv @ 3% O2)
C	1163	3	9	180.06 MMBTU/HR CLEAVER BROOKS MODEL DFE-E NATURAL GAS-FIRED BOILER WITH COEN/TODD VARIFLAME LOW NOX BURNER, FLUE GAS RECIRCULATION SYSTEM AND SCR SYSTEM	07-Jun-12	0.5	0.3
C	1163	10	0	85.9 MMBTU/HR NEBRASKA NOS-2A NATURAL GAS-FIRED BOILER WITH TODD VARIFLAME BURNER, FLUE GAS RECIRCULATION SYSTEM SERVED BY A SELECTIVE CATALYTIC REDUCTION SYSTEM	09-Aug-05	1.11	2.24
C	1163	19	1	99.8 MMBTU/HR BABCOCK & WILCOX BOILER MODEL FM103-79 NATURAL GAS-FIRED BOILER WITH A LOW-NOX BURNER AND A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	07-Jul-15	1.9	1.1
N	1174	9	0	81.8 MMBTU/HR CLEAVER BROOKS NEBRASKA D TYPE MODEL # NB-300D-55 NATURAL GAS-FIRED BOILER WITH LOW-NOX BURNER, SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, AND AN ECONOMIZER	20-Aug-13	0.7	0.02
N	1174	9	0	81.8 MMBTU/HR CLEAVER BROOKS NEBRASKA D TYPE MODEL # NB-300D-55 NATURAL GAS-FIRED BOILER WITH LOW-NOX BURNER, SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, AND AN ECONOMIZER	19-Sep-16	0.8	0.34
N	1174	9	0	81.8 MMBTU/HR CLEAVER BROOKS NEBRASKA D TYPE MODEL # NB-300D-55 NATURAL GAS-FIRED BOILER WITH LOW-NOX BURNER, SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, AND AN ECONOMIZER	20-Aug-12	2.4	0.3
S	1203	22	0	90 MMBTU/HR NEBRASKA MODEL NS E 655 NATURAL GAS-FIRED BOILER WITH A JOHN ZINK TODD LOW NOX BURNER, FLUE GAS RECIRCULATION, AND A URS CORPORATION SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	26-Feb-09	0.4	1.2
S	1203	22	0	90 MMBTU/HR NEBRASKA MODEL NS E 655 NATURAL GAS-FIRED BOILER WITH A JOHN ZINK TODD LOW NOX BURNER, FLUE GAS RECIRCULATION, AND A URS CORPORATION SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	09-May-12	0.5	6
S	1203	22	0	90 MMBTU/HR NEBRASKA MODEL NS E 655 NATURAL GAS-FIRED BOILER WITH A JOHN ZINK TODD LOW NOX BURNER, FLUE GAS RECIRCULATION, AND A URS CORPORATION SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	19-Mar-13	0.5	1.7
S	1203	22	1	90 MMBTU/HR NEBRASKA MODEL NS E 655 NATURAL GAS-FIRED BOILER WITH A JOHN ZINK TODD LOW NOX BURNER, FLUE GAS RECIRCULATION, AND A URS CORPORATION SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	20-Mar-14	0.3	3.7
S	1203	22	1	90 MMBTU/HR NEBRASKA MODEL NS E 655 NATURAL GAS-FIRED BOILER WITH A JOHN ZINK TODD LOW NOX BURNER, FLUE GAS RECIRCULATION, AND A URS CORPORATION SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	21-Mar-17	0.2	16.6

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Permit				Equipment Description[1]	Date Test Performed	NOx Results (ppmv @ 3% O2)	CO Results (ppmv @ 3% O2)
N	1237	4	10	150 MMBTU/HR MURRAY MODEL MSF5-99 NATURAL GAS-FIRED BOILER WITH A TODD COMBUSTION MODEL SV750FGX LOW NOX BURNER, FLUE GAS RECIRCULATION AND A CRI COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	30-May-06	0.46	2.64
N	1237	4	10	150 MMBTU/HR MURRAY MODEL MSF5-99 NATURAL GAS-FIRED BOILER WITH A TODD COMBUSTION MODEL SV750FGX LOW NOX BURNER, FLUE GAS RECIRCULATION AND A CRI COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	01-May-07	0.11	1.14
N	1237	4	11	150 MMBTU/HR MURRAY MODEL MSF5-99 NATURAL GAS-FIRED BOILER WITH A TODD COMBUSTION MODEL SV750FGX LOW NOX BURNER, FLUE GAS RECIRCULATION AND A CRI COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	20-Apr-10	0.56	4.38
N	1237	4	13	150 MMBTU/HR MURRAY MODEL MSF5-99 NATURAL GAS-FIRED BOILER WITH A TODD COMBUSTION MODEL SV750FGX LOW NOX BURNER, FLUE GAS RECIRCULATION AND A CRI COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	16-Apr-13	2.22	1.26
N	1237	4	13	150 MMBTU/HR MURRAY MODEL MSF5-99 NATURAL GAS-FIRED BOILER WITH A TODD COMBUSTION MODEL SV750FGX LOW NOX BURNER, FLUE GAS RECIRCULATION AND A CRI COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	14-Jul-16	1.8	3.3
N	1237	607	0	90 MMBTU/HR VICTORY ENERGY OPERATIONS (VEO) MODEL J-VE-540 NATURAL GAS-FIRED BOILER WITH A LOW-NOX BURNER, A FLUE GAS RECIRCULATION (FGR) SYSTEM, A NATIONWIDE SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, AND A NOX AND O2 IN-STACK EMISSION MONITORING SYSTEM	06-Mar-14	0.5	0
C	1243	4	3	32.66 MMBTU/HR CLEAVER BROOKS MODEL #CBI(LE) 700-800-250 NATURAL GAS-FIRED BOILER WITH A CLEAVER BROOKS LOW NOX BURNER, INDUCED FLUE GAS RECIRCULATION AND SELECTIVE CATALYTIC REDUCTION	22-Aug-07	0.03	0.9
C	1243	4	3	32.66 MMBTU/HR CLEAVER BROOKS MODEL #CBI(LE) 700-800-250 NATURAL GAS-FIRED BOILER WITH A CLEAVER BROOKS LOW NOX BURNER, INDUCED FLUE GAS RECIRCULATION AND SELECTIVE CATALYTIC REDUCTION	30-Jul-08	0.5	1.9
C	1243	4	3	32.66 MMBTU/HR CLEAVER BROOKS MODEL #CBI(LE) 700-800-250 NATURAL GAS-FIRED BOILER WITH A CLEAVER BROOKS LOW NOX BURNER, INDUCED FLUE GAS RECIRCULATION AND SELECTIVE CATALYTIC REDUCTION	31-Aug-11	0.6	23.8
C	1243	4	3	32.66 MMBTU/HR CLEAVER BROOKS MODEL #CBI(LE) 700-800-250 NATURAL GAS-FIRED BOILER WITH A CLEAVER BROOKS LOW NOX BURNER, INDUCED FLUE GAS RECIRCULATION AND SELECTIVE CATALYTIC REDUCTION	10-Aug-17	1.4	4.7

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Permit				Equipment Description[1]	Date Test Performed	NOx Results (ppmv @ 3% O2)	CO Results (ppmv @ 3% O2)
C	1243	5	1	89.0 MMBTU/HR KEYSTONE MODEL 14M-200 NATURAL GAS-FIRED WATERTUBE BOILER WITH A TODD COMBUSTION MODEL SV59OIGXXXX S/N 98892 VARIFLAME LOW-NOX BURNER, INDUCED FLUE GAS RECIRCULATION (FGR), AND SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	16-Aug-16	0.7	9.7
C	1243	5	1	89.0 MMBTU/HR KEYSTONE MODEL 14M-200 NATURAL GAS-FIRED WATERTUBE BOILER WITH A TODD COMBUSTION MODEL SV59OIGXXXX S/N 98892 VARIFLAME LOW-NOX BURNER, INDUCED FLUE GAS RECIRCULATION (FGR), AND SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	10-Aug-17	1.2	1.8
N	1252	37	0	98.5 MMBTU/HR NATURAL GAS-FIRED NEBRASKA BOILERS MODEL NS-E-68 BOILER WITH A COEN MODEL 260-FYR-COMPAK LOW-NOX BURNER SERVED BY A SELECTIVE CATALYTIC REDUCTION SYSTEM	11-Aug-11	2.1	7
N	1252	37	0	98.5 MMBTU/HR NATURAL GAS-FIRED NEBRASKA BOILERS MODEL NS-E-68 BOILER WITH A COEN MODEL 260-FYR-COMPAK LOW-NOX BURNER SERVED BY A SELECTIVE CATALYTIC REDUCTION SYSTEM	25-Jul-12	1.1	10.2
N	1275	30	0	50.2 MMBTU/HR SUPERIOR MODEL 8-X-6000-S200-M BOILER EQUIPPED WITH A URS CORPORATION MODEL RMBF-50-G BURNER SERVED BY A HALDOR TOPSOE INC SELECTIVE CATALYTIC REDUCTION SYSTEM (BOILER #6)	05-Aug-10	1.2	0
N	1275	30	0	50.2 MMBTU/HR SUPERIOR MODEL 8-X-6000-S200-M BOILER EQUIPPED WITH A URS CORPORATION MODEL RMBF-50-G BURNER SERVED BY A HALDOR TOPSOE INC SELECTIVE CATALYTIC REDUCTION SYSTEM (BOILER #6)	29-Sep-11	1	2
N	1275	30	0	50.2 MMBTU/HR SUPERIOR MODEL 8-X-6000-S200-M BOILER EQUIPPED WITH A URS CORPORATION MODEL RMBF-50-G BURNER SERVED BY A HALDOR TOPSOE INC SELECTIVE CATALYTIC REDUCTION SYSTEM (BOILER #6)	01-Aug-11	0.5	2.4
N	1275	30	1	50.2 MMBTU/HR SUPERIOR MODEL 8-X-6000-S200-M BOILER EQUIPPED WITH A URS CORPORATION MODEL RMBF-50-G BURNER SERVED BY A HALDOR TOPSOE INC SELECTIVE CATALYTIC REDUCTION SYSTEM (BOILER #6)	22-Jun-17	2	4
N	1275	30	1	50.2 MMBTU/HR SUPERIOR MODEL 8-X-6000-S200-M BOILER EQUIPPED WITH A URS CORPORATION MODEL RMBF-50-G BURNER SERVED BY A HALDOR TOPSOE INC SELECTIVE CATALYTIC REDUCTION SYSTEM (BOILER #6)	27-Aug-14	0.7	0.4
N	1276	1	7	93 MMBTU/HR NEBRASKA MODEL NS-D-65 BOILER WITH A CSI LOW NOX BURNER, AN INDUCED FLUE GAS RECIRCULATION SYSTEM AND A CRI CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM WITH AMMONIA INJECTION	21-Sep-05	2.3	0

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Permit				Equipment Description[1]	Date Test Performed	NOx Results (ppmv @ 3% O2)	CO Results (ppmv @ 3% O2)
N	1276	1	9	93 MMBTU/HR NEBRASKA MODEL NS-D-65 BOILER WITH A CSI LOW NOX BURNER, AN INDUCED FLUE GAS RECIRCULATION SYSTEM AND A CRI CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM WITH AMMONIA INJECTION	02-Oct-08	1.6	1
N	1276	1	12	93 MMBTU/HR NEBRASKA MODEL NS-D-65 BOILER WITH A CSI LOW NOX BURNER, AN INDUCED FLUE GAS RECIRCULATION SYSTEM AND A CRI CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM WITH AMMONIA INJECTION	03-Oct-11	1.6	0
N	1276	1	13	93 MMBTU/HR NEBRASKA MODEL NS-D-65 BOILER WITH A CSI LOW NOX BURNER, AN INDUCED FLUE GAS RECIRCULATION SYSTEM AND A CRI CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM WITH AMMONIA INJECTION	08-Sep-14	1.2	0
N	1276	2	9	93 MMBTU/HR NEBRASKA MODEL NS-D-65 BOILER WITH A CSI LOW NOX BURNER, AN INDUCED FLUE GAS RECIRCULATION SYSTEM AND A CRI CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM WITH AMMONIA INJECTION	13-Sep-07	2.1	33.7
N	1276	2	14	93 MMBTU/HR NEBRASKA MODEL NS-D-65 BOILER WITH A CSI LOW NOX BURNER, AN INDUCED FLUE GAS RECIRCULATION SYSTEM AND A CRI CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM WITH AMMONIA INJECTION	20-Aug-13	1.5	9.1
N	1276	2	13	93 MMBTU/HR NEBRASKA MODEL NS-D-65 BOILER WITH A CSI LOW NOX BURNER, AN INDUCED FLUE GAS RECIRCULATION SYSTEM AND A CRI CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM WITH AMMONIA INJECTION	16-Sep-10	0.7	30.6
N	1276	15	3	98 MMBTU/HR NATURAL GAS-FIRED NEBRASKA MODEL NS-F/S 68 BOILER EQUIPPED WITH A TODD VARI-FLAME MODEL #V8151G0XXX LOW NOX BURNER, AN INDUCED FLUE GAS RECIRCULATION SYSTEM AND A CRI CATASTACK SELECTIVE CATALYTIC REDUCTION SYSTEM WITH AMMONIA INJECTION	03-Oct-11	0.3	0.9
N	1276	15	4	98 MMBTU/HR NATURAL GAS-FIRED NEBRASKA MODEL NS-F/S 68 BOILER EQUIPPED WITH A TODD VARI-FLAME MODEL #V8151G0XXX LOW NOX BURNER, AN INDUCED FLUE GAS RECIRCULATION SYSTEM AND A CRI CATASTACK SELECTIVE CATALYTIC REDUCTION SYSTEM WITH AMMONIA INJECTION	08-Sep-14	0.4	1.3
N	1276	18	1	180 MMBTU/HR NATURAL GAS FIRED NEBRASKA MODEL 500D-100 BOILER EQUIPPED WITH A JOHN ZINK VARIFLAME BURNER, AN INDUCED FLUE GAS RECIRCULATION SYSTEM AND A HALDOR TOPSOE SELECTIVE CATALYTIC REDUCTION SYSTEM WITH AMMONIA INJECTION.	08-Sep-14	1.6	17.5

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Permit				Equipment Description[1]	Date Test Performed	NOx Results (ppmv @ 3% O2)	CO Results (ppmv @ 3% O2)
N	1276	18	0	180 MMBTU/HR NATURAL GAS FIRED NEBRASKA MODEL 500D-100 BOILER EQUIPPED WITH A JOHN ZINK VARIFLAME BURNER, AN INDUCED FLUE GAS RECIRCULATION SYSTEM AND A HALDOR TOPSOE SELECTIVE CATALYTIC REDUCTION SYSTEM WITH AMMONIA INJECTION.	16-Aug-10	0.6	12.9
N	1276	18	0	180 MMBTU/HR NATURAL GAS FIRED NEBRASKA MODEL 500D-100 BOILER EQUIPPED WITH A JOHN ZINK VARIFLAME BURNER, AN INDUCED FLUE GAS RECIRCULATION SYSTEM AND A HALDOR TOPSOE SELECTIVE CATALYTIC REDUCTION SYSTEM WITH AMMONIA INJECTION.	11-Aug-11	0.6	12
C	1344	2	6	72.0 MMBTU/HR BABCOCK & WILCOX MODEL FM-1936 NATURAL GAS-FIRED BOILER, WITH ADVANCED COMBUSTION TECHNOLOGY MODEL GIDION MGW-60 ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION, AND SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	07-Nov-13	1.9	13.3
C	1344	2	7	72.0 MMBTU/HR BABCOCK & WILCOX MODEL FM-1936 NATURAL GAS-FIRED BOILER, WITH ADVANCED COMBUSTION TECHNOLOGY MODEL GIDION MGW-60 ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION, AND SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	29-Oct-14	2.3	20
C	1344	7	1	60.0 MMBTU/HR NEBRASKA MODEL NB-200D-60 NATURAL GAS-FIRED BOILER, WITH NATCOM P60-20-1015 LOW NOX BURNER WITH FLUE GAS RECIRCULATION AND HALDOR TOPSOE MODEL DNX-929 SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	06-May-13	1.1	2.2
C	1344	7	1	60.0 MMBTU/HR NEBRASKA MODEL NB-200D-60 NATURAL GAS-FIRED BOILER, WITH NATCOM P60-20-1015 LOW NOX BURNER WITH FLUE GAS RECIRCULATION AND HALDOR TOPSOE MODEL DNX-929 SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	18-Apr-16	1.7	0.2
S	1346	29	0	39.9 MMBTU/HR ZURN NATURAL GAS FIRED BOILER WITH AN ALZETA ULTRA LOW NOX BURNER MODEL CSB30-3SO-30/15/50	11-Sep-15	2.5	0
N	1363	3	6	73.0 MMBTU/HR NEBRASKA BOILER MODEL NSE-58 NATURAL GAS-FIRED BOILER WITH AN ALZETA MODEL CSB770R-LEA ULTRA LOW NOX BURNER	16-Mar-10	2.01	0
N	1363	6	2	63 MMBTU/HR HURST SERIES 400 FIRETUBE NATURAL GAS-FIRED BOILER WITH AN ALZETA MODEL CSB630 ULTRA LOW NOX BURNER	12-Mar-13	2.59	1.82
N	1363	6	2	63 MMBTU/HR HURST SERIES 400 FIRETUBE NATURAL GAS-FIRED BOILER WITH AN ALZETA MODEL CSB630 ULTRA LOW NOX BURNER	16-Mar-10	0.92	0
C	1555	11	8	34.8 MMBTU/HR SUPERIOR SEMINOLE MODEL 6C-4000 NATURAL GAS-FIRED OR PROPANE-FIRED BOILER EQUIPPED WITH A LOW NOX BURNER SERVED BY A SELECTIVE CATALYTIC REDUCTION SYSTEM	22-Nov-06	1.35	0.1

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Permit				Equipment Description[1]	Date Test Performed	NOx Results (ppmv @ 3% O2)	CO Results (ppmv @ 3% O2)
C	1555	11	8	34.8 MMBTU/HR SUPERIOR SEMINOLE MODEL 6C-4000 NATURAL GAS-FIRED OR PROPANE-FIRED BOILER EQUIPPED WITH A LOW NOX BURNER SERVED BY A SELECTIVE CATALYTIC REDUCTION SYSTEM	04-Dec-07	0.6	11.6
C	1594	1	8	71.7 MMBTU/HR BABCOCK AND WILCOX MODEL 26504-63 NATURAL GAS-FIRED BOILER WITH (2) B & W MODEL FMD-993 GAS BURNERS AND COMPU-NOX LO-NOX CONTROL SYSTEM	23-Apr-09	2.5	60.9
C	1594	1	9	71.7 MMBTU/HR BABCOCK AND WILCOX MODEL 26504-63 NATURAL GAS-FIRED BOILER WITH (2) B & W MODEL FMD-993 GAS BURNERS AND COMPU-NOX LO-NOX CONTROL SYSTEM	03-May-10	2.3	0.03
N	1626	3	4	180.76 MMBTU/HR NATURAL GAS-FIRED BABCOCK & WILCOX BOILER SERVED BY A CRI CATALYST MODEL CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM AND A COMPU-NOX SYSTEM	03-Jun-09	1.1	11.8
N	1626	3	4	180.76 MMBTU/HR NATURAL GAS-FIRED BABCOCK & WILCOX BOILER SERVED BY A CRI CATALYST MODEL CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM AND A COMPU-NOX SYSTEM	28-May-08	0	29.1
N	1626	8	1	59 MMBTU/HR NATURAL GAS-FIRED BABCOCK & WILCOX D-TYPE BOILER WITH A TODD VARIFLAME STANDARD BURNER SERVED BY A CRI CATALYST MODEL CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM AND A COMPU-NOX SYSTEM	17-Aug-07	2.46	7.3
N	1626	8	2	59 MMBTU/HR NATURAL GAS-FIRED BABCOCK & WILCOX D-TYPE BOILER WITH A TODD VARIFLAME STANDARD BURNER SERVED BY A CRI CATALYST MODEL CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM AND A COMPU-NOX SYSTEM	06-Jun-12	2.2	1.2
N	1626	8	1	59 MMBTU/HR NATURAL GAS-FIRED BABCOCK & WILCOX D-TYPE BOILER WITH A TODD VARIFLAME STANDARD BURNER SERVED BY A CRI CATALYST MODEL CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM AND A COMPU-NOX SYSTEM	28-May-08	0	27.3
N	1626	8	1	59 MMBTU/HR NATURAL GAS-FIRED BABCOCK & WILCOX D-TYPE BOILER WITH A TODD VARIFLAME STANDARD BURNER SERVED BY A CRI CATALYST MODEL CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM AND A COMPU-NOX SYSTEM	03-Jun-09	0.3	4.2
N	1680	2	9	140 MMBTU/HR NEBRASKA MODEL NS-G-86 NATURAL GAS-FIRED BOILER WITH #2 FUEL OIL AS BACKUP EQUIPPED WITH A TODD VARIFLAME LOW-NOX BURNER AND A HITACHI SELECTIVE CATALYTIC REDUCTION SYSTEM (BOILER #2)	14-Aug-13	1.3	26

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N	1680	2	8	140 MMBTU/HR NEBRASKA MODEL NS-G-86 NATURAL GAS-FIRED BOILER WITH #2 FUEL OIL AS BACKUP EQUIPPED WITH A TODD VARIFLAME LOW-NOX BURNER AND A HITACHI SELECTIVE CATALYTIC REDUCTION SYSTEM (BOILER #2)	31-Aug-09	0.9	71.7
N	1680	2	9	140 MMBTU/HR NEBRASKA MODEL NS-G-86 NATURAL GAS-FIRED BOILER WITH #2 FUEL OIL AS BACKUP EQUIPPED WITH A TODD VARIFLAME LOW-NOX BURNER AND A HITACHI SELECTIVE CATALYTIC REDUCTION SYSTEM (BOILER #2)	04-Aug-15	0.5	5.1
N	1680	3	12	BABCOCK & WILCOX MODEL FH1462 BOILER (#4) WITH A 95 MMBTU/HR TAMPELLA-KEELER MODEL WB-1-28-FGR LOW-NOX BURNER AND FLUE GAS RECIRCULATION, ALL SERVED BY AN H-T CATALYST SELECTIVE CATALYTIC REDUCTION SYSTEM	14-Aug-13	1.6	4
N	1680	4	10	160 MMBTU/HR NEBRASKA MODEL NS-G-101 NATURAL GAS-FIRED BOILER WITH #2 FUEL OIL AS BACKUP EQUIPPED WITH A TODD VARIFLAME LOW-NOX BURNER AND AN SST EQUIPMENT COMPANY SELECTIVE CATALYTIC REDUCTION SYSTEM WITH A HITACHI CATALYST (BOILER #3)	14-Aug-14	2.3	6
C	1863	2	8	26.0 MMBTU/HR BABCOCK & WILCOX MODEL FM-1569 NATURAL GAS-FIRED BOILER WITH AN ADVANCED COMBUSTION TECHNOLOGY MODEL GIDEON MGW-24 ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR), AND SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM (WEST BOILER)	26-Dec-13	1.7	2.2
C	1863	2	8	26.0 MMBTU/HR BABCOCK & WILCOX MODEL FM-1569 NATURAL GAS-FIRED BOILER WITH AN ADVANCED COMBUSTION TECHNOLOGY MODEL GIDEON MGW-24 ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR), AND SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM (WEST BOILER)	30-Oct-14	2.3	2.7
C	1863	3	3	26.0 MMBTU/HR BABCOCK & WILCOX MODEL FM-1870 NATURAL GAS-FIRED BOILER WITH AN ADVANCED COMBUSTION TECHNOLOGY MODEL GIDEON MGW-24 ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR), AND SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM (EAST BOILER)	30-Oct-14	2.1	4.6
S	1896	8	0	57.153 MMBTU/HR CLEAVER BROOKS MODEL CBL-700X-1500-200ST NATURAL-GAS FIRED FIRETUBE BOILER WITH FLUE GAS RECIRCULATION (FGR) AND SELECTIVE CATALYTIC REDUCTION (SCR)	23-May-11	2.4	26.5
S	1896	8	0	57.153 MMBTU/HR CLEAVER BROOKS MODEL CBL-700X-1500-200ST NATURAL-GAS FIRED FIRETUBE BOILER WITH FLUE GAS RECIRCULATION (FGR) AND SELECTIVE CATALYTIC REDUCTION (SCR)	10-Jul-14	1.4	5.2

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N	1919	6	8	50.5 MMBTU/HR NEBRASKA MODEL NS-C-58 BOILER WITH A NATCOM MODEL ULTRA LOW NOX BURNER AND FLUE GAS RECIRCULATION SYSTEM	12-Apr-11	1.74	20.3
N	1933	19	3	29.92 MMBTU/HR CLEAVER BROOKS MODEL CB-700-700-200 NATURAL GAS-FIRED BOILER WITH A CLEAVER BROOKS MODEL INTEGRAL ULTRA LOW NOX BURNER	21-Oct-05	2.29	0
N	1976	13	2	86 MMBTU/HR NEBRASKA MODEL NOS-2A/S-55 NATURAL GAS FIRED BOILER #5 WITH A TODD VARIFLAME LOW NOX BURNER AND FLUE GAS RECIRCULATION (FGR) SERVED BY A CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM	15-Aug-08	2.4	0
N	1976	24	0	86 MMBTU/HR NEBRASKA MODEL NOS-2A-67 NATURAL GAS-FIRED RENTAL BOILER (BOILER #5) WITH A TODD COMBUSTION BURNER AND A WABASH SELECTIVE CATALYTIC REDUCTION SYSTEM	22-Aug-11	1.4	20
N	2092	6	5	29.3 MMBTU/HR CLEAVER BROOKS MODEL CB200700 BOILER WITH A LOW-NOX BURNER AND FLUE GAS RECIRCULATION (FGR) SYSTEM SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM. *** PERMIT DELETED - FJCRUZ 1/2/2013 ***	24-Nov-08	0.5	14.2
N	2092	6	5	29.3 MMBTU/HR CLEAVER BROOKS MODEL CB200700 BOILER WITH A LOW-NOX BURNER AND FLUE GAS RECIRCULATION (FGR) SYSTEM SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM. *** PERMIT DELETED - FJCRUZ 1/2/2013 ***	16-Nov-09	0.15	4.1
N	2107	1	8	48 MMBTU/HR NEBRASKA MODEL NS-C-53 NATURAL GAS, DENATURED YELLOW GREASE, OR YELLOW GREASE-FIRED BOILER WITH A TODD MODEL V651G LOW-NOX BURNER, A FLUE GAS RECIRCULATION SYSTEM (FGR), AND A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	21-Nov-06	2.47	0.01
N	2107	1	9	48 MMBTU/HR NEBRASKA MODEL NS-C-53 NATURAL GAS, DENATURED YELLOW GREASE, OR YELLOW GREASE-FIRED BOILER WITH A TODD MODEL V651G LOW-NOX BURNER, A FLUE GAS RECIRCULATION SYSTEM (FGR), AND A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	07-Nov-07	1.2	0
N	2107	1	16	48 MMBTU/HR NEBRASKA MODEL NS-C-53 NATURAL GAS, DENATURED YELLOW GREASE, OR YELLOW GREASE-FIRED BOILER WITH A TODD MODEL V651G LOW-NOX BURNER, A FLUE GAS RECIRCULATION SYSTEM (FGR), AND A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	16-Mar-17	1.56	1.06
N	2107	13	6	76.93 MMBTU/HR NEBRASKA MODEL NS-E-57 NATURAL GAS-FIRED BOILER EQUIPPED WITH A FLUE GAS RECIRCULATION (FGR) SYSTEM AND AMMONIA SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	16-Mar-17	1.12	1.23

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N	2149	4	5	60.7 MMBTU/HR NEBRASKA MODEL NS-C-61-ECON NATURAL GAS-FIRED BOILER WITH AN ALZETA MODEL CSB642R-LEA ULTRA LOW NOX BURNER	04-Mar-10	1.38	0
N	2232	6	5	72 MMBTU/HR NEBRASKA MODEL NS-E-56 NATURAL GAS FIRED BOILER EQUIPPED WITH A COMPU-NOX COMBUSTION CONTROL SYSTEM, A BENZ AIR MODEL CONDIMAX SELECTIVE CATALYTIC REDUCTION SYSTEM AND AN ECONOMIZER (SERIAL NO. 2D1830)	23-Feb-09	0.7	33.01
N	2232	7	7	168 MMBTU/HR NEBRASKA MODEL N2S-7-90 NATURAL GAS-FIRED BOILER EQUIPPED WITH A PEABODY MODEL APR-27 BURNER, A COMPU-NOX COMBUSTION CONTROL SYSTEM AND A NATIONWIDE BOILER INC, MODEL CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM WITH A CRI CATALYST	22-Jul-08	2.58	23.19
N	2232	7	8	168 MMBTU/HR NEBRASKA MODEL N2S-7-90 NATURAL GAS-FIRED BOILER EQUIPPED WITH A PEABODY MODEL APR-27 BURNER, A COMPU-NOX COMBUSTION CONTROL SYSTEM AND A NATIONWIDE BOILER INC, MODEL CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM WITH A CRI CATALYST	19-Jul-12	2.1	10.8
N	2232	7	7	168 MMBTU/HR NEBRASKA MODEL N2S-7-90 NATURAL GAS-FIRED BOILER EQUIPPED WITH A PEABODY MODEL APR-27 BURNER, A COMPU-NOX COMBUSTION CONTROL SYSTEM AND A NATIONWIDE BOILER INC, MODEL CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM WITH A CRI CATALYST	22-Jul-08	0.58	22.15
N	2232	8	5	168 MMBTU/HR NEBRASKA MODEL N2S-7-90, S/N A2745 NATURAL GAS-FIRED BOILER EQUIPPED WITH A TODD MODEL MISER-PAK 785 QED, S/N A-3000-1 BURNER SERVED AND A NATIONWIDE BOILER INC, MODEL CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM WITH A CRI CATALYST (BOILER # 6)	03-Jul-08	1.14	1.35
N	2232	8	5	168 MMBTU/HR NEBRASKA MODEL N2S-7-90, S/N A2745 NATURAL GAS-FIRED BOILER EQUIPPED WITH A TODD MODEL MISER-PAK 785 QED, S/N A-3000-1 BURNER SERVED AND A NATIONWIDE BOILER INC, MODEL CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM WITH A CRI CATALYST (BOILER # 6)	22-Jun-09	1.7	0
N	2232	14	3	120 MMBTU/HR NATURAL GAS-FIRED INDUSTRIAL STEAM BOILER, MODEL DS35-112, S/N 4202, EQUIPPED WITH A PEABODY MODEL APR BURNER PACKAGE, AN INDUCED FLUE GAS RECIRCULATION SYSTEM AND A BENZ AIR MODEL CONDIMAX SELECTIVE CATALYTIC REDUCTION SYSTEM	22-Jul-08	1.09	1.06

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N	2232	14	5	120 MMBTU/HR NATURAL GAS-FIRED INDUSTRIAL STEAM BOILER, MODEL DS35-112, S/N 4202, EQUIPPED WITH A PEABODY MODEL APR BURNER PACKAGE, AN INDUCED FLUE GAS RECIRCULATION SYSTEM AND A BENZ AIR MODEL CONDIMAX SELECTIVE CATALYTIC REDUCTION SYSTEM	22-Jul-15	1.9	4.7
C	3275	3	0	33.66 MMBTU/HR CLEAVER-BROOKS MODEL NBI-800-250-LN-SKID NATURAL GAS-FIRED BOILER EQUIPPED WITH A CLEAVER-BROOKS MODEL CBI.700.800.250 LOW NOX BURNER, FLUE GAS RECIRCULATION SYSTEM, AND O2 CONTROLLER SERVED BY A NATIONWIDE MODEL CATASTAK SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	15-Aug-12	0.1	5
C	3275	3	0	33.66 MMBTU/HR CLEAVER-BROOKS MODEL NBI-800-250-LN-SKID NATURAL GAS-FIRED BOILER EQUIPPED WITH A CLEAVER-BROOKS MODEL CBI.700.800.250 LOW NOX BURNER, FLUE GAS RECIRCULATION SYSTEM, AND O2 CONTROLLER SERVED BY A NATIONWIDE MODEL CATASTAK SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	31-Aug-12	1.4	1
C	3275	3	1	33.66 MMBTU/HR CLEAVER-BROOKS MODEL NBI-800-250-LN-SKID NATURAL GAS-FIRED BOILER EQUIPPED WITH A CLEAVER-BROOKS MODEL CBI.700.800.250 LOW NOX BURNER, FLUE GAS RECIRCULATION SYSTEM, AND O2 CONTROLLER SERVED BY A NATIONWIDE MODEL CATASTAK SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	12-Sep-13	1.1	1
C	3275	3	1	33.66 MMBTU/HR CLEAVER-BROOKS MODEL NBI-800-250-LN-SKID NATURAL GAS-FIRED BOILER EQUIPPED WITH A CLEAVER-BROOKS MODEL CBI.700.800.250 LOW NOX BURNER, FLUE GAS RECIRCULATION SYSTEM, AND O2 CONTROLLER SERVED BY A NATIONWIDE MODEL CATASTAK SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	11-Aug-16	2.4	3
S	3550	1	4	180 MMBTU/HR NATURAL GAS/PROPANE FIRED CLEAVER BROOKS MODEL DFE 132 BOILER WITH NAT COM P-180-G-33-1624 MODEL BURNER AND A SHELL DENOX SELECTIVE CATALYTIC REDUCTION SYSTEM	29-May-09	1.1	0.1
S	3550	1	5	180 MMBTU/HR NATURAL GAS/PROPANE FIRED CLEAVER BROOKS MODEL DFE 132 BOILER WITH NAT COM P-180-G-33-1624 MODEL BURNER AND A SHELL DENOX SELECTIVE CATALYTIC REDUCTION SYSTEM	05-Aug-11	2.5	0.18
S	3550	1	5	180 MMBTU/HR NATURAL GAS/PROPANE FIRED CLEAVER BROOKS MODEL DFE 132 BOILER WITH NAT COM P-180-G-33-1624 MODEL BURNER AND A SHELL DENOX SELECTIVE CATALYTIC REDUCTION SYSTEM	21-Jun-12	2.2	21.5
S	3550	1	4	180 MMBTU/HR NATURAL GAS/PROPANE FIRED CLEAVER BROOKS MODEL DFE 132 BOILER WITH NAT COM P-180-G-33-1624 MODEL BURNER AND A SHELL DENOX SELECTIVE CATALYTIC REDUCTION SYSTEM	17-Dec-08	0.7	0.1

[1] The equipment description is the description listed in the most current permit and not necessarily the equipment that was installed at the time of the test.

Permit				Equipment Description[1]	Date Test Performed	NOx Results (ppmv @ 3% O2)	CO Results (ppmv @ 3% O2)
S	3550	2	4	180 MMBTU/HR NATURAL GAS/PROPANE FIRED CLEAVER BROOKS MODEL DFE 132 BOILER WITH NAT COM P-180-G-33-1624 MODEL BURNER AND A SHELL DENOX SELECTIVE CATALYTIC REDUCTION SYSTEM	28-May-09	2.3	1.2
S	3550	2	4	180 MMBTU/HR NATURAL GAS/PROPANE FIRED CLEAVER BROOKS MODEL DFE 132 BOILER WITH NAT COM P-180-G-33-1624 MODEL BURNER AND A SHELL DENOX SELECTIVE CATALYTIC REDUCTION SYSTEM	07-Oct-08	2	10
S	3550	2	4	180 MMBTU/HR NATURAL GAS/PROPANE FIRED CLEAVER BROOKS MODEL DFE 132 BOILER WITH NAT COM P-180-G-33-1624 MODEL BURNER AND A SHELL DENOX SELECTIVE CATALYTIC REDUCTION SYSTEM	27-May-10	2	1.1
S	3550	2	5	180 MMBTU/HR NATURAL GAS/PROPANE FIRED CLEAVER BROOKS MODEL DFE 132 BOILER WITH NAT COM P-180-G-33-1624 MODEL BURNER AND A SHELL DENOX SELECTIVE CATALYTIC REDUCTION SYSTEM	08-Jul-11	1.2	0.6
S	3550	2	5	180 MMBTU/HR NATURAL GAS/PROPANE FIRED CLEAVER BROOKS MODEL DFE 132 BOILER WITH NAT COM P-180-G-33-1624 MODEL BURNER AND A SHELL DENOX SELECTIVE CATALYTIC REDUCTION SYSTEM	24-Jun-15	2.5	0
S	3550	8	0	99.9 MMBTU/HR NATURAL GAS-FIRED BABCOCK & WILCOX MODEL FM103-79 BOILER WITH A TODD COMBUSTION VARIFLAME LOW-NOX BURNER NATIONWIDE BOILER CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM	06-Aug-08	1.32	0.4
S	3550	14	0	92.1 MMBTU/HR NATURAL GAS-FIRED CB NEBRASKA BOILER MODEL NOS-2A-55 BOILER WITH A FABER BURNER COMPANY MODEL WB-1-30 LOW NOX BURNER NATIONWIDE BOILER CATASTAK SELECTIVE CATALYTIC REDUCTION SYSTEM AND FGR	17-Jun-16	1.1	9
C	3794	1	3	20.4 MMBTU/HR CLEAVER BROOKS MODEL #CBLE 700-500-250ST NATURAL GAS-FIRED BOILER WITH A CLEAVER BROOKS BURNER MODEL CBLE700-500 ULTRA LOW NOX BURNER	28-Jun-11	1.84	0
C	3955	20	0	50.0 MMBTU/HR CLEAVER-BROOKS MODEL CBL 700X-1200 NATURAL GAS-FIRED BOILER WITH AN ULTRA-LOW NOX BURNER AND HALDOR TOPSOE SELECTIVE CATALYTIC REDUCTION SYSTEM	04-Aug-11	0.9	2.08
S	4088	8	0	37.4 MMBTU/HR NATURAL GAS-FIRED BOILER WITH ALZETA LOW NOX BURNER	18-Nov-04	0	6.21
S	6971	15	0	32.7 MMBTU/HR NATURAL GAS-FIRED CLEAVER BROOKS MODEL CBEX-700-800-200ST BOILER WITH SELECTIVE CATALYTIC REDUCTION (SCR)	22-Jul-15	1.7	0.1

[1] The equipment description is the description listed in the most current permit and not necessarily the equipment that was installed at the time of the test.

Permit				Equipment Description[1]	Date Test Performed	NOx Results (ppmv @ 3% O2)	CO Results (ppmv @ 3% O2)
S	6971	15	0	32.7 MMBTU/HR NATURAL GAS-FIRED CLEAVER BROOKS MODEL CBEX-700-800-200ST BOILER WITH SELECTIVE CATALYTIC REDUCTION (SCR)	15-Aug-14	2.19	0
C	7336	2	6	151.0 MMBTU/HR NEBRASKA MODEL NB 500D-85 NATURAL GAS-FIRED BOILER WITH A NATCOM MODEL P 151-G-40-2027 LOW NOX BURNER, ECONOMIZER, O2 CONTROLLER, AND SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	24-May-17	2.5	1.1
S	8423	1	0	29.3 MMBTU/HR CLEAVER-BROOKS MODEL CB200-700 NATURAL GAS-FIRED BOILER WITH A CLEAVER-BROOKS MODEL CB200-700 LOW-NOX BURNER AND SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	02-Oct-15	1	5.62
S	8423	1	0	29.3 MMBTU/HR CLEAVER-BROOKS MODEL CB200-700 NATURAL GAS-FIRED BOILER WITH A CLEAVER-BROOKS MODEL CB200-700 LOW-NOX BURNER AND SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	27-Oct-14	0.9	10.2
C	8609	3	0	25.2 MMBTU/HR HURST MODEL S5-X-600-250 NATURAL GAS/LPG-FIRED BOILER EQUIPPED WITH A WEISHAUPT MODEL G70/3-A, ZM-NR LOW-NOX BURNER AND SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	03-Jan-14	2.3	1.1
C	8609	3	0	25.2 MMBTU/HR HURST MODEL S5-X-600-250 NATURAL GAS/LPG-FIRED BOILER EQUIPPED WITH A WEISHAUPT MODEL G70/3-A, ZM-NR LOW-NOX BURNER AND SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	20-Jan-15	1.6	1.1

[1] The equipment description is the description listed in the most current permit and not necessarily the equipment that was installed at the time of the test.

APPENDIX I
HRA/AAQA Summary

San Joaquin Valley Air Pollution Control District
Risk Management Review and Ambient Air Quality Analysis

To:	Jesse Garcia – Permit Services
From:	Kyle J Melching – Technical Services
Date:	September 19, 2019
Facility Name:	DARLING INGREDIENTS, INC
Location:	SOUTHEAST CORNER OF JENSEN & POLK AVE, FRESNO
Application #(s):	C-9251-1-0, -2-0, -3-0, -4-0, -5-0
Project #:	C-1172884

1. Summary

1.1 RMR

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
1*	7.25	0.16	0.00	1.56E-09	No	Yes
2*	7.25	0.16	0.00	1.56E-09	No	Yes
3	0.00	0.00	0.00	0.00E+00	No	Yes
4	0.13	0.00	0.00	1.91E-08	No	Yes
5	0.13	0.00	0.00	2.57E-08	No	Yes
Project Totals	14.76	0.32	0.01	5.38E-08		
Facility Totals	>1	0.32	0.01	5.38E-08		

*Units 1 and 2 share a combined risk due to sharing cross flow air scubber and regenerative thermal oxidizer.

1.2 AAQA

Pollutant	Air Quality Standard (State/Federal)				
	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass		Pass		
NO_x	Pass				Pass
SO_x	Pass	Pass		Pass	Pass
H_2S	Pass				
PM10				Pass	Pass
PM2.5				Pass	Pass

Notes:
1. Results were taken from the attached AAQA Report.
2. The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2) unless otherwise noted below.
3. Modeled PM10 concentrations were below the District SIL for non-fugitive sources of 5 $\mu g/m^3$ for the 24-hour average concentration and 1 $\mu g/m^3$ for the annual concentration.
4. Modeled PM2.5 concentrations were above the District SIL for non-fugitive sources of 1.2 $\mu g/m^3$ for the 24-hour average concentration and 0.2 $\mu g/m^3$ for the annual concentration; however, the facility will provide PM2.5 offsets for the project down to zero.
5. The California Ambient Air Quality Standard for H_2S is 42 $\mu g/m^3$ for 1-hour.

To ensure that human health risks will not exceed District allowable levels; the following shall be included as requirements for:

Units # 1-0, 2-0, 4-0, & 5-0

1. The exhaust stacks 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]

2. Project Description

Technical Services received a request on August 14, 2019 to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for the following:

- Unit -1-0: FOOD PROCESSING BYPRODUCT CONVERSION OPERATION (LINE #1) WITH ONE RAW MATERIAL FEED HOPPER AND TRANSFER SYSTEM, ONE DUPPS MODEL 320U COOKER WITH ENTRAINMENT TRAP, DISCHARGE SCREWS, AND DRAINERS, ONE AIR-COOLED CONDENSER, ONE DRAINER/SEDIMENTER, ONE CENTRIFUGE, THREE CRAX PRESSES, ONE CRAX HOPPER, ONE FINISHING CENTRIFUGE, ONE SCREEN AND ONE CRAX GRINDER/HAMMERMILL, A WASTEWATER TREATMENT SYSTEM WITH ROTARY SCREEN, EQUALIZATION TANK AND DISSOLVED AIR FLOATATION SYSTEM SHARED WITH PERMIT C-9251-2, AND AN EMISSIONS/ODOR CONTROL SYSTEM CONSISTING OF A VENTURI SCRUBBER, A TWIN PACKED TOWER SCRUBBER AND A 4 MMBTU/HR REGENERATIVE THERMAL OXIDIZER (RTO) IN SERIES (EMISSIONS/ODOR CONTROL SYSTEM SHARED WITH PERMIT C-9251-2) AND PERMIT EXEMPT FAT STORAGE TANKS (NOT A SOURCE OF AIR CONTAMINANTS). ROOM AIR WILL BE SERVED BY A 100,000 CFM CROSS-FLOW SCRUBBER SHARED WITH PERMIT C-9251-2
- Unit -2-0: FOOD PROCESSING BYPRODUCT CONVERSION OPERATION (LINE #2) WITH ONE RAW MATERIAL FEED HOPPER AND TRANSFER SYSTEM, ONE DUPPS MODEL 320U COOKER WITH ENTRAINMENT TRAP, DISCHARGE SCREWS, AND DRAINERS, ONE AIR-COOLED CONDENSER, ONE DRAINER/SEDIMENTER, ONE CENTRIFUGE, THREE CRAX PRESSES, ONE CRAX HOPPER, ONE FINISHING CENTRIFUGE, ONE SCREEN AND ONE CRAX GRINDER/HAMMERMILL, A WASTEWATER TREATMENT SYSTEM WITH ROTARY SCREEN, EQUALIZATION TANK AND DISSOLVED AIR FLOATATION SYSTEM SHARED WITH PERMIT C-9251-1, AND AN EMISSIONS/ODOR CONTROL SYSTEM CONSISTING OF A VENTURI SCRUBBER, A TWIN PACKED TOWER SCRUBBER AND A 4 MMBTU/HR REGENERATIVE THERMAL OXIDIZER (RTO) IN SERIES (EMISSIONS/ODOR CONTROL SYSTEM SHARED WITH PERMIT C-9251-1) AND PERMIT EXEMPT FAT STORAGE TANKS (NOT A SOURCE OF AIR CONTAMINANTS). ROOM AIR WILL BE SERVED BY A 100,000 CFM CROSS-FLOW SCRUBBER SHARED WITH PERMIT C-9251-1
- Unit -3-0: PROTEIN STORAGE AND LOADOUT OPERATION WITH TWO 18,850 CU FT STORAGE SILOS, EACH SERVED BY A BIN VENT FILTER
- Unit -4-0: 63 MMBTU/HR VICTORY BOILER MODEL F2-1500HP-S200 NATURAL GAS/BIOGAS-FIRED BOILER WITH A WEBSTER MODEL HDR(X)-RF23-750 LOW-NOX BURNER FLUE GAS RECIRCULATION (FGR) SYSTEM AND WITH A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM

- Unit -5-0: 63 MMBTU/HR VICTORY BOILER MODEL F2-1500HP-S200 NATURAL GAS/BIOGAS-FIRED BOILER WITH A WEBSTER MODEL HDR(X)-RF23-750 LOW-NOX BURNER FLUE GAS RECIRCULATION (FGR) SYSTEM AND WITH A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM

3. RMR Report

3.1 Analysis

The District performed an analysis pursuant to the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015) to determine the possible cancer and non-cancer health impact to the nearest resident or worksite. This policy requires that an assessment be performed on a unit by unit basis, project basis, and on a facility-wide basis. If a preliminary prioritization analysis demonstrates that:

- A unit's prioritization score is less than the District's significance threshold and;
- The project's prioritization score is less than the District's significance threshold and;
- The facility's total prioritization score is less than the District's significance threshold

Then, generally no further analysis is required.

The District's significant prioritization score threshold is defined as being equal to or greater than1.0. If a preliminary analysis demonstrates that either the unit(s) or the project's or the facility's total prioritization score is greater than the District threshold, a screening or a refined assessment is required

If a refined assessment is greater than one in a million but less than 20 in one million for carcinogenic impacts (Cancer Risk) and less than 1.0 for the Acute and Chronic hazard indices(Non-Carcinogenic) on a unit by unit basis, project basis and on a facility-wide basis the proposed application is considered less than significant. For unit's that exceed a cancer risk of 1 in one million, Toxic Best Available Control Technology (TBACT) must be implemented. No toxics were associated with unit -3 protein load out operations.

Toxic emissions for this project were calculated using the following methods:

- Toxic emissions for this proposed unit were calculated using 2001 Ventura County's Air Pollution Control District's emission factors for Natural Gas Fired external combustion.
- Toxic emissions for this proposed unit were calculated using 2001 Ventura County's Air Pollution Control District emission factors for Natural Gas Fired external combustion and the 1996 speciation of Pt Loma Waste Water Treatment Plant Raw Gas by the SDAPCD.
- Toxic emission for VOC base emissions from animal rendering facilities from a 2017 source test of Sacramento Rendering Company by Best Environmental. Worst case of scrubber runs used.
- Ammonia and hydrogen sulfide emission were calculated and provided by the processing engineer

These emissions were input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy, risks from the proposed unit's toxic emissions were prioritized using the procedure in the 2016 CAPCOA Facility Prioritization Guidelines. The prioritization score for this proposed facility was

greater than 1.0 (see RMR Summary Table). Therefore, a refined health risk assessment was required.

The AERMOD model was used, with the parameters outlined below and meteorological data for 2015-2017 from Madera (rural dispersion coefficient selected) to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the SHARP Program, which then used the Air Dispersion Modeling and Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Source Process Rates					
Unit ID	**Process ID**	**Process Material**	**Process Units**	**Hourly Process Rate**	**Annual Process Rate**
1	1	Natural Gas Combustion	MMscf	4.0E-03	35
1	2	Digester Gas Combustion	MMscf	4.0E-03	35
1	3	Hydrogen Sulfide	lb	0.4	3532
1	4	RTO Animal Rendering VOCs	lb	0.18	1,356
1	5	CFS Animal Rendering VOCs	lb	0.81	7,091
4	1	Natural Gas Combustion	MMscf	4.0E-03	35
4	2	Digester Gas Combustion	MMscf	4.0E-03	35
4	3	Ammonia	lb	0.28	2,481
5	1	Natural Gas Combustion	MMscf	4.0E-03	35
5	2	Digester Gas Combustion	MMscf	4.0E-03	35
5	3	Ammonia	lb	0.28	2,481

Point Source Parameters						
Unit ID	**Unit Description**	**Release Height (m)**	**Temp. (°K)**	**Exit Velocity (m/sec)**	**Stack Diameter (m)**	**Vertical/ Horizontal/ Capped**
1&2	Cross Flow Scrubber	21.34	294	71.87	0.91	Vertical
1&2	RTO	30.48	1033	10.79	0.91	Vertical
4	Boiler	24.38	443	39.85	0.91	Vertical
5	Boiler	24.38	443	39.85	0.91	Vertical

4. AAQA Report

The District modeled the impact of the proposed project on the National Ambient Air Quality Standard (NAAQS) and/or California Ambient Air Quality Standard (CAAQS) in accordance with District Policy APR-1925 (Policy for District Rule 2201 AAQA Modeling) and EPA's Guideline for Air Quality Modeling (Appendix W of 40 CFR Part 51). The District uses a progressive three level approach to perform AAQAs. The first level (Level 1) uses a very conservative approach. If this analysis indicates a likely exceedance of an AAQS or Significant Impact Level (SIL), the analysis proceeds to the second level (Level 2) which implements a more refined approach. For the 1-hour NO_2 standard, there is also a third level that can be implemented if the Level 2 analysis indicates a likely exceedance of an AAQS or SIL.

The modeling analyses predicts the maximum air quality impacts using the appropriate emissions for each standard's averaging period. Required model inputs for a refined AAQA include

background ambient air quality data, land characteristics, meteorological inputs, a receptor grid, and source parameters including emissions. These inputs are described in the sections that follow.

Ambient air concentrations of criteria pollutants are recorded at monitoring stations throughout the San Joaquin Valley. Monitoring stations may not measure all necessary pollutants, so background data may need to be collected from multiple sources. The following stations were used for this evaluation:

Monitoring Stations				
Pollutant	**Station Name**	**County**	**City**	**Measurement Year**
CO	Fresno-Drummond	Fresno	Fresno	2015
NOx	Fresno-Drummond	Fresno	Fresno	2016
PM10	Fresno-Drummond	Fresno	Fresno	2016
PM2.5	Fresno-Pacific College	Fresno	Fresno	2016
SOx	Fresno - Garland	Fresno	Fresno	2016

Technical Services performed modeling for directly emitted criteria pollutants with the emission rates below:

Emission Rates (lbs/hour)						
Unit ID	**Process**	**NOx**	**SOx**	**CO**	**PM10**	**PM2.5**
1&2 Scrubber	1	0.00	0.00	0.00	0.86	0.47
1&2 RTO	1	0.25	1.19	0.48	0.12	0.12
3	1	0	0	0	0.009	0.005
4	1	0.54	0.21	2.72	0.19	0.19
5	1	0.54	0.21	2.72	0.19	0.19

Emission Rates (lbs/year)						
Unit ID	**Process**	**NOx**	**SOx**	**CO**	**PM10**	**PM2.5**
1&2 Scrubber	1	0	0	0	7,509	4,130
1&2 RTO	1	1,799	8,734	3,572	860	860
3	1	0	0	0	81	45
4	1	4,691	1,876	23,823	1,656	1,656
5	1	4,691	1,876	23,823	1,656	1,656

The AERMOD model was used to determine if emissions from the project would cause or contribute to an exceedance of any state of federal air quality standard. The parameters outlined below and meteorological data for 2015-2017 from Madera (rural dispersion coefficient selected) were used for the analysis:

The following parameters were used for the review:

Point Source Parameters						
Unit ID	**Unit Description**	**Release Height (m)**	**Temp. (°K)**	**Exit Velocity (m/sec)**	**Stack Diameter (m)**	**Vertical/ Horizontal/ Capped**
1	Cross Flow Scrubber	21.34	294	71.87	0.91	Vertical
2	RTO	30.48	1033	10.79	0.91	Vertical
4	Boiler	24.38	443	39.85	0.91	Vertical
5	Boiler	24.38	443	39.85	0.91	Vertical

Volume Source Parameters					
Unit ID	**Unit Description**	**Release Height (m)**	**Side Length (m)**	**Initial Lateral Dimension (m)**	**Initial Vertical Dimension (m)**
3	Protein Load out & Storage	2.13	5.28	1.23	5.1

5. Conclusion

5.1 RMR

The cumulative acute and chronic indices for this facility, including this project, are below 1.0; and the cumulative cancer risk for this facility, including this project, is less than 20 in a million. In addition, the cancer risk for each unit in this project is less than 1.0 in a million. **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 requirements listed on page 1 of this report must be included for this proposed unit.

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

5.2 AAQA

Criteria emissions from CO, NO_x, SO_x, PM_{10} and H_2S from the proposed equipment will not cause or contribute significantly to a violation of the State and National AAQS.

Modeled PM2.5 concentrations were above the District SIL for non-fugitive sources of 1.2 µg/m3 for the 24-hour average concentration and 0.2 µg/m3 for the annual concentration; however, the facility will provide PM2.5 offsets for the project down to zero.

6. Attachments

A. Modeling request from the project engineer

B. Additional information from the applicant/project engineer

C. Prioritization score w/ toxic emissions summary

D. Facility Summary

APPENDIX J
Hazardous Air Pollutant Emissions

Summary of Hazardous Air Pollutant Emissions

Permit #	Annual Emissions (lb/year)	Annual Emissions (tons/year)
C-9251-1*	35,815	18
C-9251-2*		
C-9251-3*		
C-9251-4**	34	0
C-9251-5**	34	0
Total		17

* As a worst case, all emissions from these units are assumed to be HAP emissions (except H_2S emissions) even though HAP emissions are expected to only be a fraction of the total emissions: (2,711 + 13,088 + 5,528 + 5,371 + 9,117) lb/year = 35,815 lb/year

** These emission are calculated in the table below:

HAP	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions (lb/hr) [2]	Maximum Annual Emissions (lb/yr) [3]	Maximum Annual Emissions (tpy)
Acetaldehyde	3.10E-06	1.95E-04	2	0.0
Acrolein	2.70E-06	1.70E-04	1	0.0
Benzene	5.80E-06	3.65E-04	3	0.0
1,3-Butadiene	n/a	--	--	--
Ethyl benzene	6.90E-06	4.35E-04	4	0.0
Formaldehyde	1.23E-05	7.75E-04	7	0.0
Hexane	4.60E-06	2.90E-04	3	0.0
Naphthalene	3.00E-07	1.89E-05	0	0.0
PAHs	1.00E-07	6.30E-06	0	0.0
Propylene Oxide	n/a	--	--	--
Toluene	2.65E-05	1.67E-03	15	0.0
Xylene	6.40E-08	4.03E-06	0	0.0
Total			**34**	**0.0**

Notes:

1. These emission factors are obtained from Ventura County APCD, "AB2588 Combustion Emission Factors" natural gas fired external combustion equipment 10-100 MMBtu/hr, available at http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf
2. Hourly emissions = EF (lb/MMBtu) x 63 (MMBtu/hr)
3. Annual emissions = EF (lb/MMBtu) x 63 (MMBtu/hr) x 8,760 (hr/yr)