San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

June 22, 2023

Ms. Kristie Wdowiak
Frito-Lay, Inc.
600 Garner Rd
Modesto, CA 95357

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
Facility Number: N-1919, Project Number: N-1230113

Dear Ms. Wdowiak:

Enclosed for your review is the District's analysis of an application for Authority to Construct for the facility identified above. You requested that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The proposed project to re-issue Authority to Construct for the Dorito Tortilla Chip snack manufacturing line (N-1919-20) and Onion Fried snack manufacturing line (N-1919-22).

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

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

Thank you for your cooperation in this matter.

Sincerely,

Brian Clements
Director of Permit Services

Enclosures

cc: Courtney Graham, CARB (w/enclosure) via email
cc: Gerardo Rios, EPA (w/enclosure) via EPS

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

Snack Food Manufacturing Lines

Facility Name:	Frito-Lay, Inc.	Date:	June 22, 2023
Mailing Address:	600 Garner Rd Modesto, CA 95357	Engineer:	Jag Kahlon
		Lead Engineer:	James Harader
Contact Person:	M. Scott Weaver, Consultant		
Telephone:	(626) 720-2015		
Fax:	N/A		
E-Mail:	msweaver@ramboll.com		
Application #(s):	N-1919-20-1 and '-22-1		
Project #:	N-1230113		
Deemed Complete:	February 7, 2023		

I. Proposal

Under project N-1203844, Frito-Lay, Inc. was issued an Authority to Construct (ATC) N-1919-20-0 to install a Dorito Tortilla Chip (DTC) snack food manufacturing line. This snack food manufacturing line has multiple units including a grain cleaner served by a cyclone vented to a dust collector system, four steam-operated cooking kettles for corn wash, soak and cook system, a steam-heated vegetable oil fryer with an oil mist eliminator (OME), an 8.5 MMBtu/hr natural gas-fired oven with low-NOx burner system, an ambient air cooler served by a high velocity filtration system, and a seasoning system vented to a Tri-Mer 28-H orifice venturi water scrubber for particulate matter control. ATC N-1919-20-0 required Frito-Lay, Inc. to verify NOx and CO emissions from the oven via source testing. Frito-Lay, Inc. was unable to demonstrate compliance with the CO emission limit of 35 lb/MMscf of natural gas. Therefore, they have proposed to increase the CO emission limit to 300 lb/MMscf of natural gas.

Since the facility was unable to comply with the permitted CO limit for the oven under ATC N-1919-20-0, this previously issued ATC cannot be implemented into a Permit to Operate (PTO). Conservatively, a new ATC will be issued for the oven and the other units in the DTC snack food manufacturing line, and the equipment will be treated as new emission units under District Rule 2201 - New and Modified Stationary Source Review Rule (NSR Rule). The ATC issued under this project will cancel and replace the previously issued ATC N-1919-20-0.

Subsequent to ATC N-1919-20-0, Frito-Lay, Inc. was issued an ATC N-1919-22-0 for Onion Fried Snack (OFS) Manufacturing Line under project N-1220099, where contribution of emissions from N-1919-20-0 were included in evaluating Federal and District offset quantities for VOC emissions. In order to ensure that Federal and District offset quantiles for VOC emissions increase are calculated correctly, ATC N-1919-22-0 for Onion Fried Snack (OFS) Manufacturing Line (issued under project N-1220099) will also be re-issued as part of this project. As a conservative measure, the units in the OFS line will also be evaluated as new

emission units under District Rule 2201 - New and Modified Stationary Source Review Rule (NSR Rule).

As noted in project N-1220099, the OFS line consists of three bag dump stations each vented to its own filter system, three use bins each vented to its own filter system, one hopper vented to a filter system, one blender vented to a filter system, ten extruders, a steam-operated closed top vegetable oil fryer vented through an oil mist eliminator (OME) system, one snack chip cooler (ambient air cooler) vented through a high velocity filtration system, and a OFS seasoning system consisting of a dump station and tumbler vented to a Tri-Mer 10-H (or equivalent) orifice water scrubber for particulate matter control. There will also be an electric bench-style oven, which will be used to heat-up dies used in extruders, so that they can be cleaned easily. No emissions are expected from the electric bench style oven; therefore, this unit is not subject to District permit requirements.

Frito-Lay, Inc. received their renewed Title V Permit on December 3, 2018. This modification can be classified as a Title V significant modification pursuant to Rule 2520, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the ATC permits. Frito-Lay, Inc. must apply to administratively amend their Title V permit.

The draft ATC is included in **Appendix A**.

II. Applicable Rules

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 4201	Particulate Matter Concentration (12/17/92)
Rule 4202	Particulate Matter – Emission Rate (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/92)
Rule 4309	Dryers, dehydrators, and Ovens (12/15/05)
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 facility is located at 600 Garner Rd in Modesto, 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

Frito-Lay, Inc. is in the business of producing various snack food items including potato chips, corn chips, fried cheese puffs, etc.

V. Equipment Listing

N-1919-20-1: DORITO TORTILLA CHIP PROCESS LINE CONSISTS OF A SCHENCK (OR EQUIVALENT MAKE AND MODEL) CORN CLEANER SERVED BY A CYCLONE VENTED TO A DUST COLLECTION SYSTEM, FOUR KETTLES (STEAM-HEATED) FOR CORN WASH, SOAK AND COOK SYSTEM, A HEAT & CONTROL MODEL DTC-4500 (OR EQUIVALENT MAKE AND MODEL)VEGETABLE OIL FRYER (STEAM HEATED) WITH OIL MIST ELIMINATOR, AN IET COMBUSTION LLC MODEL 10D-400-S-F (OR EQUIVALENT MAKE AND MODEL) 8.5 MMBTU/HR OVEN WITH LOW-NOX BURNER, A HEAT & CONTROL MODEL AAC-7212 (OR EQUIVALENT MAKE AND MODEL)AMBIENT AIR COOLER SERVED BY HIGH VELOCITY FILTRATION SYSTEM, AND A SEASONING SYSTEM VENTED TO A TRI-MER 28-H (OR EQUIVALENT MAKE AND MODEL) WATER SCRUBBER

N-1919-22-1: ONION FRIED SNACK (OFS) MANUFACTURING LINE CONSIST OF THREE SHICK ESTEVE (OR EQUIVALENT MAKE AND MODEL) BAG DUMP STATIONS EACH VENTED TO ITS OWN SHICK ESTEVE IQC (OR EQUIVALENT MAKE AND MODEL) FILTER SYSTEM, THREE USE BINS EACH VENTED TO ITS OWN SHICK ESTEVE IQC (OR EQUIVALENT MAKE AND MODEL) FILTER SYSTEM, ONE HOPPER VENTED TO SHICK ESTEVE IQC (OR EQUIVALENT MAKE AND MODEL), ONE BLENDER VENTED TO A SHICK ESTEVE MQC (OR EQUIVALENT MAKE AND MODEL), TEN EXTRUDERS, A STEAM-OPERATED CLOSED-TOP VEGETABLE OIL FRYER VENTED THROUGH AN OIL MIST ELIMINATOR (OME), A HEAT & CONTROL (OR EQUIVALENT MAKE AND MODEL) AMBIENT AIR COOLER SERVED BY HIGH VELOCITY FILTRATION SYSTEM, AND A SEASONING SYSTEM CONSISTING OF A DUMP STATION AND TUMBLER VENTED TO A TRI-MER 10-H (OR EQUIVALENT MAKE AND MODEL) ORIFICE WATER SCRUBBER, AND A PERMIT-EXEMPT ELECTRIC OVEN FOR HEATING EXTRUDER DIES

VI. Emission Control Technology Evaluation

N-1919-20-1

Corn cleaner with bin vent filter

Per the applicant, the grain cleaner will have a cyclone which is ducted to a dust collector. The dust collector will reduce particulate matter emissions by at least 99%. To ensure filters are maintained properly, visible emissions will be limited to 5% opacity per guidance in District Policy SSP-1005 (9/16/98).

Corn wash, soak, and steam-operated cooking kettles

These units are not expected to emit any air contaminants.

Steam-heated vegetable oil fryer with oil mist eliminator (OME)

PM:

Frito-Lay has proposed to use oil mist eliminators to reduce filterable and condensable particulate matter emissions. Per the manufacturer, OME in this line are expected to reduce at least 95% of the particulate matter.

VOC:

Frito-Lay is not proposing any add-on emissions control equipment to reduce VOC emissions.

8.5 MMBtu/hr oven with low-NOx burner

NOx:

Low-NOx burners reduce NOx 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-NOx 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 NOx. 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.

SOx, PM10, CO and VOC:

The proposed tortilla chip oven cooks chips primarily via radiant heat transfer using infrared burners. Consequently, no emissions are expected from the chip cooking process. The only emissions generated are from the combustion of fuel to provide process heat. To reduce these emissions, the applicant has proposed to fire the oven on natural gas fuel.

Ambient air cooler with high velocity filtration system

PM10:

The air from cooler will be discharged through high efficiency filters. These filters are expected to reduce at least 70% of the particulate matter emissions. To ensure the filters are maintained properly, visible emissions from the ambient air cooler will be limited to 5% opacity per guidance in District Policy SSP-1005 (9/16/98).

Seasoning system with a Tri-Mer 28-H orifice water scrubber
PM10:
Per the manufacturer specification sheet, this scrubber will reduce at least 99% of the particulate matter.

N-1919-22-1:
Bag dump stations, use bins, a hopper and a blender
Each unit will be served by a bag filter system. Each bag filter system is expected to reduce at least 99% of the particulate matter emissions. To ensure each bag filter system is maintained properly, visible emissions from each bag filter will be limited to 5% opacity per guidance in District Policy SSP-1005 (9/16/98).

Extruders
Per the applicant, the extruders are not expected to generate any particulate matter emissions. Thus, no emission controls are proposed for these units.

Steam-heated vegetable oil fryer equipped with oil mist eliminator (OME)
Frito-Lay has proposed to use an OME system to reduce filterable and condensable particulate matter emissions, as well as, VOC emissions. Per the applicant, the proposed OME system will have a minimum control efficiency of 95% for PM_{10} emissions and 85% for VOC emissions.

Snack chip cooler (ambient air cooler) with high velocity filtration system
The air from the snack chip cooler will be discharged through high efficiency filters. These filters are expected to reduce particulate matter emissions by at least 70%. To ensure filters are maintained properly, visible emissions from the exhaust of the ambient air cooler will be limited to 5% opacity per guidance in District Policy SSP-1005 (9/16/98).

Seasoning system with a Tri-Mer 10-H orifice water scrubber
Per applicant, the Tri-Mer 10-H water scrubber is expected to reduce particulate matter by at least 95%.

VII. General Calculations

A. Assumptions

- To streamline emission calculations, PM2.5 emissions are assumed to be equal to PM10 emissions. Only if needed to determine if a project is a Federal major modification for PM2.5 will specific PM2.5 emission calculations be performed.
- Other assumptions will be stated as they are made during the evaluation.

B. Emission Factors (EF)

N-1919-20-1

Corn cleaner with bin vent filter

PM:

The applicant is proposing to use an emission factor of 0.075 lb-PM/ton of grain handled. This EF is taken from AP-42 Table 9.9.1-1 (3/03) for a grain cleaner served by a cyclone. However, the proposed operation will be equipped with a cyclone that is then ducted to a dust collector. The dust collector will reduce PM emissions by at least 99%. Thus, the emission factor will be adjusted as follows, to account for the control of PM emissions by the dust collector:

EF = (0.075 lb-PM/ton of grain handled)(1-0.99) = 0.00075 lb-PM/ton of grain handled

Corn wash, soak, and steam-operated cooking kettles

These units are not expected to generate any emissions.

Steam-heated vegetable oil fryer with oil mist eliminator (OME)

PM:

The applicant proposed the use of an EF of 0.80 (0.56 lb-PM/ton filterable + 0.24 lb-PM/ton condensable) from EPA's AP-42 Table 9.13.3-2 (1/95) for the continuous deep fat fryer – other snack chips. This is an uncontrolled EF per EPA's background document for the emission factor Table 4-4 (https://www.epa.gov/sites/production/files/2020-10/documents/b9s1303_0.pdf) and does not take into account any PM emission reductions from the OME. The OME manufacturer confirmed that their typical OME has a control efficiency of greater than 95% for PM emissions. Thus, the AP-42 factor has been adjusted to account for the additional control of PM emissions by the OME.

EF = (0.80 lb-PM/ton of chips)(1-0.95) = 0.04 lb-PM/ton of chips

VOC:

The applicant has proposed to use an uncontrolled EF of 0.085 lb-VOC/ton from EPA's AP-42 Table 9.13.3-3 (1/95) for deep fat fryer – other snack chips. The applicant also proposed to apply a 95% control efficiency for VOC's to this factor due to their proposed use of an OME for the fryer. The EPA background document was reviewed for the emission factor development. EPA considers VOC emissions from a 'fryer with an oil mist eliminator' as uncontrolled source of emissions; therefore, the use of an OME was already factored into the "uncontrolled" VOC emission factor listed in AP-42. Thus, the District will use the AP-42 factor of 0.085 lb-VOC/ton for this unit.

8.5 MMBtu/hr oven with low-NOx burner

Pollutant	EF (lb/MMscf)	Source
NOx	36	Manufacturer's specification
SOx	2.85	District Policy APR-1720 (12/20/01)
PM_{10}	7.5	SCAQMD AER Reporting Tool Defaults for Combustion Equipment
CO	300	Applicant's proposal
VOC	7	SCAQMD AER Reporting Tool Defaults for Combustion Equipment

Ambient air cooler with high velocity filtration system

The ambient air cooler emissions are derived by taking an average of the PM data from two source tests (source test data from July 1, 2005 test conducted at Frito-Lay, Bakersfield site (E= 0.096 lb-PM/hr, P =1.3 tons/hr) and April 29, 1999 test conducted at Frito Lay Modesto site (E = 0.14 lb-PM/hr, P =1.1 tons/hr). The average emissions for both tests were 0.118 lb-PM/hr and average production was 1.2 tons/hr. Thus, average emission factor would be 0.098 lb-PM_{10}/ton of material processed (0.118/1.2). A 20% margin of compliance has been applied to the test results, to ensure continuous compliance.

EF = (0.098 lb-PM/ton of material)(1.2) = 0.118 lb-PM/ton of material processed

Seasoning system with a Tri-Mer 28-H orifice water scrubber

The applicant has proposed to use an uncontrolled EF of 0.001 lb-PM/lb-seasoning, which was proposed by the applicant in a previous project. Per the manufacturer specification sheet, the proposed scrubber will control particulate matter by at least 99% by weight.

EF = (0.001 lb-PM/lb-seasoning)(1-0.99) = 0.00001 lb-PM/lb-seasoning

N-1919-22-0:

Material handling operations:

Equipment	Material Name	EF lb-PM_{10}/lb-Material	Source
Bag dump station/Use bin	Starch	1.8×10^{-6}	Applicant's proposal
	Buttermilk	3.95×10^{-8}	
	Onion Powder	1.80×10^{-8}	
Hopper	Corn meal	5×10^{-10}	
Hopper/Blender	Mixture of starch, buttermilk, onion powder and corn meal*	**4.34×10^{-8}	

*Corn meal will be dispensed into a hopper from the silo under N-1919-23.
**This EF includes the contribution of emissions from dispensing corn meal into the hopper and will be used to quantify emissions from this equipment.

Extruders
Moist materials are extruded through the extruders; thus, the extruders are not expected to generate any emissions.

Steam-heated vegetable oil fryer equipped with oil mist eliminator (OME)
Emissions from a fryer typically come from two distinct sources: (1) combustion emissions from the vegetable oil heating process, and (2) Frying process.

The proposed fryer will utilize steam to heat-up the vegetable oil. Consequently, there will be zero combustion emissions from the vegetable oil heating process. However, the frying process is expected to emit VOC and PM_{10}.

Frito-Lay, Inc., at 9535 Archibald Ave, in Rancho Cucamonga, California, operating in the South Coast Air Quality Management District (SCAQMD Facility 000346) air basin has a fryer (Funyun fryer D68) that produces a product identical to the product (i.e., onion rings) that will be produced in the proposed fryer. The fryer at the Rancho Cucamonga Frito-Lay facility is equipped with an oil mist eliminator (OME) to capture oil droplets entrained in the fryer exhaust. The OME system is located at the base of the stack where the fryer exhaust discharges into the stack[1].

The Funyun fryer D-68 at the Frito-Lay, Inc.'s Rancho Cucamonga facility was tested for VOC and PM_{10} in April 2008 and October 2010. This fryer's exhaust is routed into the air inlet of the burner (2 MMBtu/hr) that is used to heat up the vegetable oil in the fryer, for combustion of VOCs in the fryer exhaust. The burner chamber is required to maintained at or above 1400°F. Vegetable oil in the fryer is required to be maintained at or below 425°F[2]. As noted above, the proposed operation at Frito-Lay, Inc., Modesto facility, will be using a steam-operated fryer with a configuration significantly different than the fryer operating at the Frito-Lay, Inc. Rancho Cucamonga facility. Therefore, the proposed fryer at the Modesto site is considered a different class of source than the fryer at the Rancho Cucamonga facility.

Uncontrolled emissions from the proposed fryer are estimated using the VOC and PM10 inlet source test results from the FunYun fryer at Frito-Lay, Inc.'s Rancho Cucamonga, California. The inlet source test results are summarized below:

Frito-Lay Funyun Fryer D68 – Frito-Lay, Inc. Rancho Cucamonga, California			
Date	**Actual Prod. Rate (Avg)**	**Uncontrolled**	
		PM_{10}	**VOC**
4/16/08	1.0 ton/hr	0.13 lb/hr	0.5 lb/hr
10/25/10 & 10/26/10	1.2 tons/hr	0.187 lb/hr	1.57 lb/hr
Average	1.1 tons/hr	0.159 lb/hr	1.04 lb/hr
Avg. EF (lb/ton of product produced)	**--**	**0.145 lb/ton**	**0.945 lb/ton**

[1] Per SCAQMD
[2] Refer to January 1, 2021 – SCAQMD Facility Permit to Operate, Page 18, 36 & 36 for System 12, Fryer D68 conditions

Frito-Lay, Inc. has proposed to establish emission factors for the proposed fryer using these test results and a 20% margin of compliance over the averaged tested values, and 85% control for VOC and 95% control for PM_{10} emissions due to the OME system. Therefore,

EF (VOC) = 0.945 lb/ton of product produced x 1.2 x (1-0.85)
= 0.170 lb/ton of product produced
EF (PM_{10}) = 0.145 lb/ton of product produced x 1.2 x (1-0.95)
= 0.0087 lb/ton of product produced

Snack chip cooler (Ambient air cooler) with high velocity filtration system
A similar system was permitted under project N-1203844; thus, same EF is used here.

EF = 0.118 lb-PM/ton of material processed

Seasoning system with a Tri-Mer 10-H orifice water scrubber
The applicant has proposed to use an uncontrolled EF of 0.001 lb-PM/lb-seasoning. This emissions factor was used previously for a similar unit in District project N-1193683. Pursuant to the manufacturer's spec sheet, the proposed scrubber is capable of reducing at least 95% of the particulate matter. Thus, the controlled emission factor is:

EF = (0.001 lb-PM/lb-seasoning)(1-0.95) = 0.00005 lb-PM/lb-seasoning

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Since all of the emission units under this project are treated as new emissions units, PE1 is zero for all pollutants.

2. Post-Project Potential to Emit (PE2)

N-1919-20-1:

Corn cleaner with bin vent filter
The proposed corn cleaning rate is 45,000 lb/hr. Thus,

PE2 (lb/hr) = (0.00075 lb-PM/ton of material)(45,000 lb/hr)(ton/2,000 lb)
= 0.017 lb-PM/hr

PE2 (lb/day) = (0.00075 lb-PM/ton of material)(45,000 lb/hr)(ton/2,000 lb)(24 hr/day)
= 0.4 lb-PM/day

PE2 (lb/yr) = (0.00075 lb-PM/ton of material)(45,000 lb/hr)(ton/2,000 lb)(8,760 hr/yr)
= 148 lb-PM/yr

Corn wash, soak, and steam-operated cooking kettles
PE2 = 0

Steam-heated vegetable oil fryer with oil mist eliminator (OME)
The proposed process rate is 5,400 lb/hr. Thus,
VOC:
PE2 (lb/hr) = (0.085 lb-VOC/ton)(5,400 lb/hr)(ton/2,000 lb)
= 0.230 lb-VOC/hr

PE2 (lb/day) = (0.085 lb-VOC/ton)(5,400 lb/hr)(ton/2,000 lb)(24 hr/day)
= 5.5 lb-VOC/day

PE2 (lb/yr) = (0.085 lb-VOC/ton)(5,400 lb/hr)(ton/2,000 lb)(8,760 hr/yr)
= 2,010 lb-VOC/yr

PM_{10}:
PE2 (lb/hr) = (0.04 lb-PM/ton of chips)(5,400 lb/hr)(ton/2,000 lb)
= 0.108 lb-PM/hr

PE2 (lb/day) = (0.04 lb-PM/ton of chips)(5,400 lb/hr)(ton/2,000 lb)(24 hr/day)
= 2.6 lb-PM/day

PE2 (lb/yr) = (0.04 lb-PM/ton of chips)(5,400 lb/hr)(ton/2,000 lb)(8,760 hr/yr)
= 946 lb-PM/yr

8.5 MMBtu/hr oven with low-NOx burner
Higher heating value of natural gas is assumed to be 1,000 Btu per scf of natural gas.

PE2 (lb/hr) = EF lb/MMscf x 8.5 MMBtu/hr x scf/1,000 Btu
PE2 (lb/day) = EF lb/MMscf x 8.5 MMBtu/hr x scf/1,000 Btu x 24 hr/day
PE2 (lb/yr) = EF lb/MMscf x 8.5 MMBtu/hr x scf/1,000 Btu x 8,760 hr/yr

Pollutant	EF lb/MMscf	PE2 (lb/hr)	PE2 (lb/day)	PE2 (lb/yr)
NOx	36	0.306	7.3	2,681
SOx	2.85	0.024	0.6	212
PM_{10}	7.5	0.064	1.5	558
CO	300	2.55	61.2	22,338
VOC	7	0.060	1.4	521

Ambient air cooler with high velocity filtration system
The proposed process rate is 5,400 lb/hr. Thus,

PE2 (lb/hr) = (0.118 lb-PM/ton of material)(5,400 lb/hr)(ton/2,000 lb)
= 0.319 lb-PM/hr

PE2 (lb/day) = (0.118 lb-PM/ton of material)(5,400 lb/hr)(ton/2,000 lb)(24 hr/day)
= 7.6 lb-PM/day

PE2 (lb/yr) = (0.118 lb-PM/ton of material)(5,400 lb/hr)(ton/2,000 lb)(8,760 hr/yr)
= 2,791 lb-PM/yr

Seasoning system with a Tri-Mer 28-H orifice water scrubber
The proposed seasoning use rate is 835 lb/hr. Thus,

PE2 (lb/hr) = (0.00001 lb-PM/lb-seasoning)(835 lb/hr)
= 0.008 lb-PM/hr

PE2 (lb/day) = (0.00001 lb-PM/lb-seasoning)(835 lb/hr)(24 hr/day)
= 0.2 lb-PM/day

PE2 (lb/yr) = (0.00001 lb-PM/lb-seasoning)(835 lb/hr)(8,760 hr/yr)
= 73 lb-PM/yr

Summary
Daily:

Pollutant	Corn cleaner lb/day	Fryer lb/day	Oven lb/day	Cooler lb/day	Seasoner lb/day	Total PE lb/day
NOx	0.0	0.0	7.3	0.0	0.0	7.3
SOx	0.0	0.0	0.6	0.0	0.0	0.6
*PM_{10}	0.4	2.6	1.5	7.6	0.2	12.3
CO	0.0	0.0	61.2	0.0	0.0	61.2
VOC	0.0	5.5	1.4	0.0	0.0	6.9

*All PM emissions calculated above are conservatively assumed to be PM_{10} emissions.

Annual:

Pollutant	Corn cleaner lb/yr	Fryer lb/yr	Oven lb/yr	Cooler lb/yr	Seasoner lb/yr	Total PE lb/yr
NOx	0	0	2,681	0	0	2,681
SOx	0	0	212	0	0	212
*PM_{10}	148	946	558	2,791	73	4,516
CO	0	0	22,338	0	0	22,338
VOC	0	2,010	521	0	0	2,531

*All PM emissions calculated above are conservatively assumed to be PM_{10} emissions.

N-1919-22-1:
Material handling operations

PE2 (lb/hr) = EF (lb-PM10/lb-material) x Process Rate (lb-material/hr)
PE2 (lb/day) = EF (lb-PM10/lb-material) x Process Rate (lb-material/hr) x 24 hr/day

Equipment	EF lb-PM_{10}/lb-Material	Process Rate (lb/hr)	PE2 lb/hr	PE2 lb/day
Starch bag dump station	1.80E-06	4,200	0.008	0.2
Buttermilk bag dump station	3.95E-08	4,200	0.000	0.0
Onion power bag dump station	1.80E-08	4,200	0.000	0.0
Starch use bin	1.80E-06	4,200	0.008	0.2
Buttermilk use bin	3.95E-08	4,200	0.000	0.0
Onion power use bin	1.80E-08	4,200	0.000	0.0
Hopper	4.34E-08	22,500	0.001	0.0
Blender	4.34E-08	4,100	0.000	0.0
		Total:	0.017	0.4

Using worst-case operating scenario of 365 days/yr, the annual emissions would be:

PE2 = (0.4 lb-PM_{10}/day)(365 days/yr)
= 146 lb-PM_{10}/yr

Extruders
PE2 = 0

Steam-heated vegetable oil fryer equipped with oil mist eliminator (OME)
VOC:
PE2 = (0.170 lb-VOC/ton of product produced)(5,404 lb/hr)(1 ton/2,000 lb)
= 0.46 lb-VOC/hr

PE2 = (0.170 lb-VOC/ton of product produced)(5,404 lb/hr)(1 ton/2,000 lb)(24 hr/day)
= 11.0 lb-VOC/day

Using worst-case operating scenario of 365 days/yr, the annual emissions would be:

PE2 = (11.0 lb-VOC/day)(365 days/yr)
= 4,015 lb-VOC/yr

PM_{10}:
PE2 = (0.0087 lb-PM_{10}/ton of product produced)(5,404 lb/hr)(1 ton/2,000 lb)
= 0.02 lb-PM_{10}/hr

PE2 = (0.0087 lb-PM_{10}/ton of product produced)(5,404 lb/hr)(1 ton/2,000 lb)(24 hr/day)
= 0.6 lb-PM_{10}/day

Using worst-case operating scenario of 365 days/yr, the annual emissions would be:

PE2 = (0.6 lb-PM_{10}/day)(365 days/yr)
= 219 lb-PM_{10}/yr

Snack chip cooler (Ambient air cooler) with high velocity filtration system

PE2 = (0.118 lb-PM/ton of material processed)(5,404 lb/hr)(1 ton/2,000 lb)(1 lb-PM_{10}/lb-PM)
= 0.32 lb-PM_{10}/hr

PE2 = (0.118 lb-PM/ton of material processed)(5,404 lb/hr)(1 ton/2,000 lb)(24 hr/day)(1 lb-PM_{10}/lb-PM)
= 7.7 lb-PM_{10}/day

Using worst-case operating scenario of 365 days/yr, the annual emissions would be:

PE2 = (7.7 lb-PM_{10}/day)(365 days/yr)
= 2,811 lb-PM_{10}/yr

Seasoning system with a Tri-Mer 10-H orifice water scrubber

PE2 = (0.00005 lb-PM/lb-seasoning)(2,763 lb-seasoning/hr)(1 lb-PM_{10}/lb-PM)
= 0.14 lb-PM_{10}/hr

PE2 = (0.00005 lb-PM/lb-seasoning)(2,763 lb-seasoning/hr)(24 hr/day)(1 lb-PM_{10}/lb-PM)
= 3.3 lb-PM_{10}/day

Using worst-case operating scenario of 365 days/yr, the annual emission would be:

PE2 = (3.3 lb-PM_{10}/day)(365 days/yr)
= 1,205 lb-PM_{10}/yr

Summary:

Daily Emissions:

Pollutant	Material handling operations PE2 lb/day	Extruders PE2 lb/day	Fryer PE2 lb/day	Cooler PE2 lb/day	Seasoner PE2 lb/day	Total PE2 lb/day
NOx	0	0	0	0	0	0
SOx	0	0	0	0	0	0
*PM_{10}	0.4	0	0.6	7.7	3.3	12.0
CO	0	0	0	0	0	0
VOC	0	0	11.0	0	0	11.0

Annual Emissions:

Pollutant	Material handling operations PE2 lb/yr	Extruders PE2 lb/yr	Fryer PE2 lb/yr	Cooler PE2 lb/yr	Seasoner PE2 lb/yr	Total PE2 lb/yr
NOx	0	0	0	0	0	0
SOx	0	0	0	0	0	0
*PM_{10}	146	0	219	2,811	1,205	4,381
CO	0	0	0	0	0	0
VOC	0	0	4,015	0	0	4,015

*All PM emissions are conservatively assumed to be PM_{10} emissions.

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.

Unless otherwise noted, except for the units under this project, the potential emissions are taken from the application review prepared under project N-1220099.

SSPE1 (lb/year)					
Permit Unit	**NO_X**	**SO_X**	**PM_{10}**	**CO**	**VOC**
N-1919-1-11	5,742	168	7,171	26,350	1,502
N-1919-2-11*	10,012	293	3,874	45,948	1,686
N-1919-3-9	0	0	16,571	0	621
N-1919-4-7	0	0	3,249	0	292
N-1919-5-3	0	0	2,701	0	0
N-1919-6-10	3,541	1,261	1,371	32,680	2,787
N-1919-7-8	0	0	3,614	0	1,606
N-1919-8-7	0	0	3,137	0	1,489
N-1919-11-4	0	0	0	0	0
N-1919-12-3	0	0	0	0	0
N-1919-13-4	0	0	183	0	0
N-1919-14-3	0	0	0	0	0
N-1919-16-3	4,314	1,397	3,329	32,412	2,409
N-1919-18-0	0	0	3,722	0	2,010
N-1919-19-0	0	0	80	0	0
N-1919-21-0	0	0	225	0	0
N-1919-23-0	0	0	0	0	0
ERC	0	0	0	0	0
SSPE1	**23,609**	**3,119**	**49,227**	**137,390**	**14,402**

*PE taken from app review under project N-1123245

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}**	**CO**	**VOC**
N-1919-1-11	5,742	168	7,171	26,350	1,502
N-1919-2-11	10,012	293	3,874	45,948	1,686
N-1919-3-9	0	0	16,571	0	621
N-1919-4-7	0	0	3,249	0	292
N-1919-5-3	0	0	2,701	0	0
N-1919-6-10	3,541	1,261	1,371	32,680	2,787
N-1919-7-8	0	0	3,614	0	1,606
N-1919-8-7	0	0	3,137	0	1,489
N-1919-11-4	0	0	0	0	0
N-1919-12-3	0	0	0	0	0
N-1919-13-4	0	0	183	0	0
N-1919-14-3	0	0	0	0	0
N-1919-16-3	4,314	1,397	3,329	32,412	2,409
N-1919-18-0	0	0	3,722	0	2,010
N-1919-19-0	0	0	80	0	0
N-1919-20-1	**2,681**	**212**	**4,516**	**22,338**	**2,531**
N-1919-21-0	0	0	225	0	0
N-1919-22-1	**0**	**0**	**4,381**	**0**	**4,015**
N-1919-23-0	0	0	0	0	0
SSPE2	**26,290**	**3,331**	**58,124**	**159,728**	**20,948**

5. Major Source Determination

Rule 2201 Major Source Determination:

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), pursuant to the Clean Air Act, Title 3, Section 302, US Codes 7602(j) and (z)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 70.2

Rule 2201 Major Source Determination (lb/year)						
	NO_X	**SO_X**	**PM_{10}**	***$PM_{2.5}$**	**CO**	**VOC**
SSPE1	23,609	3,119	49,227	47,587	137,390	14,402
SSPE2	26,290	3,331	59,621	59,621	159,728	20,948
Major Source Threshold	20,000	140,000	140,000	140,000	200,000	20,000
Major Source?	Yes	No	No	No	No	Yes

*$PM_{2.5}$ assumed to be equal to PM_{10}

As seen in the table above, the facility is an existing Major Source for NOx emissions and will remain a Major Source for NOx after this project. The facility surpassed the Major Source threshold for VOC due to this project, and will also be a Major Source for VOC upon implementing the ATCs under 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	11.8	7.2	1.6	68.7	24.6	24.6
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source?	No	No	No	No	No	No

As seen in the table above, 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.

N-1919-20 and '-22:
Since the emissions units under each permit are evaluated as new emissions units, BE = PE1 = 0 for all pollutants.

7. SB 288 Major Modification

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

As noted in section VII.C.5 above, this facility is an existing Major Source for NOx emissions and is becoming a Major Source for VOC emissions. Thus, the project's PE2 is compared to the SB 288 Major Modification Thresholds in the following table in order to determine if further SB 288 Major Modification calculations are required.

SB 288 Major Modification Thresholds			
Pollutant	**Project PE2 (lb/year)**	**Threshold (lb/year)**	**SB 288 Major Modification Calculation Required?**
NOx	2,681 (2,681+0)	50,000	No
VOC	6,546 (2,531+4,015)	50,000	No

Since none of the SB 288 Major Modification Thresholds are surpassed with this project, this project does not constitute an SB 288 Major Modification and no further discussion is required.

8. Federal Major Modification / New Major Source

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.

As defined in 40 CFR 51.165, Section (a)(1)(v) and part D of Title I of the CAA, a Federal Major Modification is 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. The significant net emission increase threshold for each criteria pollutant is included in Rule 2201.

NOx

As seen in section VII.C.5 above, Frito-Lay, Inc. is an existing Major Source for NOx emissions. Therefore, the proposed project requires evaluation to determine whether or not this project triggers a Federal Major Modification.

The determination of Federal Major Modification is based on a two-step test. For the first step, only the emission *increases* are counted. In step 1, emission decreases cannot cancel out the increases. Step 2 allows consideration of the project's net emissions increase as described in 40 CFR 51.165 and the Federal Clean Air Act Section 182 (e), as applicable.

Step 1: Project Emissions Increase

For new emissions units, the increase in emissions is equal to the PE2 for each new unit included in this project:

Emission Increase = PE2

Project Emissions Increase

This project's combined total NO_x emissions increase is summarized in the following table and are compared to the Federal Major Modification Thresholds in the following table.

Federal Major Modification Thresholds for Emission Increases			
Pollutant	**Total Emissions Increases (lb/yr)**	**Thresholds (lb/yr)**	**Federal Major Modification?**
NO_x*	2,681	0	Yes

*If there is any emission increases in NO_x or VOC, this project is a Federal Major Modification and no further analysis is required.

Since there is an increase in NO_x emissions, this project constitutes a Federal Major Modification. Consequently, as discussed below in the offset section of this evaluation, pursuant to Section 7.4.2.1 of District Rule 2201, NOx Emission Reduction Credits (ERCs) used to satisfy the offset quantity required under District Rule 2201 must surplus at the time of use (ATC issuance).

Separately, Federal Offset Quantity is calculated below.

Federal Offset Quantity Calculation

The Federal Offset Quantity (FOQ) is only calculated for the pollutants for which a project is a Federal Major Modification or a New Major Source as determined above.

Pursuant to 40 CFR 51.165(a)(3)(ii)(J), the federal offset quantity is the sum of the annual emission changes for all new and modified emission units in a project calculated as the potential to emit after the modification (PE2) minus the actual emissions (AE) for each emission unit times the applicable federal offset ratio.

FOQ = ∑(PE2 – AE) x Federal offset ratio

Actual Emissions

As described in 40 CFR 51.165(a)(1)(xii), actual emissions (AE), as of a particular date, shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a consecutive 24-month period which precedes the particular date and which is representative of normal source operation. The reviewing authority shall allow the use of a different time period upon a determination that it is more representative of normal source operation.

Since the proposed unit (i.e., an 8.5 MMBtu/hr oven (N-1919-20)) is a new unit, AE is zero for this unit.

Federal Offset Ratio

According the CAA 182(e), the federal offset ratio for VOC and NOx is 1.5 to 1 (due to the District extreme non-attainment status for ozone). Otherwise, the federal offset ratio for PM2.5, PM10, and SOx is 1.0 to 1.

Federal Offset Quantity (FOQ)

Since this project only include new unit(s)

FOQ = PE2 x Federal offset ratio

NOx		**Federal Offset Ratio**	**1.5**
Permit No.	**Post-Project Potential to Emit (PE2) (lb/year)**	**Actual Emissions (lb/year)**	**Emissions Change (lb/yr)**
N-1919-20-1	2,681	0	0
N-1919-22-1	0	0	0
		∑(PE2 – AE) (lb/year):	2,681
		Federal Offset Quantity (lb/year): ∑(PE2 – AE) x 1.5	4,022
		Federal Offset Quantity (tons/year): ∑(PE2 – AE) x 1.5 ÷ 2,000	2.0

VOC

As seen in section VII.C.5 above, Frito-Lay, Inc. is not an existing a Major Source for VOC but the facility's post-project (SSPE2) VOC emissions will be above the Major Source Threshold as a result of this project. Since the facility is not an existing Major Source for VOC emissions, this permitting action cannot trigger a Federal Major Modification.

New Major Source

NOx:
This facility is an existing Major Source for NOx emissions. Therefore, no further analysis is required.

VOC:
Since facility's post-project VOC emissions will be above the Major Source Threshold, the project VOC emissions increase will be compared to the Federal Major Source threshold for VOC to determine whether the project emissions increase itself results in a New Major Source according to 40 CFR 51.165 a(1)(iv)(A)(3).

Project Emissions Increase = 2,531+4,015 = 6,546 lb-VOC/yr

The project VOC emissions increase is compared to the Federal Major Source threshold for VOC in the table below.

New Major Source Determination			
Pollutant	**Project Emission Increase (lb/year)**	**Threshold (lb/year)**	**New Major Source?**
VOC	6,546	20,000	No

As seen in the table above, the project's VOC emissions increase does not exceed the Major Source threshold. Therefore, this permitting action will not be evaluated as if this project itself were a New Major Source, so no further discussion is required.

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)

- NO2 (as a primary pollutant)
- SO2 (as a primary pollutant)
- CO
- PM
- PM10

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)(iii). 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	1.3	3.3	0.1	11.2	4.4	4.4
PSD Major Source threshold	250	250	250	250	250	250
New PSD Major Source?	No	No	No	No	No	No

As seen 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 E**.

VIII. Compliance Determination

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

Pursuant to District Rule 2201, Section 4.1, 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

N-1919-20-1:

Corn cleaner with bin vent filter

Per section VII.C.2 above, PE2 is not greater than 2 lb/day for PM_{10} emissions; therefore, BACT is not triggered for PM_{10} emissions from this operation.

Corn wash, soak, and steam-operated cooking kettles

Per section VII.C.2 above, PE2 is not greater than 2 lb/day for any pollutant; therefore, BACT is not triggered for any pollutant from these units.

Steam-heated vegetable oil fryer with oil mist eliminator (OME)

PM_{10}:

Per section VII.C.2 above, PE2 is greater than 2 lb/day for PM_{10} emissions; therefore, BACT is triggered for PM_{10} emissions from this operation.

VOC:

Per section VII.C.2 above, PE2 is greater than 2 lb/day for VOC emissions; therefore, BACT is triggered for VOC emissions from this operation.

8.5 MMBtu/hr oven with low-NOx burner

Per section VII.C.2 above, PE2 is greater than 2 lb/day for NOx and CO emissions. Facility's total SSPE2 for CO emissions is below 200,000 lb/yr. Thus, BACT is triggered for NOx emissions only.

Ambient air cooler with high velocity filtration system

Per section VII.C.2 above, PE2 is greater than 2 lb/day for PM_{10} emissions; therefore, BACT is triggered for PM_{10} emissions from this operation.

Seasoning system with a Tri-Mer 28-H orifice water scrubber

Per section VII.C.2 above, PE2 is not greater than 2 lb/day for PM_{10} emissions; therefore, BACT is not triggered for PM_{10} emissions from this operation.

N-1919-22-1:

Material handling operations

Per section VII.C.2 above, PE2 is not greater than 2 lb/day for PM_{10} emissions for any material handling operation; therefore, BACT is not triggered.

Extruders

Per section VII.C above, PE2 is not greater than 2 lb/day for any pollutant; therefore, BACT is not triggered.

Steam-heated vegetable oil fryer equipped with oil mist eliminator (OME)

PM_{10}:

Per section VII.C.2 above, PE2 is not greater than 2 lb/day for PM_{10} emissions; therefore, BACT is not triggered for PM_{10} emissions from this operation.

VOC:
Per section VII.C.2 above, PE2 is greater than 2 lb/day for VOC emissions; therefore, BACT is triggered for VOC emissions from this operation.

Snack chip cooler (Ambient air cooler) with high velocity filtration system
Per section VII.C.2 above, PE2 is greater than 2 lb/day for PM_{10} emissions; therefore, BACT is triggered for PM_{10} emissions from this operation.

Seasoning system with a Tri-Mer 10-H orifice water scrubber
Per section VII.C.2 above, PE2 is greater than 2 lb/day for PM_{10} emissions; therefore, BACT is triggered for PM_{10} emissions from this operation.

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

None of the emissions units is being relocated from one stationary source to another; therefore BACT is not triggered.

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

None of the existing units is being modified in this project; therefore BACT is not triggered.

d. SB 288/Federal Major Modification

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

2. BACT Guideline

N-1919-20-1:
Steam-heated vegetable oil fryer with oil mist eliminator (OME)
As noted above, BACT is triggered for VOC and PM_{10} emissions.

BACT guideline 1.6.3 for snack chip fryer will be used to address the BACT requirements for VOC and PM_{10} emissions (refer to **Appendix B** of this document).

8.5 MMBtu/hr oven with low-NOx burner
As noted above, BACT is triggered for NOx emissions.

BACT guideline 1.6.4 – Oven snack food has been rescinded in May 2022. The guideline will be updated as a part of this project. (refer to **Appendix B** of this document).

Ambient air cooler with high velocity filtration system
As noted above, BACT is triggered for PM_{10} emissions.

BACT guideline 5.5.6 – Snack chip ambient air cooler will be used to address the BACT requirements for PM_{10} emissions.

N-1919-22-1:
Steam-heated vegetable oil fryer equipped with oil mist eliminator (OME)
As discussed above, BACT is triggered for VOC emissions.

BACT guideline 1.6.3 for a snack chip fryer with an indirect heat transfer system will be used to address the BACT requirements for VOC emissions (refer to **Appendix B** of this document).

Snack chip cooler (Ambient air cooler) with high velocity filtration system
As discussed above, BACT is triggered for PM_{10} emissions.

BACT guideline 5.5.6 for snack chip ambient air cooler will be used to address BACT requirements for PM10 emissions (refer to **Appendix C** of this document).

Seasoning system with a Tri-Mer 10-H orifice water scrubber
As discussed above, BACT is triggered for PM_{10} emissions.

BACT guideline 5.5.5 for a snack chip seasoning system will be used to address the BACT requirements for PM_{10} emissions (refer to **Appendix B** of this document).

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.

Pursuant to the attached Top-Down BACT Analysis (see **Appendix C**), BACT has been satisfied with the following:

N-1919-20-1:
Steam-heated vegetable oil fryer with oil mist eliminator (OME)
VOC:
Per BACT analysis in **Appendix C** of this document, use of thermal/catalytic oxidizer or carbon adsorber is not cost effective; therefore, these controls will not be required for this unit. There are no emissions controls listed in the guideline that have been achieved-in-practice at this time. Therefore, the proposed fryer is not required to use any emissions controls to reduce VOC emissions.

PM_{10}:
Per BACT analysis in **Appendix C** of this document, use of oil mist eliminator is required as BACT to reduce PM_{10} emissions. Use of thermal/catalytic oxidizer or carbon adsorber is not cost effective; therefore, the use of a thermal/catalytic oxidizer or carbon adsorber is not required for this unit. The applicant has proposed the use of an oil mist eliminator; therefore, BACT requirements are satisfied.

8.5 MMBtu/hr oven with low-NOx burner
Per BACT analysis in **Appendix C** of this document, the use of an SCR system to reduce NOx is not cost effective; therefore, an SCR system is not required for this oven. The applicant has proposed to achieve 30 ppmvd NOx @ 3% O_2 and use PUC quality natural gas fuel in the oven. Therefore, BACT requirements are satisfied.

Ambient air cooler with high velocity filtration system
Per BACT analysis in **Appendix C** of this document, the use of properly engineered high velocity air filtration system with oil baffle type filter (or equivalent filter system) is required to reduce PM_{10} emissions. The applicant has proposed to install high velocity air filtration system with oil baffle type filter; therefore, BACT requirements are satisfied.

N-1919-22-1:
Steam-heated vegetable oil fryer equipped with oil mist eliminator (OME)
Per BACT analysis in **Appendix C** of this document, the most stringent VOC control option is to meet a combined VOC/PM_{10} emission standard of 85% control. The applicant has proposed to achieve 85% control for VOC and 95% control for PM emissions with the use of oil mist eliminator system (OME) system. Thus, BACT requirements for VOC are satisfied.

Snack chip cooler (Ambient air cooler) with high velocity filtration system
Per BACT analysis in **Appendix C** of this document, use of properly engineered high velocity filtration system with oil baffle type filters, or equivalent filter system capable of reducing at least 70% of particulate matter emission is required for the proposed snack chip cooler. The applicant has proposed to install the filter system that will achieve this standard; therefore, BACT requirements are satisfied.

Seasoning system with a Tri-Mer 10-H orifice water scrubber
Per BACT analysis in **Appendix C** of this document, use of a scrubber system capable of reducing at least 95% of particulate matter emissions is required for the proposed seasoning system. The applicant has proposed to discharge the exhaust through the water scrubber system capable of achieving at least 95% reduction of particulate matter emissions; therefore, BACT requirements are satisfied.

B. Offsets

1. Offset Applicability

Pursuant to District Rule 2201, Section 4.5, 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	26,290	3,331	58,124	159,728	20,948
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets Triggered?	Yes	No	Yes	No	Yes

2. Quantity of District Offsets Required

As seen in the table above, District offsets are triggered for NOx, PM_{10}, and VOC emissions under Rule 2201. Therefore, offsets analysis is required for these pollutants.

2.1 NOx

District Offset Quantities Calculation

As demonstrated above, the facility's SSPE2 for NOx is greater than the offset threshold. Therefore, offset calculations are required.

The quantity of offsets in pounds per year for NO_X is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

Offsets Required (lb/year) = (Σ[PE2 – BE] + ICCE) x DOR, for all new or modified emissions units in the project,

Where,
PE2 = Post-Project Potential to Emit, (lb/year)
BE = Baseline Emissions, (lb/year)
ICCE = Increase in Cargo Carrier Emissions, (lb/year)
DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = 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 = HAE

N-1919-20-1
As calculated in Section VII.C.6 above, the BE is zero for the new 8.5 MMBtu/hr natural gas-fired oven. Note that this is only source of NOx emissions under this project.

There is no increases in cargo carrier emissions. Therefore offsets can be determined as follows:

Offsets Required (lb/year) = ([PE2 – BE] + ICCE) x DOR

PE2 (NO_X) = 2,681 lb/year
BE (NO_X) = 0 lb/year
ICCE = 0 lb/year
DOR = 1.5 per section 4.8.1 of Rule 2201 since the project is a Federal Major Modification for NOx emissions

Offsets Required (lb/year) = ([2,681 – 0] + 0) x 1.5
= 4,022 lb-NO_X/year

The quarterly emissions to be offset is as follows:

Quarterly offsets required (lb/qtr) = (4,022 lb-NO_X/year) ÷ (4 quarters/year)
= 1,005.5 b-NO_X/qtr

As demonstrated in the calculation above, 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 withdrawn 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. The redistribution method is summarized in the following table:

Redistribution of Required Quarterly Offsets
(where X is the annual amount of offsets, and X ÷ 4 = Y.z)

Value of z	Quarter 1	Quarter 2	Quarter 3	Quarter 4
0.0	Y	Y	Y	Y
0.25	Y	Y	Y	Y+1
0.5	Y	Y	Y+1	Y+1
0.75	Y	Y+1	Y+1	Y+1

Therefore the appropriate quarterly emissions to be offset are as follows:

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	**Total Annual**
1,005	1,005	1,006	1,006	**4,022**

District and Federal Offset Quantities

As discussed above, District offsets are triggered and required for NOx under Rule 2201. In addition, as demonstrated above, this project does trigger Federal Major Modification requirements for NOx emissions.

Since District offsets and federal offsets are required, the facility must provide offset amounts equal to the greatest value between the District offset quantity and the federal offset quantity.

Comparison of District vs Federal VOC Offset Quantity			
	DOQ	**FOQ**	**FOQ ≥ DOQ**
NOx	4,022	4,022	**Yes**

As demonstrated above, the federal offset quantity required is equal or greater than the District offset quantity. Therefore, pursuant to Section 7.4.1.2 of District Rule 2201, the facility must comply with the required federal offset quantities.

Surplus at the Time Of Use Emission Reduction Credits

The applicant has stated that the facility plans to use ERC certificate S-3765-2 to satisfy the federal offset quantities for NOx required for this project. Pursuant to the ERC surplus analysis in **Appendix G**, the District has verified that the credits from the ERC certificate provided by the applicant are sufficient to satisfy the federal offset quantities for NOx required for this project.

Proposed Rule 2201 Offset Permit Conditions

The following permit conditions will be added to the Authority to Construct N-1919-20-1:

- Prior to operating equipment under Authority to Construct N-1919-20-1, permittee shall surrender NO_X emission reduction credits for the following quantity of emissions: 1st quarter – 1,005 lb, 2nd quarter – 1,005 lb, 3rd quarter – 1,006 lb, and fourth quarter – 1,006 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERC specified below. [District Rule 2201]

- ERC Certificate Number S-3765-2 (or a certificate split from this certificate) 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 Authority to Construct. [District Rule 2201]

2.2 PM10

As demonstrated above, the facility's SSPE2 for PM10 is greater than the offset threshold. Therefore, offset calculations are required.

The quantity of offsets in pounds per year for PM10 is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

Offsets Required (lb/year) = (Σ[PE2 – BE] + ICCE) x DOR, for all new or modified emissions units in the project,

Where,
PE2 = Post-Project Potential to Emit, (lb/year)
BE = Baseline Emissions, (lb/year)
ICCE = Increase in Cargo Carrier Emissions, (lb/year)
DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = 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 = HAE

N-1919-20-1
Under project N-1203844, total PM10 emissions offsets are evaluated for ATCs N-1919-18-0 through '-21-0.

Since the applicant is not proposing any changes to the PM_{10} emissions of permit N-1919-20-1 under this project, previously calculated total amount of offsets is still valid for this project.

The following permit conditions will be included in the Authority to Construct permits N-1919-20-1:

- Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits as required by Authority to Construct N-1919-18-0. [District Rule 2201]

N-1919-22-1
There are no increases in cargo carrier emissions. Therefore offsets can be determined as follows:

Offsets Required (lb/year) = ([PE2 – BE] + ICCE) x DOR

PE2 (PM10) = 4,381 lb/year
BE (PM10) = 0 lb/year
ICCE = 0 lb/year

DOR = 1.5 for the emission reductions that were banked 15-miles or more from Frito-Lay, Modesto site

Offsets Required (lb/year) = ([4,381 – 0] + 0) x 1.5
= 6,572 lb-PM10/yr

The quarterly emissions to be offset is as follows:

Quarterly offsets required (lb/qtr) = (6,572 lb-PM10/year) ÷ (4 quarters/year)
= 1,643 lb-PM10/qtr

Proposed Rule 2201 Offset Permit Conditions

The following permit conditions will be added to the Authority to Construct permit N-1919-22-1:

- Prior to operating equipment under Authority to Construct permit N-1919-22-1, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter – 1,643 lb, 2nd quarter – 1,643 lb, 3rd quarter – 1,643 lb, and fourth quarter – 1,643 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERC specified below. [District Rule 2201]

- ERC Certificate Number S-5255-4 (or a certificate split from this certificate) shall be used to supply the required PM10 offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct permits shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct permit. [District Rule 2201]

2.3 VOC

As seen in section VII.C.5 above, for VOC, the SSPE1 is below the offset threshold while the SSPE2 is greater than the offset thresholds for that pollutant. Therefore offset calculations are required for this project.

The quantity of offsets in pounds per year for VOC is calculated as follows for sources with an SSPE1 less than the offset threshold levels before implementing the project being evaluated.

Offsets Required (lb/year) = [(SSPE2 – ROT + ICCE) x DOR]

Where,
SSPE2 = Post-Project Stationary Source Potential to Emit
ROT = Respective Offset Threshold, for the respective pollutant
ICCE = Increase in Cargo Carrier Emissions

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

There are no increases in cargo carrier emissions. Therefore offsets can be determined as follows:

Offsets Required (lb/year) = ([SSPE2 – ROT] + ICCE) x DOR

SSPE2 (VOC) = 20,948 lb/year
ROT (VOC) = 20,000 lb/year
ICCE = 0 lb/year
DOR = 1.5 for the emission reductions that were banked 15-miles or more from Frito-Lay, Modesto site

Offsets Required (lb/year) = ([20,948 – 20,000] + 0) x 1.5
= 1,422 lb-VOC/yr

The quarterly emissions to be offset is as follows:

Quarterly offsets required (lb/qtr) = (1,422 lb-VOC/year) ÷ (4 quarters/year)
= 355.5 lb-VOC/qtr

As demonstrated in the calculation above, 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 withdrawn 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. The redistribution method is summarized in the following table:

Redistribution of Required Quarterly Offsets (where X is the annual amount of offsets, and X ÷ 4 = Y.z)				
Value of z	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**
0.0	Y	Y	Y	Y
0.25	Y	Y	Y	Y+1
0.5	Y	Y	Y+1	Y+1
0.75	Y	Y+1	Y+1	Y+1

Therefore the appropriate quarterly emissions to be offset are as follows:

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	**Total Annual**
355 lb	355 lb	356 lb	356 lb	**1,422 lb**

Proposed Rule 2201 Offset Permit Conditions
The following permit conditions will be added to the Authority to Construct permit N-1919-22-1:

- Prior to operating equipment under Authority to Construct permit N-1919-22-1, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter – 355 lb, 2nd quarter – 355 lb, 3rd quarter – 356 lb, and fourth quarter – 356 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERC specified below. [District Rule 2201]

- ERC Certificate Numbers S-3411-1 and/or S-3426-1 (or a certificate split from these certificates) shall be used to supply the required VOC offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct permits shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct permit. [District Rule 2201]

3. ERC Withdrawal Calculations

The applicant must identify the ERC Certificate(s) to be used to offset the increase of NOx, PM_{10}, and VOC emissions for the project. See **Appendix H** for detailed ERC Withdrawal Calculations.

C. Public Notification

1. Applicability

Pursuant to District Rule 2201, Section 5.4, 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

As demonstrated in Section VII.C.7 and VII.C.8 above, this project is not an SB-288 or Federal Major Modification. Therefore, public noticing is not required for this project.

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	23,609	26,290	20,000 lb/year	No
SO_X	3,119	3,331	54,750 lb/year	No
PM_{10}	49,227	58,124	29,200 lb/year	No
CO	137,390	159,728	200,000 lb/year	No
VOC	14,402	20,948	20,000 lb/year	Yes

As seen in the table above, SSPE2 for VOC surpass the VOC offset threshold; therefore public noticing is 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	26,290	23,609	2,681	20,000 lb/year	No
SO_x	3,331	3,119	212	20,000 lb/year	No
PM_{10}	58,124	49,227	8,897	20,000 lb/year	No
CO	159,728	137,390	22,338	20,000 lb/year	Yes
VOC	20,948	14,402	6,546	20,000 lb/year	No

As seen in the table above, the SSIPE for CO exceeds 20,000 lb/year; therefore public noticing for SSIPE purposes is required.

e. Title V Significant Permit Modification

As shown in the Discussion of Rule 2520 below, this project constitutes a Title V significant modification. Therefore, public noticing for Title V significant modifications is required for this project.

2. Public Notice Action

As discussed above, public noticing is required for this project due to surpassing thresholds in some of the above items. 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 ATC 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:

N-1919-20-1:

Corn cleaner with bin vent filter

- PM10 emissions from the corn cleaner system served by filtration system shall not exceed 0.4 pounds during any one day. [District Rule 2201]

Corn wash, soak, and steam-operated cooking kettles

These units are not expected to generate any emissions; therefore, no DELs are established for these units.

Steam-heated vegetable oil fryer with oil mist eliminator (OME)

- PM10 emissions from the vegetable oil fryer shall not exceed 2.6 pounds during any one day. [District Rule 2201]
- VOC emissions from the vegetable oil fryer shall not exceed 5.5 pounds during any one day. [District Rule 2201]

8.5 MMBtu/hr oven with low-NOx burner

- Emissions from the oven shall not exceed any of the following limits: 36 lb-NOx/MMscf, 2.85 lb-SOx/MMscf, 7.5 lb-PM10/MMscf, 300 lb-CO/MMscf and 7 lb-VOC/MMscf of natural gas combusted. [District Rule 2201]
- The oven shall only be fired on PUC-quality natural gas. [District Rule 2201]

Ambient air cooler with high velocity filtration system

- PM10 emissions from the ambient air cooler exhaust shall not exceed 7.6 pounds during any one day. [District Rule 2201]

Seasoning system with a Tri-Mer 28-H orifice water scrubber

- PM10 emissions from the seasoning system scrubber exhaust shall not exceed 0.2 pounds during any one day. [District Rule 2201]

N-1919-22-0

Material handling operations

- The combined total PM10 emissions from material handling operations utilizing three bag dump stations, three use bins, a hopper, and a blender shall not exceed 0.4 pounds during any one day. [District Rule 2201]

Steam-heated vegetable oil fryer equipped with oil mist eliminator (OME)

- PM10 emissions from the vegetable oil fryer exhaust downstream of the oil mist eliminator system shall not exceed 0.6 pounds during any one day. [District Rule 2201]

- VOC emissions from the vegetable oil fryer exhaust downstream of the oil mist eliminator system shall not exceed 11.0 pounds during any one day. [District Rule 2201]

- Oil mist eliminator system shall reduce at least 85% (by weight) of the uncontrolled VOC emissions and 95% (by weight) of the uncontrolled PM10 emissions from the vegetable oil fryer. [District Rule 2201]

Snack chip cooler (Ambient air cooler) with high velocity filtration system

- PM10 emissions from the ambient air cooler exhaust downstream of high velocity filtration system shall not exceed 7.7 pounds during any one day. [District Rule 2201]

- High velocity filtration system shall reduce uncontrolled PM10 emissions by at least 70% (by weight) from the ambient air cooler. [District Rule 2201]

Seasoning system with a Tri-Mer 10-H orifice water scrubber

- PM10 emissions from the seasoning system exhaust downstream of scrubber system shall not exceed 3.3 pounds during any one day. [District Rule 2201]

- Water scrubber shall reduce uncontrolled PM10 emissions by at least 95% (by weight) from the seasoning system. [District Rule 2201]

E. Compliance Assurance

1. Source Testing

N-1919-20-1:

Corn cleaner with bin vent filter

The potential emissions are estimated using EPA's AP-42 emission factor. Thus, source testing is not required.

Corn wash, soak, and steam-operated cooking kettles

These units are not expected to generate any emissions; therefore, no source testing is required.

Steam-heated vegetable oil fryer with oil mist eliminator (OME)

PM_{10}

The potential emissions are estimated using uncontrolled emissions factor from EPA's AP-42 and by applying manufacturer suggested control efficiency for the oil mist eliminator. Therefore, no source testing is required.

VOC

The potential emissions are estimated using EPA's AP-42 emission factor. Thus, source testing is not required.

8.5 MMBtu/hr oven with low-NOx burner

Except for NOx and CO, the potential emissions are calculated using the emission factors from generally accepted emission factors; therefore, no testing is required.

Source testing to measure NOx and CO emissions was conducted on November 18, 2022. The average of three test runs were 20.99 lb-NOx/MMscf and 211.18 lb-CO/MMscf. Since the proposed NOx and CO emission rates are below the source tested values, additional testing is not required.

Ambient air cooler with high velocity filtration system

The potential emissions are estimated using emission factor derived from the source test conducted at Frito-Lay's, Modesto and Bakersfield site for an identical unit. Thus, source testing is not required.

Seasoning system with a Tri-Mer 28-H orifice water scrubber

The potential emissions are estimated using emission factor used for similar system in N-1193683. Thus, source testing is not required.

N-1919-22-1

Material handling operations

The bag dump stations, use bins and a blender will be served by its own bag filter system.

Per District Policy APR-1705, Section II, Step 4, non-combustion equipment served by a baghouse or dust collector with expected PM10 emissions of 30 pounds per day or greater must be tested upon initial start-up. Units with PM10 emissions in excess of 70 pounds per day should also be tested on annual basis.

The potential emissions from each unit are below the thresholds in the above paragraph. Therefore, source testing is not required.

Steam-heated vegetable oil fryer equipped with oil mist eliminator (OME)
Frito-Lay, Inc. claims that use of oil mist eliminator (OME) system will reduce VOC and PM_{10} emissions from the fryer exhaust by at least 85% and 95% respectively. This information is used in estimating the potential emissions, and then calculating the emissions offsets for these pollutants. The District will require a one-time third party source test to verify compliance with the proposed VOC and PM_{10} control efficiencies and emissions limits.

Snack chip cooler (Ambient air cooler) with high velocity filtration system
The potential emissions are estimated using emission factor established under project N-1203844. The emission factor was derived using the source test results at Frito-Lay's, Modesto and Bakersfield site for snack chip coolers used in corn tortilla chips manufacturing processes.

As noted in the BACT evaluation for snack chip cooler, PM10 emissions from the snack chip cooler depends on the type of snack being produced. For example, snack chip cooler in corn chip production line (S-2076-8, source test 7/11/20) had 2 times more PM10 emissions than the snack chip cooler in the tortilla chip line (S-2076-5, source test 7/27/20)).

In order to ensure that the proposed PM_{10} emission factor appropriately represents the snack cooler under OFS line, Frito-Lay, Inc. is required to conduct one-time source test to verify the PM_{10} emissions and control efficiency for the proposed snack chip ambient air cooler. Note that the snack chip cooler contributes 64% of the total PM_{10} emissions from this permit unit.

Seasoning system with a Tri-Mer 10-H orifice water scrubber
As discussed above, seasoning system scrubber is proposed to reduce at 95% of the particulate matter emissions. Further, this unit contributes 25% of the total PM_{10} emissions from this permit unit.

In order to ensure that the proposed unit comply the PM_{10} emission limit and proposed control efficiency, source testing is required for the seasoner system.

2. Monitoring

N-1919-20-1:
Corn cleaner with bin vent filter
Seasoning system with a Tri-Mer 28-H orifice water scrubber
Visible emissions at the exhaust of each filter system are required to be monitored at least once a year. The monitoring will ensure on-going compliance with visible emission limits. This requirement is consistent with other similar snack food manufacturing lines at this facility.

Corn wash, soak, and steam-operated cooking kettles
Steam-heated vegetable oil fryer with oil mist eliminator (OME)
8.5 MMBtu/hr oven with low-NOx burner
No monitoring is required for these units.

Seasoning system with a Tri-Mer 28-H orifice water scrubber
Water circulation rate (gallon per minute) is required to be monitored at least once a day.

N-1919-22-1
Material handling operations
Visible emissions at the exhaust of each filter system are required to be monitored at least once a year. The monitoring will ensure on-going compliance with visible emission limits. This requirement is consistent with other similar snack food manufacturing lines at this facility.

Steam-heated vegetable oil fryer equipped with oil mist eliminator (OME)
No monitoring is required.

Snack chip cooler (Ambient air cooler) with high velocity filtration system
No monitoring is required.

Seasoning system with a Tri-Mer 10-H orifice water scrubber
Water circulation rate (gallon per minute) is required to be monitored at least once a day.

3. Recordkeeping

The owner or operator will be required to maintain sufficient records to demonstrate compliance with the daily emission limits under each permit.

- The owner or operator shall maintain records sufficient to demonstrate compliance with each emission limit and permit requirement. These records shall contain each calculated emission quantity as well as each process variable used in the respective calculations. [District Rule 2201]

- Records of equipment & associated control device(s) maintenance, inspections, and repair shall be maintained. The records shall include the identification of the

equipment, date of inspection, corrective action taken, and identification of the individual performing the inspection. [District Rule 2201]

4. Reporting

Source test reports are required to be submitted within 60 days after the test. No other reports are required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

Section 4.14 of District Rule 2201 requires that an AAQA be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District's Technical Services Division conducted the required analysis. Refer to **Appendix D** of this document for the AAQA summary sheet.

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

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. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM_{10} and $PM_{2.5}$.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a New Major Source or a source undergoing a Federal Major Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Section VIII above, the proposed project constitutes a Federal Major Modification, therefore this requirement is applicable. Frito-Lay, Inc.'s compliance certification is included in **Appendix F**.

H. Alternate Siting Analysis

The current project occurs at an existing facility. The applicant proposes to install a DTC and OFS snack manufacturing lines.

Since the proposed equipment will use existing utilities such as steam from existing boilers, existing railroad tracks to receive materials, and finished product packaging and storage infrastructure, the existing site will result in the least possible impact from the project. Alternative sites would involve the relocation and/or construction of various support structures on a much greater scale, and would therefore result in a much greater impact.

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

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

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

Section 3.20.5 of Rule 2520 states a minor permit modifications are permit modifications that are not Title I modifications, modifications as defined in section 111 or 112 of the Federal Clean Air Act, or major modification under the prevention of significant deterioration (PSD) provisions of Title I of the CAA or under EPA PSD regulations. Since this project is a Title I modification (i.e. Federal Major Modification), the proposed project is considered to be a modification under the Federal Clean Air Act. As a result, the proposed project constitutes a Significant Modification to the Title V Permit pursuant to Section 3.29.

As discussed above, the facility has applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected. The facility shall not implement the changes requested until the final permit is issued.

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. However, no subparts of 40 CFR Part 60 apply to the operations proposed under this project.

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 the operations proposed under this project.

Rule 4101 Visible Emissions

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

The following condition will be included in each permit:

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

Compliance is expected with this Rule.

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. Therefore, compliance with this rule is expected.

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.

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification of an existing source shall not result in an increase in cancer risk greater than the District's significance level (20 in a million) and shall not result in acute and/or chronic risk indices greater than 1.

According to the Technical Services Memo for this project, 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 resulting prioritization score, acute hazard index, chronic hazard index, and cancer risk for this project is shown below.

Health Risk Assessment Summary	
	Worst Case Potential
Prioritization Score	0.01
Cancer Risk	2.39E-09
Acute Hazard Index	0.00
Chronic Hazard Index	0.00
T-BACT Required?	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.

In accordance with District policy APR 1905, no further analysis is required, and compliance with District Rule 4102 requirements is expected.

See **Appendix D**: Health Risk Assessment Summary

Compliance is expected with this rule.

Rule 4201 Particulate Matter Concentration

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

N-1919-20-1:
Corn cleaner with bin vent filter
PM emissions = 0.017 lb-PM/hr (per section VII.C.2 above)
Exhaust flow rate = 5,000 scfm (per applicant)

$$\mathrm{PM}\left(\frac{\mathrm{gr}}{\mathrm{dscf}}\right)=\frac{\left(0.017\ \frac{\text{lb-PM}}{\mathrm{hr}}\right)\left(7{,}000\,\frac{\text{gr-PM}}{\text{lb-PM}}\right)\left(\frac{\mathrm{hr}}{60\ \mathrm{min}}\right)}{\left(5{,}000\,\frac{\mathrm{ft}^3}{\mathrm{min}}\right)}=0.0004\ \frac{\text{gr-PM}}{\mathrm{dscf}}<0.1\ \frac{\text{gr-PM}}{\mathrm{dscf}}$$

Corn wash, soak, and steam-operated cooking kettles
These units are not expected to generate any PM emissions.

Steam-heated vegetable oil fryer with oil mist eliminator (OME)
PM emissions = 0.108 lb-PM/hr (per section VII.C.2 above)
Exhaust flow rate = 3,100 scfm (per applicant)

$$\mathrm{PM}\left(\frac{\mathrm{gr}}{\mathrm{dscf}}\right)=\frac{\left(0.108\ \frac{\text{lb-PM}}{\mathrm{hr}}\right)\left(7{,}000\,\frac{\text{gr-PM}}{\text{lb-PM}}\right)\left(\frac{\mathrm{hr}}{60\ \mathrm{min}}\right)}{\left(3{,}100\,\frac{\mathrm{ft}^3}{\mathrm{min}}\right)}=0.004\ \frac{\text{gr-PM}}{\mathrm{dscf}}<0.1\ \frac{\text{gr-PM}}{\mathrm{dscf}}$$

8.5 MMBtu/hr oven with low-NOx burner

$$\mathrm{PM}\left(\frac{\mathrm{gr}}{\mathrm{dscf}}\right)=\frac{\left(0.0075\ \frac{\text{lb-PM}}{\mathrm{MMBtu}}\right)\left(8.5\,\frac{\mathrm{MMBtu}}{\mathrm{hr}}\right)\left(7{,}000\,\frac{\text{gr-PM}}{\text{lb-PM}}\right)}{\left(1{,}024.2\,\frac{\mathrm{ft}^3}{\mathrm{min}}\right)\left(\frac{100\%}{12\%}\right)}=0.052\ \frac{\text{gr-PM}}{\mathrm{dscf}}<0.1\ \frac{\text{gr-PM}}{\mathrm{dscf}}$$

Ambient air cooler with high velocity filtration system
PM emissions = 0.319 lb-PM/hr (per section VII.C.2 above)
Exhaust flow rate = 17,750 scfm (per applicant)

$$\text{PM}\left(\frac{\text{gr}}{\text{dscf}}\right)=\frac{\left(0.319\ \frac{\text{lb-PM}}{\text{hr}}\right)\left(7{,}000\frac{\text{gr-PM}}{\text{lb-PM}}\right)\left(\frac{\text{hr}}{60\ \text{min}}\right)}{\left(17{,}750\frac{\text{ft}^3}{\text{min}}\right)}=0.002\ \frac{\text{gr-PM}}{\text{dscf}}<0.1\ \frac{\text{gr-PM}}{\text{dscf}}$$

Seasoning system with a Tri-Mer 28-H orifice water scrubber
PM emissions = 0.008 lb-PM/hr (per section VII.C.2 above)
Exhaust flow rate = 2,800 scfm (per applicant)

$$\text{PM}\left(\frac{\text{gr}}{\text{dscf}}\right)=\frac{\left(0.008\ \frac{\text{lb-PM}}{\text{hr}}\right)\left(7{,}000\frac{\text{gr-PM}}{\text{lb-PM}}\right)\left(\frac{\text{hr}}{60\ \text{min}}\right)}{\left(2{,}800\frac{\text{ft}^3}{\text{min}}\right)}=0.0003\ \frac{\text{gr-PM}}{\text{dscf}}<0.1\ \frac{\text{gr-PM}}{\text{dscf}}$$

Since the grain loading for each operation is not exceeding 0.1 gr-PM/dscf limit, each operation is expected to operate in compliance with this rule.

N-1919-22-1
Material handling operations
Bag dump stations (each):
Out of starch, buttermilk, and onion powder dump stations, starch bag dump is expected to generate the highest emissions of 0.008 lb-PM/hr. The exhaust flow rate through each filter system is same at 725 scfm. Thus,

PM emissions = 0.008 lb-PM/hr (per section VII.C.2 above)
Exhaust flow rate = 725 scfm (per applicant)

$$\text{PM}\left(\frac{\text{gr}}{\text{dscf}}\right)=\frac{\left(0.008\ \frac{\text{lb-PM}}{\text{hr}}\right)\left(7{,}000\frac{\text{gr-PM}}{\text{lb-PM}}\right)\left(\frac{\text{hr}}{60\ \text{min}}\right)}{\left(725\frac{\text{ft}^3}{\text{min}}\right)}=0.001\ \frac{\text{gr-PM}}{\text{dscf}}<0.1\ \frac{\text{gr-PM}}{\text{dscf}}$$

The grain loading is not in excess of the 0.1 gr-PM/dscf limit from the starch bag dump system with the highest PM emissions. Therefore, it is presumed that none of the other bag dump stations will have grain concentration in excess of 0.1 gr-PM/dscf. Thus, compliance is expected with this rule.

Use bins (each):
Out of starch, buttermilk, and onion powder use bins, starch bag use bin is expected to generate the highest emissions of 0.008 lb-PM/hr. The exhaust flow rate through each filter system is same at 289 scfm. Thus,

PM emissions = 0.008 lb-PM/hr (per section VII.C.2 above)
Exhaust flow rate = 289 scfm (per applicant)

$$\text{PM}\left(\frac{\text{gr}}{\text{dscf}}\right)=\frac{\left(0.008\ \frac{\text{lb-PM}}{\text{hr}}\right)\left(7{,}000\frac{\text{gr-PM}}{\text{lb-PM}}\right)\left(\frac{\text{hr}}{60\ \text{min}}\right)}{\left(289\frac{\text{ft}^3}{\text{min}}\right)}=0.003\ \frac{\text{gr-PM}}{\text{dscf}}<0.1\ \frac{\text{gr-PM}}{\text{dscf}}$$

The grain loading is not in excess of the 0.1 gr-PM/dscf limit from the starch use bin system with the highest PM emissions. Therefore, it is presumed that none of the other bag dump stations will have grain concentration in excess of 0.1 gr-PM/dscf. Thus, compliance is expected with this rule.

Hopper:
PM emissions = 0.001 lb-PM/hr (per section VII.C.2 above)
Exhaust flow rate = 289 scfm (per applicant)

$$\text{PM}\left(\frac{\text{gr}}{\text{dscf}}\right)=\frac{\left(0.001\ \frac{\text{lb-PM}}{\text{hr}}\right)\left(7{,}000\frac{\text{gr-PM}}{\text{lb-PM}}\right)\left(\frac{\text{hr}}{60\ \text{min}}\right)}{\left(168\frac{\text{ft}^3}{\text{min}}\right)}=0.0007\ \frac{\text{gr-PM}}{\text{dscf}}<0.1\ \frac{\text{gr-PM}}{\text{dscf}}$$

Blender:
The potential PM emissions from the blender (each) are zero. Thus, PM concentration will not be in excess of 0.1 gr/dscf, and compliance is expected with this rule.

Steam-heated vegetable oil fryer equipped with oil mist eliminator (OME)
PM emissions = 0.024 lb-PM/hr (per section VII.C.2 above)
Exhaust flow rate = 1,233 scfm (per applicant)

$$\text{PM}\left(\frac{\text{gr}}{\text{dscf}}\right)=\frac{\left(0.024\ \frac{\text{lb-PM}}{\text{hr}}\right)\left(7{,}000\frac{\text{gr-PM}}{\text{lb-PM}}\right)\left(\frac{\text{hr}}{60\ \text{min}}\right)}{\left(1{,}233\frac{\text{ft}^3}{\text{min}}\right)}=0.002\ \frac{\text{gr-PM}}{\text{dscf}}<0.1\ \frac{\text{gr-PM}}{\text{dscf}}$$

Since the grain loading is not in excess of the 0.1 gr-PM/dscf limit, compliance is expected with this rule.

Snack chip cooler (Ambient air cooler) with high velocity filtration system
PM emissions = 0.319 lb-PM/hr (per section VII.C.2 above)
Exhaust flow rate = 7,729 scfm (per applicant)

$$\text{PM}\left(\frac{\text{gr}}{\text{dscf}}\right)=\frac{\left(0.319\ \frac{\text{lb-PM}}{\text{hr}}\right)\left(7{,}000\frac{\text{gr-PM}}{\text{lb-PM}}\right)\left(\frac{\text{hr}}{60\ \text{min}}\right)}{\left(7{,}729\frac{\text{ft}^3}{\text{min}}\right)}=0.005\ \frac{\text{gr-PM}}{\text{dscf}}<0.1\ \frac{\text{gr-PM}}{\text{dscf}}$$

Since the grain loading is not in excess of the 0.1 gr-PM/dscf limit, compliance is expected with this rule.

Seasoning system with a Tri-Mer 10-H orifice water scrubber
PM emissions = 0.138 lb-PM/hr (per section VII.C.2 above)
Exhaust flow rate = 2,200 scfm (per applicant)

$$\text{PM}\left(\frac{\text{gr}}{\text{dscf}}\right)=\frac{\left(0.138\ \frac{\text{lb-PM}}{\text{hr}}\right)\left(7{,}000\,\frac{\text{gr-PM}}{\text{lb-PM}}\right)\left(\frac{\text{hr}}{60\ \text{min}}\right)}{\left(2{,}200\,\frac{\text{ft}^3}{\text{min}}\right)}=0.007\ \frac{\text{gr-PM}}{\text{dscf}}<0.1\ \frac{\text{gr-PM}}{\text{dscf}}$$

Since the grain loading for each operation is not exceeding 0.1 gr-PM/dscf limit, each operation is expected to operate in compliance with this rule.

Rule 4202 Particulate Matter – Emission Rate

Section 4.0 of this rule, a person shall not discharge into the atmosphere PM emissions in excess of the maximum allowable limit (E_{Max}), in lb/hr, determined by the following equations:

E_{Max} = 3.59 $P^{0.62}$, for Process weight (P) less than or equal to 30 tons/hr
E_{Max} = 17.31 $P^{0.16}$, for Process weight (P) greater than 30 tons/hr

N-1919-20-1:
Corn cleaner with bin vent filter
Processing Rate: 22.5 tons/hr (per applicant)
E_{Max} = 3.59 (22.5 tons/hr)$^{0.62}$
= 24.7 lb-PM/hr

$E_{Proposed}$ = 0.017 lb-PM/hr

Corn wash, soak, and steam-operated cooking kettles
These units are not expected to generate any PM emissions.

Steam-heated vegetable oil fryer with oil mist eliminator (OME)
Processing Rate: 2.7 tons/hr (per applicant)

E_{Max} = 3.59 (2.7 tons/hr)$^{0.62}$
= 6.6 lb-PM/hr

$E_{Proposed}$ = 0.108 lb-PM/hr

8.5 MMBtu/hr oven with low-NOx burner
Gas and liquid fuels are excluded from the definition of process weight. Therefore, this rule does not apply to this unit.

Ambient air cooler with high velocity filtration system
Processing Rate: 2.7 tons/hr (per applicant)

E_{Max} = 3.59 (2.7 tons/hr)$^{0.62}$
= 6.6 lb-PM/hr

$E_{Proposed}$ = 0.319 lb-PM/hr

Seasoning system with a Tri-Mer 28-H orifice water scrubber
Processing Rate: 2.7 ton/hr (chips) + 0.4 tons/hr (seasoning) = 3.1 tons/hr (per applicant)

E_{Max} = 3.59 (3.1 tons/hr)$^{0.62}$
= 7.2 lb-PM/hr

$E_{Proposed}$ = 0.008 lb-PM/hr

For each operation above, the proposed emission rate ($E_{Proposed}$) is less than the maximum allowable emission rate (E_{Max}); therefore, compliance is expected with this rule.

N-1919-22-1
Material handling operations
Bag dump stations and use bins (each):
Processing Rate: 2.1 tons/hr (per applicant)

E_{Max} = 3.59 (2.1 tons/hr)$^{0.62}$
= 5.7 lb-PM/hr

$E_{Proposed}$ = 0.008 lb-PM/hr (max)

Hopper:
Processing Rate: 11.25 tons/hr (per applicant)

E_{Max} = 3.59 (11.25 tons/hr)$^{0.62}$
= 16.1 lb-PM/hr

$E_{Proposed}$ = 0.001 lb-PM/hr

Blender:
Processing Rate: 2.05 tons/hr (per applicant)

E_{Max} = 3.59 (2.05 tons/hr)$^{0.62}$
= 5.6 lb-PM/hr

$E_{Proposed}$ = 0.000 lb-PM/hr

Steam-heated vegetable oil fryer equipped with oil mist eliminator (OME)
Processing Rate: 2.702 tons/hr (per applicant)

E_{Max} = 3.59 (2.702 tons/hr)$^{0.62}$
= 6.6 lb-PM/hr

$E_{Proposed}$ = 0.024 lb-PM/hr

Snack chip cooler (Ambient air cooler) with high velocity filtration system
Processing Rate: 2.702 tons/hr (per applicant)

E_{Max} = 3.59 (2.702 tons/hr)$^{0.62}$
= 6.6 lb-PM/hr

$E_{Proposed}$ = 0.319 lb-PM/hr

Seasoning system with a Tri-Mer 10-H orifice water scrubber
Processing Rate: 4.084 tons/hr (1.382 tons/hr + 2.702 tons/hr, per applicant)

E_{Max} = 3.59 (4.084 tons/hr)$^{0.62}$
= 8.6 lb-PM/hr

$E_{Proposed}$ = 0.138 lb-PM/hr

For each operation above, the proposed emission rate ($E_{Proposed}$) is less than the maximum allowable emission rate (E_{Max}); therefore, compliance is expected with this rule.

Rule 4301 Fuel Burning Equipment

The requirements of section 5.0 are as follows:

- Combustion contaminates (TSP) - Not to exceed 0.1 gr/dscf @ 12% CO_2 and 10 lb/hr.
- SO_x emissions - Not to exceed 200 lb/hr
- NO_x emissions - Not to exceed 140 lb/hr

N-1919-20-1
8.5 MMBtu/hr oven with low-NOx burner

NOx = 0.306 lb/hr
SOx = 0.024 lb/hr
PM = 0.064 lb/hr

$$\mathrm{PM}\left(\frac{\mathrm{gr}}{\mathrm{dscf}}\right)=\frac{\left(0.0075\ \frac{\mathrm{lb\text{-}PM}}{\mathrm{MMBtu}}\right)\left(8.5\frac{\mathrm{MMBtu}}{\mathrm{hr}}\right)\left(7{,}000\frac{\mathrm{gr\text{-}PM}}{\mathrm{lb\text{-}PM}}\right)}{\left(1{,}024.2\frac{\mathrm{ft}^3}{\mathrm{min}}\right)\left(\frac{100\%}{12\%}\right)}=0.052\ \frac{\mathrm{gr\text{-}PM}}{\mathrm{dscf}}<0.1\ \frac{\mathrm{gr\text{-}PM}}{\mathrm{dscf}}$$

Since the potential emissions from the oven are below the threshold for each pollutant, compliance is expected with this rule.

Rule 4309 Dryers, dehydrators, and Ovens

This rule applies to any dryer, dehydrator, or oven that is fired on gaseous fuel, liquid fuel, or is fired on gaseous and liquid fuel sequentially, and the total rated heat input for the unit is 5.0 million British thermal units per hour (5.0 MMBtu/hr) or greater.

Per Section 4.1.4, the requirements of this rule shall not apply to units used to bake or fry food for human consumption. The proposed 8.5 MMBtu/hr natural gas-fired oven will be used to bake tortilla chips. Therefore, this unit is not subject to the requirements of this rule.

Rule 4801 Sulfur Compounds

Section 3.1 states that a person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding a concentration of two-tenths (0.2) percent by volume calculated as sulfur dioxide (SO_2) at the point of discharge on a dry basis averaged over 15 consecutive minutes.

For the proposed gaseous fuel combustion at a reference state of 60 °F, the Rule 4801 limit of 2,000 ppmvd is equivalent to:

$$\frac{(2000\ \text{ppmvd})\left(8{,}578\frac{\text{dscf}}{\text{MMBtu}}\right)\left(64\frac{\text{lb}-\text{SO}_x}{\text{lb}-\text{mol}}\right)}{\left(379.5\frac{\text{dscf}}{\text{lb}-\text{mol}}\right)\left(10^6\right)} \cong 2.9\frac{\text{lb}-\text{SO}_x}{\text{MMBtu}}$$

SO_x emissions from the proposed 8.5 MMBtu/hr tortilla oven are 0.00285 lb/MMBtu. Since these emissions are less than 2.9 lb/MMBtu, compliance is expected with this Rule.

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.

District CEQA Findings

The County of Stanislaus (County) is the public agency having principal responsibility for approving the project. As such, the County served as the Lead Agency (CCR §15367). In approving the project, the Lead Agency prepared and adopted a Negative Declaration. The Lead agency filed a Notice of Determination, stating that the environmental document was adopted pursuant to the provisions of CEQA and concluding that the project would not have a significant effect on the environment.

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), (CCR §15381). As a Responsible Agency the District complies with CEQA by considering the environmental document prepared by the Lead Agency, and by reaching its own conclusion on whether and how to approve the project (CCR §15096).

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 District does not have authority over any of the other project impacts and has, therefore, determined that no additional findings are required (CEQA Guidelines §15096(h)).

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, and there is minimal potential for public concern for this particular type of facility/operation. Therefore, an Indemnification Agreement and/or a Letter of Credit will not be required for this project in the absence of expressed public concern.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue N-1919-20-1 subject to the permit conditions on the attached draft ATCs in **Appendix A**.

X. Billing Information

Annual Permit Fees			
Permit Number	**Fee Schedule**	**Fee Description**	**Annual Fee**
N-1919-20-1	3020-02-G	8.5 MMBtu/hr oven	$980
N-1919-22-1	3020-01-D	104.7 hp, total electric motor hp	$379

Appendixes

A: Draft ATCs
B: BACT Guidelines
C: BACT Analysis
D: HRA & AAQA Summary
E: Quarterly Net Emissions Change
F: Compliance Certification
G: ERC Surplus Analysis
H: ERC Withdrawal Calculations

Appendix A
Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-1919-20-1 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: FRITO-LAY INC
MAILING ADDRESS: 600 GARNER RD
MODESTO, CA 95357-0514

LOCATION: 600 GARNER RD
MODESTO, CA 95357-0514

EQUIPMENT DESCRIPTION:
DORITO TORTILLA CHIP PROCESS LINE CONSISTS OF A SCHENCK (OR EQUIVALENT MAKE AND MODEL) CORN CLEANER SERVED BY A CYCLONE VENTED TO A DUST COLLECTION SYSTEM, FOUR KETTLES (STEAM-HEATED) FOR CORN WASH, SOAK AND COOK SYSTEM, A HEAT & CONTROL MODEL DTC-4500 (OR EQUIVALENT MAKE AND MODEL)VEGETABLE OIL FRYER (STEAM HEATED) WITH OIL MIST ELIMINATOR, AN IET COMBUSTION LLC MODEL 10D-400-S-F (OR EQUIVALENT MAKE AND MODEL) 8.5 MMBTU/HR OVEN WITH LOW-NOX BURNER, A HEAT & CONTROL MODEL AAC-7212 (OR EQUIVALENT MAKE AND MODEL)AMBIENT AIR COOLER SERVED BY HIGH VELOCITY FILTRATION SYSTEM, AND A SEASONING SYSTEM VENTED TO A TRI-MER 28-H (OR EQUIVALENT MAKE AND MODEL) WATER SCRUBBER

CONDITIONS

1. This permit cancels and replaces the Authority to Construct N-1919-20-0. [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
3. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. Particulate matter emissions from each operation under this permit shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Samir Sheikh, Executive Director / APCO

Brian Clements, Director of Permit Services
N-1919-20-1 : Jun 22 2023 11:51AM -- KAHLONJ : Joint Inspection NOT Required

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

7. Visible emissions from each dust collection system serving the corn cleaner and ambient air cooler shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201] Federally Enforceable Through Title V Permit

8. PM10 emissions from the corn cleaner system served by filtration system shall not exceed 0.4 pounds during any one day. [District Rule 2201] Federally Enforceable Through Title V Permit

9. Corn wash, soak, and steam-operated cooking kettles shall not cause any emissions into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit

10. The exhaust stacks of the vegetable oil fryer, ambient air cooler, and the oven 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. PM10 emissions from the vegetable oil fryer shall not exceed 2.6 pounds during any one day. [District Rule 2201] Federally Enforceable Through Title V Permit

12. VOC emissions from the vegetable oil fryer shall not exceed 5.5 pounds during any one day. [District Rule 2201] Federally Enforceable Through Title V Permit

13. Emissions from the oven shall not exceed any of the following limits: 36 lb-NOx/MMscf, 2.85 lb-SOx/MMscf, 7.5 lb-PM10/MMscf, 300 lb-CO/MMscf and 7 lb-VOC/MMscf of natural gas combusted. [District Rule 2201] Federally Enforceable Through Title V Permit

14. The oven shall only be fired on PUC-quality natural gas. [District Rule 2201] Federally Enforceable Through Title V Permit

15. PM10 emissions from the ambient air cooler exhaust shall not exceed 7.6 pounds during any one day. [District Rule 2201] Federally Enforceable Through Title V Permit

16. PM10 emissions from the seasoning system scrubber exhaust shall not exceed 0.2 pounds during any one day. [District Rule 2201] Federally Enforceable Through Title V Permit

17. The seasoning system scrubber water circulation rate (gallons per minute) range shall be established per manufacturer's recommendation at time of startup inspection. This information shall be administratively incorporated in the Permit to Operate. [District Rule 2201] Federally Enforceable Through Title V Permit

18. The seasoning system scrubber water circulation rate (gallons per minute) shall be monitored and recorded each day the seasoning system operates. [District Rule 2201] Federally Enforceable Through Title V Permit

19. The owner or operator shall maintain records sufficient to demonstrate compliance with each emission limit and permit requirement. These records shall contain each calculated emission quantity as well as each process variable used in the respective calculations. [District Rule 2201] Federally Enforceable Through Title V Permit

20. Visible emissions from each dust collection system shall be inspected annually during operation. If visible emissions are observed, corrective action shall be taken to eliminate visible emissions. If visible emissions cannot be corrected within 24 hours, a visible emissions test using EPA Method 9 shall be conducted. [District Rule 2201] Federally Enforceable Through Title V Permit

21. Bags or filters associated with each dust collection system shall be thoroughly inspected annually for tears, scuffs, abrasions, holes, or any evidence of particulate matter leaks and shall be replaced as needed. [District Rule 2201] Federally Enforceable Through Title V Permit

22. Records of equipment & associated control device(s) maintenance, inspections, and repair shall be maintained. The records shall include the identification of the equipment, date of inspection, corrective action taken, and identification of the individual performing the inspection. [District Rule 2201] Federally Enforceable Through Title V Permit

23. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

24. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

25. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2010] Federally Enforceable Through Title V Permit

26. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

27. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or increase in firing rate may be authorized for any alternate equipment. [District Rule 2201] Federally Enforceable Through Title V Permit

28. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits as required by Authority to Construct N-1919-18-0. [District Rule 2201] Federally Enforceable Through Title V Permit

29. Prior to operating equipment under Authority to Construct N-1919-20-1, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 1,005 lb, 2nd quarter - 1,005 lb, 3rd quarter - 1,006 lb, and fourth quarter - 1,006 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERC specified below. NOx emission reduction credits supplied under ATC N-1919-20-0 (project N-1203844) shall satisfy the requirement of this condition. [District Rule 2201] Federally Enforceable Through Title V Permit

30. ERC Certificate Number S-3765-2 (or a certificate split from this certificate) 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 Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: N-1919-22-1 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: FRITO-LAY INC
MAILING ADDRESS: 600 GARNER RD
MODESTO, CA 95357-0514

LOCATION: 600 GARNER RD
MODESTO, CA 95357-0514

EQUIPMENT DESCRIPTION:
ONION FRIED SNACK (OFS) MANUFACTURING LINE CONSIST OF THREE SHICK ESTEVE (OR EQUIVALENT MAKE AND MODEL) BAG DUMP STATIONS EACH VENTED TO ITS OWN SHICK ESTEVE IQC (OR EQUIVALENT MAKE AND MODEL) FILTER SYSTEM, THREE USE BINS EACH VENTED TO ITS OWN SHICK ESTEVE IQC (OR EQUIVALENT MAKE AND MODEL) FILTER SYSTEM, ONE HOPPER VENTED TO SHICK ESTEVE IQC (OR EQUIVALENT MAKE AND MODEL), ONE BLENDER VENTED TO A SHICK ESTEVE MQC (OR EQUIVALENT MAKE AND MODEL), TEN EXTRUDERS, A STEAM-OPERATED CLOSED-TOP VEGETABLE OIL FRYER VENTED THROUGH AN OIL MIST ELIMINATOR (OME), A HEAT & CONTROL (OR EQUIVALENT MAKE AND MODEL) AMBIENT AIR COOLER SERVED BY HIGH VELOCITY FILTRATION SYSTEM, AND A SEASONING SYSTEM CONSISTING OF A DUMP STATION AND TUMBLER VENTED TO A TRI-MER 10-H (OR EQUIVALENT MAKE AND MODEL) ORIFICE WATER SCRUBBER, AND A PERMIT-EXEMPT ELECTRIC OVEN FOR HEATING EXTRUDER DIES

CONDITIONS

1. This permit cancels and replaces the Authority to Construct N-1919-22-0. [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
3. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

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

Samir Sheikh, Executive Director / APCO

DRAFT

Brian Clements, Director of Permit Services
N-1919-22-1 : Jun 22 2023 11:51AM -- KAHLONJ : Joint Inspection NOT Required

5. Particulate matter emissions from each operation under this permit shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit

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

7. Visible emissions from each dust collection system serving the bag dump stations, use bins, a hopper, a blender, and an ambient air cooler shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201] Federally Enforceable Through Title V Permit

8. The combined total PM10 emissions from material handling operations utilizing three bag dump stations, three use bins, a hopper, and a blender shall not exceed 0.4 pounds during any one day. [District Rule 2201] Federally Enforceable Through Title V Permit

9. The exhaust stacks of the vegetable oil fryer and ambient air cooler 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]

10. PM10 emissions from the vegetable oil fryer exhaust downstream of the oil mist eliminator system shall not exceed 0.6 pounds during any one day. [District Rule 2201] Federally Enforceable Through Title V Permit

11. VOC emissions from the vegetable oil fryer exhaust downstream of the oil mist eliminator system shall not exceed 11.0 pounds during any one day. [District Rule 2201] Federally Enforceable Through Title V Permit

12. Oil mist eliminator system shall reduce at least 85% (by weight) of the uncontrolled VOC emissions and 95% (by weight) of the uncontrolled PM10 emissions from the vegetable oil fryer. [District Rule 2201] Federally Enforceable Through Title V Permit

13. PM10 emissions from the ambient air cooler exhaust downstream of high velocity filtration system shall not exceed 7.7 pounds per day. [District Rule 2201] Federally Enforceable Through Title V Permit

14. High velocity filtration system shall reduce uncontrolled PM10 emissions by at least 70% (by weight) from the ambient air cooler. [District Rule 2201] Federally Enforceable Through Title V Permit

15. PM10 emissions from the seasoning system exhaust downstream of scrubber system shall not exceed 3.3 pounds during any one day. [District Rule 2201] Federally Enforceable Through Title V Permit

16. Water scrubber shall reduce uncontrolled PM10 emissions by at least 95% (by weight) from the seasoning system. [District Rule 2201] Federally Enforceable Through Title V Permit

17. The seasoning system scrubber water circulation rate (gallons per minute) range shall be established per manufacturer's recommendation at time of startup inspection. This information shall be administratively incorporated in the Permit to Operate. [District Rule 2201] Federally Enforceable Through Title V Permit

18. The seasoning system scrubber water circulation rate (gallons per minute) shall be monitored and recorded each day the seasoning system operates. [District Rule 2201] Federally Enforceable Through Title V Permit

19. Source testing to verify compliance with emission limits and control efficiency requirements of emission control devices for vegetable oil fryer, seasoner system, and ambient air cooler shall be conducted within 60 days of producing a sellable product. Results from source testing conducted under ATC N-1919-22-0 may be substituted to satisfy the source testing requirement of this condition [District Rule 2201] Federally Enforceable Through Title V Permit

20. Sampling facilities for source testing shall be provided in accordance with the provisions of Rule 1081 (Source Sampling). [District Rule 1081] Federally Enforceable Through Title V Permit

21. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

22. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. The District Compliance Division may approve lesser time period for each test run upon evaluating technical justification for such request. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

23. Source testing to measure PM10 shall be conducted using either: EPA Method 201 or 201A, and 202; or CARB Method 5 in combination with 501. Should the applicant decided to use different methodology, the methodology must be approved by the District prior to its use. [District Rule 2201] Federally Enforceable Through Title V Permit

24. In lieu of performing a source test for PM10, the results of the total particulate test may be used for compliance with the PM10 emissions limit provided the results include both the filterable and condensable (back half) particulate, and that all particulate matter is assumed to be PM10. Source testing to measure concentrations of total particulate emissions shall be conducted using EPA method 5. [District Rule 2201] Federally Enforceable Through Title V Permit

25. A presurvey must be done prior to source testing to determine VOC compound analytes present in the effluent stream from vegetable oil fryer. The presurvey shall be used to develop the appropriate sampling approach to ensure efficient collection of all VOCs present in the effluent and to develop a specific list of target compounds to be quantified during the subsequent total VOC source testing. VOC source testing shall be conducted using EPA Methods 18, 25, 25A. EPA Methods 25 or 25A can be used to determine the total VOCs only if the analyzer is calibrated with appropriate compound as determined during the presurvey, and the total carbon mass is scaled to the mole fraction of that appropriate compound, with the balance being scaled to the relative mole fraction of the other identified compounds. The Method 25 or 25A scaling factor shall be reported in the source test report and may be listed in the Permit to Operate for future testing (if any) required by the District. Should the permittee decide to use a different test methodology, the methodology must first be approved by the District. [District Rule 2201] Federally Enforceable Through Title V Permit

26. Stack gas velocity or volumetric flow rate shall be determined using EPA Methods 2, 2A, or 2D. [District Rule 2201] Federally Enforceable Through Title V Permit

27. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit

28. The owner or operator shall maintain records sufficient to demonstrate compliance with each emission limit and permit requirement. These records shall contain each calculated emission quantity as well as each process variable used in the respective calculations. [District Rule 2201] Federally Enforceable Through Title V Permit

29. Visible emissions from each dust collection system shall be inspected annually during operation. If visible emissions are observed, corrective action shall be taken to eliminate visible emissions. If visible emissions cannot be corrected within 24 hours, a visible emissions test using EPA Method 9 shall be conducted. [District Rule 2201] Federally Enforceable Through Title V Permit

30. Bags or filters associated with each dust collection system shall be thoroughly inspected annually for tears, scuffs, abrasions, holes, or any evidence of particulate matter leaks and shall be replaced as needed. [District Rule 2201] Federally Enforceable Through Title V Permit

31. Records of equipment & associated control device(s) maintenance, inspections, and repair shall be maintained. The records shall include the identification of the equipment, date of inspection, corrective action taken, and identification of the individual performing the inspection. [District Rule 2201] Federally Enforceable Through Title V Permit

32. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit

33. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

34. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2010] Federally Enforceable Through Title V Permit

35. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

36. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or increase in firing rate may be authorized for any alternate equipment. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

37. Prior to operating equipment under Authority to Construct permit N-1919-22-1, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 355 lb, 2nd quarter - 355 lb, 3rd quarter - 356 lb, and fourth quarter - 356 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

38. ERC Certificate Numbers S-3411-1 and/or S-3426-1 (or a certificate split from these certificates) shall be used to supply the required VOC offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct permits shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct permit. [District Rule 2201] Federally Enforceable Through Title V Permit

39. Prior to operating equipment under Authority to Construct permit N-1919-22-1, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 1,643 lb, 2nd quarter - 1,643 lb, 3rd quarter - 1,643 lb, and fourth quarter - 1,643 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

40. ERC Certificate Number S-5255-4 (or a certificate split from this certificate) shall be used to supply the required PM10 offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct permits shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct permit. [District Rule 2201] Federally Enforceable Through Title V Permit

Appendix B
BACT Guidelines

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 1.6.3*

Last Update: 2/21/2020

Snack Chip Fryer with Indirect-Fired Heat Transfer System

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	COMBUSTION EMISSIONS: Use PUC quality natural gas fuel with LPG/Propane as backup fuel FRYING PROCESS EMISSIONS: None	FRYING PROCESS EMISSIONS: 1) 85% control (combined VOC and PM control by thermal oxidizer, or equal); 2) 80% control (combined VOC and PM control by carbon adsorber, or equal)	
SOx	Use PUC quality natural gas fuel with LPG/Propane as backup fuel		
PM10	COMBUSTION EMISSIONS: Use PUC quality natural gas fuel with LPG/Propane as backup fuel FRYING PROCESS EMISSIONS: 75% control (oil mist eliminator or equal)	FRYING PROCESS EMISSIONS: 1) 85% control (combined VOC and PM control by thermal oxidizer, or equal); 2) 80% control (combined VOC and PM control by carbon adsorber, or equal)	
NOx	9 ppmvd @ 3% O2 for units greater than 5 MMBtu/hr to less than or equal to 20 MMBtu/hr 7 ppmvd @ 3% O2 for units greater than 20 MMBtu/hr		
CO	100 ppmvd @ 3% O2		

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**

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 5.5.5*

Last Update: 10/6/2022

Snack Chip Seasoning System

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
PM10		At least 95% reduction of captured particulate matter emissions using wet scrubber, or equivalent dust control system	

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**

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 5.5.6*

Last Update: 10/6/2022

Snack Chip Ambient Air Cooler

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
PM10	Use properly engineered high velocity air filtration system with oil baffle type filters, or equivalent filter system (70% control)		

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**

Appendix C
BACT Analysis

Top-Down BACT Analysis

N-1919-20-1:

Steam-heated vegetable oil fryer with oil mist eliminator (OME)

BACT is triggered for VOC and PM10 emissions.

VOC:

BACT guideline 1.6.3 for a snack chip fryer will be used to address the BACT requirements for VOC emissions.

Step 1: Identify All Possible Control Technologies

BACT guideline 1.6.3 for snack chip fryer lists the following controls:

Achieved-in-Practice (AIP):
None

Technologically Feasible:

1. 85% control (combined VOC and PM control by thermal oxidizer, or equal)
2. 80% control (combined VOC and PM control by carbon adsorber, or equal)

Alternate Basic Equipment:
None

Step 2: Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3: Rank Remaining Control Technologies by Control Effectiveness

1. 85% control (combined VOC and PM control by thermal oxidizer, or equal)
2. 80% control (combined VOC and PM control by carbon adsorber, or equal)

Step 4: Cost Effectiveness Analysis

Option 1: Regenerative thermal oxidizer or catalytic oxidizer
As seen in the worksheets below, the use of these technologies is not cost-effective; therefore, they are not required as BACT at this time.

Cost Item	Reasons & Remarks	Estimated Cost
Direct Costs		
Purchased equipment costs		
Equipment Purchase (RTO), EC	Ref: Cost in Dec 2022 $ value adjusted using Inflation Calculator at https://www.bls.gov/data/inflation_calculator.htm, Original quote $323,600 from Anguil Environmental Systems, Inc. for 3000 cfm system, cost quote (July 26, 2019) provided under project N-1192453.	$374,335
Instrumentation (included)		
Sales taxes	3.1825% EC	$11,913
*Freight	0.05 EC	$18,717
Purchased equipment costs, PEC	**sum of above items**	**$404,965**
Direct installation costs	Ref: Section 3 Table 2.8 of EPA Air Pollution Control Cost Manual (Sixth Edition) EPA/452/B-02-001	
Foundations & supports	0.08 PEC	$32,397
Handling & erection	0.14 PEC	$56,695
Electrical	0.02 PEC	$8,099
Piping	0.01 PEC	$4,050
Insulation for duct work	0.01 PEC	$4,050
Painting	0.01 PEC	$4,050
Direct installation costs	**sum of above items**	**$109,341**
Site preparation	not included	
Buildings	not included	
Total Direct Costs, DC		**$514,306**
Indirect Costs (installation)	Ref: Section 3 Table 2.8 of EPA Air Pollution Control Cost Manual (Sixth Edition) EPA/452/B-02-001	
Engineering	0.10 PEC	$40,496
Construction & field expenses	0.05 PEC	$20,248
Contractor fees	0.10 PEC	$40,496
Start-up	0.02 PEC	$8,099
Performance test	0.01 PEC	$4,050
Contingencies	0.03 PEC	$12,149
Total Indirect Costs, IC	**sum of above items**	**$125,539**
Total Capital Investment (TCI)	**DC + IC**	**$639,845**
Direct Annual Costs		
Operating labor	Ref: EPA Table 2.10 of EPA/452/B-02-001	
Operator	0.5 hr/shift, $32.00/hr, 3 shifts/day, 365 days/yr	$17,520
Supervisor	15% of operator	$2,628
Maintenance	Ref: EPA Table 2.10 of EPA/452/B-02-001	
Labor	0.5 hr/shift, $32.00/hr, 3 shifts/day, 365 days/yr	$17,520
Materials	100% of maintenance labor	$17,520
Utilities		
Supplemental fuel (Natural gas)	Ref: Anguil Environmental Systems, Inc. cost quote (July 26, 2019)	$37,800
Electricity (RTO)		$18,984
Total Direct Annual Costs, DAC	**sum of above items**	**$111,972**
Indirect Annual Costs	Ref: Section 3 Table 2.8 of EPA Air Pollution Control Cost Manual (Sixth Edition) EPA/452/B-02-001	
Overhead	60% of sum of operating, supervisor, & maintenance lable & maintenance materials	$33,112.80
Administrative Charges	2%TCI	$12,797
Property Taxes	1%TCI	$6,398
Insurance	1%TCI	$6,398
Total Indirect Annual Costs, IAC	**sum of above items**	**$58,707**
Total Annual Costs, TAC	**DAC + IAC**	**$170,679**
Cost Effectiveness		
Annualized Total Capital Investment, ATCI	Approx. 0.123 x TCI, amortization factor determined using 10 year, 4% interest	$78,887
Cost of controls ($/yr)	ATCI + TAC	$249,566
**MCET ($/yr)	Combined 85% control for VOC and PM emissions of both FCP&DTC fryers = VOC Reduction (tons/yr) x Cost effectiveness threshold ($/ton) + PM10 Reduciton (tons/yr) x Cost Effectiveness threshold ($/ton) = 0.85*(2010/2000+2010/2000)*17500+0.85*(260/2000+946/2000)*11400	$35,742
Control Required?	Cost of controls ($/yr) < MCET ($/yr)	**No**

*Ref: Section 3 Table 2.8 of EPA Air Pollution Control Cost Manual (Sixth Edition) EPA/452/B-02-001

**MCET = Multi-Pollutant Cost Effectiveness Threshold

Cost Item	Reasons & Remarks	Estimated Cost
Direct Costs		
Purchased equipment costs		
Equipment Purchase (RTO), EC	Ref: Cost in Dec 2022 $ value adjusted using Inflation Calculator at https://www.bls.gov/data/inflation_calculator.htm, Original quote of $300,000 from Anguil Environmental Systems, Inc. for 3000 cfm system; cost quote (July 26, 2019), provided under project N-1192453	$347,035
Instrumentation (included)		
Sales taxes	3.1825% EC	$11,044
*Freight	0.05 EC	$17,352
Purchased equipment costs, PEC	**sum of above items**	**$375,431**
Direct installation costs	Ref: Section 3 Table 2.8 of EPA Air Pollution Control Cost Manual (Sixth Edition) EPA/452/B-02-001	
Foundations & supports	0.08 PEC	$30,034
Handling & erection	0.14 PEC	$52,560
Electrical	0.02 PEC	$7,509
Piping	0.01 PEC	$3,754
Insulation for duct work	0.01 PEC	$3,754
Painting	0.01 PEC	$3,754
Direct installation costs	**sum of above items**	**$101,366**
Site preparation	not included	
Buildings	not included	
Total Direct Costs, DC		**$476,798**
Indirect Costs (installation)	Ref: Section 3 Table 2.8 of EPA Air Pollution Control Cost Manual (Sixth Edition) EPA/452/B-02-001	
Engineering	0.10 PEC	$37,543
Construction & field expenses	0.05 PEC	$18,772
Contractor fees	0.10 PEC	$37,543
Start-up	0.02 PEC	$7,509
Performance test	0.01 PEC	$3,754
Contingencies	0.03 PEC	$11,263
Total Indirect Costs, IC	**sum of above items**	**$116,384**
Total Capital Investment (TCI)	**DC + IC**	**$593,181**
Direct Annual Costs		
Operating labor	Ref: EPA Table 2.10 of EPA/452/B-02-001	
Operator	0.5 hr/shift, $32.00/hr, 3 shifts/day, 365 days/yr	$17,520
Supervisor	15% of operator	$2,628
Maintenance	Ref: EPA Table 2.10 of EPA/452/B-02-001	
Labor	0.5 hr/shift, $32.00/hr, 3 shifts/day, 365 days/yr	$17,520
Materials	100% of maintenance labor	$17,520
Utilities		
Supplemental fuel (Natural gas)	Ref: Anguil Environmental Systems, Inc. cost quote (July 26, 2019)	$37,800
Electricity (RTO)		$18,984
Total Direct Annual Costs, DAC	**sum of above items**	**$111,972**
Indirect Annual Costs	Ref: Section 3 Table 2.8 of EPA Air Pollution Control Cost Manual (Sixth Edition) EPA/452/B-02-001	
Overhead	60% of sum of operating, supervisor, & maintenance lable & maintenance materials	$33,112.80
Administrative Charges	2%TCI	$11,864
Property Taxes	1%TCI	$5,932
Insurance	1%TCI	$5,932
Total Indirect Annual Costs, IAC	**sum of above items**	**$56,840**
Total Annual Costs, TAC	**DAC + IAC**	**$168,812**
Cost Effectiveness		
Annualized Total Capital Investment, ATCI	Approx. 0.123 x TCI, amortization factor determined using 10 year, 4% interest	$73,134
Cost of controls ($/yr)	ATCI + TAC	$241,946
**MCET ($/yr)	Combined 85% control for VOC and PM emissions of both FCP&DTC fryers = VOC Reduction (tons/yr) x Cost effectiveness threshold ($/ton) + PM10 Reduciton (tons/yr) x Cost Effectiveness threshold ($/ton) = 0.85*(2010/2000+2010/2000)*17500+0.85*(260/2000+946/2000)*11400	$35,742
Control Required?	Cost of controls ($/yr) < MCET ($/yr)	**No**

*Ref: Section 3 Table 2.8 of EPA Air Pollution Control Cost Manual (Sixth Edition) EPA/452/B-02-001

**MCET = Multi-Pollutant Cost Effectiveness Threshold

Option 2: Carbon adsorber

Cost Item	Reasons & Remarks	Estimated Cost
Direct Costs		
Purchased equipment costs		
Equipment Purchase (Carbon adsorber), EC	Ref: Cost in Dec 2022 $ value adjusted using Inflation Calculator at https://www.bls.gov/data/inflation_calculator.htm, Original quote of $1680,000 from KCH Engineered Systems (August 2, 2019 quote), provided under project N-1192453	$194,349
Instrumentation	0.1 EC	$19,435
Sales taxes	3.1825% EC	$6,185
Freight	0.05 EC	$9,717
Purchased equipment costs, PEC	**sum of above items**	**$229,687**
Direct installation costs	Ref: Section 3 Table 1.3 of EPA Air Pollution Control Cost Manual (Sixth Edition) EPA/452/B-02-001	
Foundations & supports	0.08 PEC	$18,375
Handling & erection	0.14 PEC	$32,156
Electrical	0.04 PEC	$9,187
Piping	0.02 PEC	$4,594
Insulation	0.01 PEC	$2,297
Painting	0.01 PEC	$2,297
Direct installation costs	**sum of above items**	**$68,906**
Site preparation	not included	
Buildings	not included	
Total Direct Costs, DC		$298,592
Indirect Costs (installation)	Ref: Section 3 Table 1.3 of EPA Air Pollution Control Cost Manual (Sixth Edition) EPA/452/B-02-001	
Engineering	0.10 PEC	$22,969
Construction & field expenses	0.05 PEC	$11,484
Contractor fees	0.10 PEC	$22,969
Start-up	0.02 PEC	$4,594
Performance test	0.01 PEC	$2,297
Contingencies	0.03 PEC	$6,891
Total Indirect Costs, IC	**sum of above items**	**$71,203**
Total Capital Investment (TCI) = DC + IC		**$369,795**
Direct Annual Costs	Ref: Section 3 Table 1.6 of EPA Air Pollution Control Cost Manual (Sixth Edition) EPA/452/B-02-001	
Operating labor		
Operator	0.5 hr/shift, $32.00/hr, 3 shifts/day, 365 days/yr	$17,520
Supervisor	15% of operator	$2,628
Maintenance		
Labor	0.5 hr/shift, $32.00/hr, 3 shifts/day, 365 days/yr	$17,520
Materials	100% of maintenance labor	$17,520
Replacement Parts, carbon		
Replacement labor	Not determined	
Carbon cost	Not determined	
Utilities		
Electricity (carbon adsorber system)	Not determined	
Total Direct Annual Costs, DAC	**sum of above items**	**$55,188**
Indirect Annual Costs	Ref: Section 3 Table 1.6 of EPA Air Pollution Control Cost Manual (Sixth Edition) EPA/452/B-02-001	
Overhead	60% of sum of operating, supervisor, & maintenance lable & maintenance materials	$33,112.80
Administrative Charges	2%TCI	$7,396
Property Taxes	1%TCI	$3,698
Insurance	1%TCI	$3,698
Total Indirect Annual Costs, IAC	**sum of above items**	**$47,905**
Total Annual Costs, TAC	**DAC + IAC**	**$103,093**
Cost Effectiveness		
Annualized Total Capital Investment, ATCI	Approx. 0.123 x TCI, amortization factor determined using 10 year, 4% interest	$45,592
Cost of controls ($/yr)	ATCI + TAC	$148,685
**MCET ($/yr)	Combined 85% control for VOC and PM emissions of both FCP&DTC fryers = VOC Reduction (tons/yr) x Cost effectiveness threshold ($/ton) + PM10 Reduciton (tons/yr) x Cost Effectiveness threshold ($/ton) = 0.80*(2010/2000+2010/2000)*17500+0.80*(260/2000+946/2000)*11400	$33,639
Control Required?	Cost of controls ($/yr) < MCET ($/yr)	**No**

*Ref. Ref: Section 3 Table 1.3 of EPA Air Pollution Control Cost Manual (Sixth Edition) EPA/452/B-02-001

**MCET = Multi-Pollutant Cost Effectiveness Threshold

Step 5: Select BACT

As seen above, the technologically feasible options are not cost effective, therefore, none of them is required at this time. The applicant has proposed to install a steam-operated fryer without the use of any control equipment.

PM10:
BACT guideline 1.6.3 for a snack chip fryer will be used to address the BACT requirements for PM10 emissions.

Step 1: Identify All Possible Control Technologies

BACT guideline 1.6.3 for snack chip fryer lists the following controls

Achieved-in-Practice (AIP):
1. 75% control (oil mist eliminator or equal)

Technologically Feasible:
1. 85% control (combined VOC and PM control by thermal oxidizer, or equal)
2. 80% control (combined VOC and PM control by carbon adsorber, or equal)

Alternate Basic Equipment:
None

Step 2: Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3: Rank Remaining Control Technologies by Control Effectiveness

1. 85% control (combined VOC and PM control by thermal oxidizer, or equal)
2. 80% control (combined VOC and PM control by carbon adsorber, or equal)
3. 75% control (oil mist eliminator or equal)

Step 4: Cost Effectiveness Analysis

Option 1: 85% control (combined VOC and PM control by thermal oxidizer, or equal)
Option 2: 80% control (combined VOC and PM control by carbon adsorber, or equal)
Based on the worksheets in VOC BACT section above, none of technologically feasible options are cost effective at this time.

Option 3: 75% control (oil mist eliminator or equal)
The applicant has proposed to equip the fryer with oil mist eliminator. Thus, cost-effectiveness analysis is not required for this technology.

Step 5: Select BACT

BACT would be to use a technology that can achieve at least 75% control for PM10 emissions.

The applicant has proposed to install a steam-operated fryer with oil mist eliminators (OME). Per manufacturer, OMEs achieve at least 95% control for PM10 emissions. Thus, BACT requirements are satisfied.

8.5 MMBtu/hr oven with low-NOx burner

As seen above, BACT is triggered for NOx emissions. BACT guideline 1.6.4 – Oven snack food has been rescinded. The BACT guideline is being updated as part of this project. Detailed draft BACT guideline analysis is included at the end of this Appendix.

Step 1: Identify All Possible Control Technologies

Achieved-in-Practice (AIP):
1. 30 ppmvd NOx @ 3% O2 (0.036 lb/MMBtu) with use of natural gas fuel

Technologically Feasible:
1. Selective catalytic reduction (SCR) system

Alternate Basic Equipment:
None

Step 2: Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3: Rank Remaining Control Technologies by Control Effectiveness

1. 90% NOx reduction using SCR system
2. 30 ppmvd NOx @ 3% O2 and use of natural gas with LPG as backup fuel

Step 4: Cost Effectiveness Analysis

Option 1: 90% NOx reduction using SCR system

Per R.F. MacDonald Company & Nationwide Boiler, base cost of an SCR system would be about $315,000 (average July 2020 $ value). Using inflation calculator (https://www.bls.gov/data/inflation_calculator.htm), the Dec 2022 $ value of an SCR system would be $360,829. Per guidance in District's BACT policy, using 10 years with 4% interest rate, the annualized cost would be:

$$\mathrm{A} = (\$360{,}829)\left[\frac{(0.04)(1+0.04)^{10}}{(1+0.04)^{10}-1}\right] = \frac{\$44{,}487}{yr}$$

In determining the cost of reduction, typically the District uses the emission reduction that can be achieved from the current "industry standard". Use of low-NOx burner that can achieve 30 ppmvd @ 3% O_2 (0.036 lb/MMBtu) is assumed to be the "industry standard". SCR is presumed to achieve 2.5 ppmvd NOx @ 3% O2 (0.003 lb/MMBtu). Therefore, the reduction from the "industry standard" would be 2,457 lb-NOx/yr [(0.036-0.003 lb/MMBtu)(8.5 MMBtu/hr)(8,760 hr/yr)]. The cost of reduction ($/ton) would be:

$$= \frac{\left(\frac{\$44{,}487}{yr}\right)\left(2{,}000\,\frac{lb}{ton}\right)}{\left(2{,}457\,\frac{lb - NOx}{yr}\right)} = \frac{\$36{,}212}{ton}$$

Since the cost of NO_x reductions is greater than the threshold limit of $32,900/ton; therefore, it is not cost effective to require this control at this time. Note that actual cost of NOx reduction will be much higher than the $33,118/ton if annual operating and maintenance costs are included in the analysis.

Option 2: 30 ppmvd NOx @ 3% O2 with the use of natural gas with LPG as backup fuel
This is an achieved-in-practice option. Therefore, cost-effectiveness analysis is not performed.

Step 5: Select BACT

BACT would be to use burner system capable of achieving 30 ppmvd NOx @ 3% O2 with the use of natural gas or LPG fuel as a backup fuel. The applicant has proposed to achieve this standard. Thus, BACT requirements are satisfied.

Ambient air cooler with high velocity filtration system
BACT is triggered for PM10 emissions.

Step 1: Identify All Possible Control Technologies

BACT guideline 5.5.6 lists the following control techniques:

1. Use properly engineered high velocity air filtration system with oil baffle type filters, or equivalent filter system (70% control)

Step 2: Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3: Rank Remaining Control Technologies by Control Effectiveness

1. Use properly engineered high velocity air filtration system with oil baffle type filters, or equivalent filter system (70% control)

Step 4: Cost Effectiveness Analysis

There is no technologically feasible option listed in step 3. As, such cost effectiveness analysis is not required.

Step 5: Select BACT

BACT is to use properly engineered high velocity air filtration system with oil baffle type filters, or equivalent filter system for the ambient cooler. The applicant has proposed to comply with this BACT standard.

N-1919-22-0:
Steam-heated vegetable oil fryer equipped with oil mist eliminator (OME)

The proposed fryer triggers BACT for VOC emissions due to the fryer process emissions. Thus, top-down BACT analysis is required.

Step 1: Identify All Possible Control Technologies

BACT guideline 1.6.3 for a snack chip fryer with an indirect heat transfer system will be used to address the BACT requirements for VOC emissions.

Achieved-in-Practice (AIP):
During review of this project, the District discovered a fryer at Frito-Lay, Inc. facility in Rancho Cucamonga that produces onion fried snack (OFS) packaged and sold as FUNYUN. Per SCAQMD, this fryer is equipped with a 2 MMBtu/hr natural gas-fired burner, and oil mist eliminator (OME) system. The fryer exhaust is routed into the combustion air for the burner to eliminate any residual oil residues in the exhaust.

Frito-Lay, Inc. contends that the natural gas-fired configuration fryer at Rancho Cucamonga facility is different in design and operation compared to that of the steam-heated fryer proposed under this project. Therefore, the fryer configuration at Rancho Cucamonga facility should not be used to establish an achieved-in-practice BACT for steam-heated fryers.

Steam-heated relies on steam produced by other apparatus at the plant such as boilers and steam generators in very fuel efficient manner. Thus, the direct emissions footprint of these fryers is near zero compared to natural gas-fired fryers. Therefore, steam heated fryers will be treated as different class of units in a snack manufacturing establishment.

At this time, the District is not aware of any steam heated fryer that is routed to a regenerative thermal oxidizer or any other add-on emission control device to reduce VOC emissions. Therefore, no AIP BACT standard exists at this time.

Technologically Feasible:
1. 85% control (combined VOC and PM control by thermal oxidizer, or equal)
2. 80% control (combined VOC and PM control by carbon adsorber, or equal)

Alternate Basic Equipment:
None

Step 2: Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3: Rank Remaining Control Technologies by Control Effectiveness

1. 85% control (combined VOC and PM control by thermal oxidizer, or equal)
2. 80% control (combined VOC and PM control by carbon adsorber, or equal)

Step 4: Cost Effectiveness Analysis

As noted in section VII.C.2 above, Frito-Lay, Inc. has proposed to achieve 85% control for VOC and 95% control for PM emissions with the use of oil mist eliminator system (OME) system. Therefore, cost effectiveness analysis is not required.

Step 5: Select BACT

has proposed to achieve 85% control for VOC and 95% control for PM emissions with the use of oil mist eliminator system (OME) system. Therefore, BACT requirements are satisfied.

Snack chip cooler (Ambient air cooler) with high velocity filtration system

The proposed ambient air cooler triggers BACT for PM10 emissions. Therefore, BACT analysis is required. The BACT guideline 5.5.6 lists the following options:

Step 1: Identify All Possible Control Technologies

The following technologies are determined to be practically feasible in reducing PM_{10} emissions from snack chip cooling process:

1. Use properly engineered high velocity air filtration system with oil baffle type filters, or equivalent filter system (70% control)

Step 2: Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3: Rank Remaining Control Technologies by Control Effectiveness

1. Use properly engineered high velocity air filtration system with oil baffle type filters, or equivalent filter system (70% control)

Step 4: Cost Effectiveness Analysis

The applicant has proposed to use high velocity filter system to reduce PM_{10} emissions. Therefore, cost effectiveness analysis is not required.

Step 5: Select BACT

BACT is to use high velocity filter system for the proposed ambient air cooler. The applicant has proposed to this technology. Therefore, BACT requirements are satisfied.

Seasoning system served by a scrubber

The proposed seasoning system triggers BACT for PM10 emissions. Therefore, BACT analysis is required. BACT guideline 5.5.5 for snack chip seasoning system is used to address the BACT requirements.

Step 1: Identify All Possible Control Technologies

1. At least 95% reduction of captured particulates using wet scrubber or equivalent dust collection system (Technologically feasible)

Step 2: Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3: Rank Remaining Control Technologies by Control Effectiveness

1. At least 95% reduction of captured particulates using wet scrubber or equivalent dust collection system (Technologically feasible)

Step 4: Cost Effectiveness Analysis

The applicant has proposed to reduce at least 95% of the captured particulate matter emissions using wet scrubber. Thus, cost effectiveness analysis is not required.

Step 5: Select BACT

The BACT is to reduce at least 95% of the captured particulate matter emissions using wet scrubber. The applicant has proposed to comply with this requirement. Therefore, BACT requirements are satisfied.

San Joaquin Valley
Unified Air Pollution Control District
Best Available Control Technology (BACT) Guideline 1.6.4*

Emissions Unit: Tortilla Chip Oven **Industry Type:** Food Manufacturing

Equipment Rating: All **Last Update:** June 21, 2023

Pollutant	Achieved-in-Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
NOx	30 ppmvd @ 3% O2 (0.036 lb/MMBtu) with use of low-NOx burner system and using natural gas as primary fuel, or equivalent controls	Low temperature selective catalytic reduction (SCR) to achieve 2.5 ppmvd NOx @ 3% O2 (0.003 lb/MMBtu) and use of PUC quality natural gas fuel, or equivalent controls	
SOx	Use of PUC quality natural gas		
PM_{10}	Use of PUC quality natural gas		
CO	400 ppmvd @ 3% O2 and use of PUC quality natural gas		
VOC	Use of PUC quality natural gas		

*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)**

Best Available Control Technology Analysis

Tortilla Chip Ovens

Prepared by:
Jag Kahlon, Senior Air Quality Engineer

Reviewed by:
James Harader, Supervising Air Quality Engineer

I. Introduction

The objective of this project is to review and update the existing Best Available Control Technology (BACT) guideline 1.6.4 for natural gas-fired tortilla chip ovens used at commercial snack manufacturing facilities (refer to **Appendix B**).

II. BACT Categories

BACT guideline, which is the focus of this project, is:

- BACT guideline 1.6.4 – Tortilla Chip Ovens

This guideline is applicable to any tortilla chip oven at a commercial snack chip manufacturing facility that produces corn chips or other similar products. These ovens generate NOx, SOx, PM_{10}, CO and VOC emissions from combustion of natural gas.

III. Top-Down BACT Analysis

A. BACT analysis for NOx Emissions

NOx emissions will generate from combustion of natural gas in oven burner(s).

Step 1 - Identify All Possible Control Technologies

BACT Clearinghouse Survey:

The following BACT clearinghouses were consulted to determine whether any tortilla chip oven at commercial snack making operation have been required to employ emission controls to reduce NOx emissions:

- EPA RACT/BACT/LAER clearinghouse
- CARB BACT clearinghouse
- South Coast AQMD BACT clearinghouse
- Bay Area AQMD BACT clearinghouse
- Sacramento Metro AQMD BACT clearinghouse
- San Joaquin Valley APCD BACT clearinghouse

<u>EPA RACT/BACT/LAER clearinghouse</u>
The database was searched using the following criteria:

Permit Date: 1/1/2013 to 2/28/2023
Process Type: All Process Types
Process Name Contains: Tortilla oven, Food oven

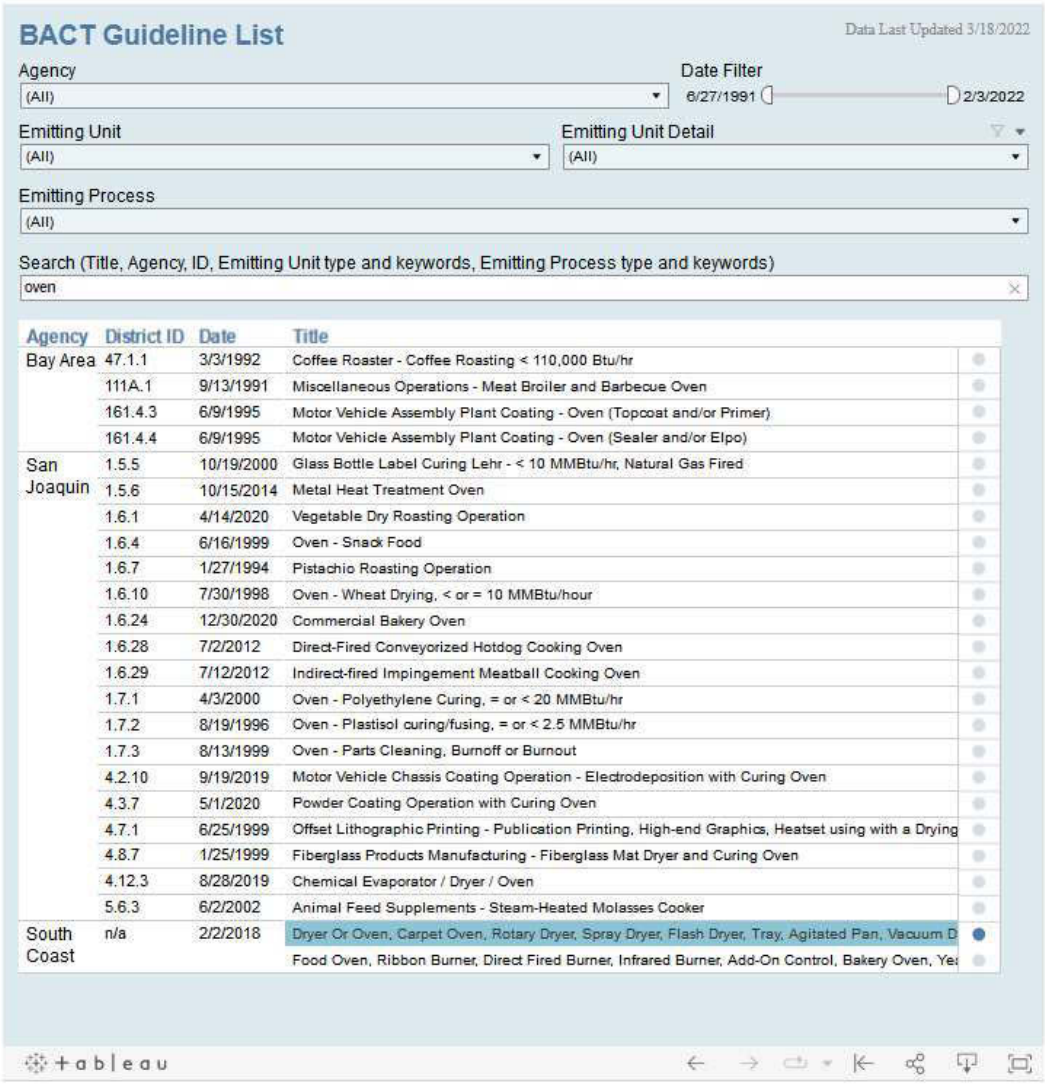
Pollutant Name: All pollutants

No relevant results were found.

CARB BACT clearinghouse

The database (https://ww2.arb.ca.gov/our-work/programs/technology-clearinghouse/clearinghouse-tools/bact-guidelines-tool) was searched using the following criteria:

Search: oven



This database identifies relevant BACT guidelines in South Coast AQMD and San Joaquin Valley APCD. These guidelines will be reviewed and discussed under each air District's BACT clearinghouse section below.

South Coast AQMD BACT clearinghouse

The existing determinations under "Part B: Section I – SCAQMD LAER/BACT" were reviewed (http://www.aqmd.gov/home/permits/bact/guidelines/i---scaqmd-laer-bact). This section has one relevant BACT guideline for a tortilla chip oven, which is summarized below:

A 5.774 MMBtu/hr tortilla chip oven was installed at Frito-Lay, Inc., at 9535 Archibald Ave in Rancho Cucamonga CA 91730 under App # 551284. The oven startup date was March 17, 2014. This oven is used to dry and bake tortilla chips. The oven is equipped with infra-red burners to dry masa and ribbon burners to bake masa into tortilla chips prior to cooking dried chips in a deep fat oil fryer. This oven was source tested on January 13, 2015; NOx results were 43 ppmvd NOx @ 3% O_2, and 36 ppmv CO at stack conditions. The oven average temperature was 357°F during the test. The guideline mentions that source test prior to the January 13, 2015 test measured NOx at 53.7 ppmv @ 3% O_2. The BACT guideline established for this unit set NOx standard at 54 ppmvd NOx @ 3% O_2, averaged over 1 hour. For reference the BACT guideline is available at: http://www.aqmd.gov/docs/default-source/bact/laer-bact-determinations/aqmd-laer-bact/2-2-18_laer_fritolay_tort_chip_oven.pdf?sfvrsn=12. The BACT guideline also cites that an identical unit D-86 at this site was also tested; the test results were 22.9 ppmvd NOx @ 3% O_2 and 85 ppmv CO at stack conditions.

The existing determinations under "Part B: Section II – Other LAER/BACT" were reviewed (http://www.aqmd.gov/home/permits/bact/guidelines/ii---other-laer-bact). No relevant BACT determination was found.

The existing determinations under "Part B: Section III – Other Technologies" were reviewed (http://www.aqmd.gov/home/permits/bact/guidelines/iii---other-technologies). No relevant BACT determination was found.

The draft LAER Part B, Section I and III Draft Proposals were also reviewed (http://www.aqmd.gov/docs/default-source/bact/proposed_updates_bact_partb_draft_2-2-18.pdf?sfvrsn=6).

The draft document includes two BACT guidelines:

1.) the BACT guideline (prepared for App # 551284) is discussed above, and

2.) the BACT guideline for another 1.6 MMBtu/hr snack food oven under App # 499293/551284 was identified. This requirements in the guidelines are discussed below:

The BACT guideline covers (item 2 above) a 1.6 MMBtu/hr natural gas fired food oven used, which is used to bake corn meal cheese puffs. The oven start-up date was April 15, 2008. The oven is equipped with Maxon's Cyclomax burner system. This oven was tested for NOx and CO emissions on April 29, 2009. The results

were 20 ppmv NOx @ 3% O_2 (0.024 lb-NOx/MMBtu) and 58 ppmv CO @ 3% O_2 (0.043 lb-CO/MMBtu). The oven was operating at 298°F during the test. This oven's NOx and CO emissions are less than the tortilla chip oven as this oven was operated at lower temperature, and is equipped with Maxon's cyclomax burners (cabinet burners) typically located outside the oven as opposed to infrared or ribbon style burners inside the oven typically used in tortilla chip ovens. SCAQMD considered the results of this oven in establishing BACT standard of 30 ppmvd @ 3% O2 (0.036 lb-NOx/MMBtu) in 2018 (see below).

Further, the draft Major Source, Part D Draft Proposals were also reviewed (http://www.aqmd.gov/docs/default-source/bact/proposed_updates_bact_guidelines_partd_draft_2-2-18.pdf?sfvrsn=6). There is a relevant draft BACT for ovens. The final version of this guideline is as follows (http://www.aqmd.gov/docs/default-source/bact/bact-guidelines/bact-guidelines-2022/part-d---bact-guidelines-for-non-major-polluting-facilities.pdf?sfvrsn=8:

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

2-2-2018 Rev. 0

Equipment or Process: Food Oven

		Criteria Pollutants					
Subcategory[1]	**Rating/ Size**	**VOC**	**NOx**	**SOx**	**CO**	**PM10**	**Inorganic**
Ribbon Burner	> 500°F		60 ppmvd @ 3% O_2 (2-2-2018)	Natural Gas (2-2-2018)	Compliance with applicable Rules 407 or 1153.1 (2-2-2018)	Natural Gas (2-2-2018)	
	≤ 500°F		30 ppmvd @ 3% O_2 (2-2-2018)	Same as above	Same as above	Same as above	
Other Direct Fired Burner			30 ppmvd @ 3% O_2 (2-2-2018)				
Infrared Burner			30 ppmvd @ 3% O_2 (2-2-2018)				
Add-on Control for Bakery Oven processing yeast leavened products with emissions ≥ 30 lb VOC/day		Catalytic oxidizer with 95% overall control efficiency (mass basis); catalyst inlet temperature ≥ 600°F; ceramic prefilter (2-2-2018)	Compliance with Rule 1147 at the time of applicability (2-2-2018)				

[1]Indirect Fired units may be subject to Rules 1146 and 1146.1 and BACT for Process Heater.

Bay Area AQMD BACT clearinghouse
The BACT guidelines available on BAAQMD website were reviewed (http://www.baaqmd.gov/permits/permitting-manuals/bact-tbact-workbook).

No relevant BACT guideline was found.

Sacramento Metro AQMD BACT Clearinghouse
The BACT guidelines available on the AQMD website were reviewed (http://www.airquality.org/businesses/permits-registration-programs/best-available-control-technology-(bact)). The following BACT guideline was found:

SMAQMD BACT CLEARINGHOUSE

ACTIVE

CATEGORY Type: **OVEN**

BACT Category: Small Emitter BACT (PTE < 10 lb/day)

BACT Determination Number:	292	**BACT Determination Date:**	8/17/2021

Equipment Information

Permit Number: 26924
Equipment Description: TORTILLA OVEN
Unit Size/Rating/Capacity: Tortilla Oven ≤ 500 Deg. F
Equipment Location: BERBER FOOD MANUFACTURING DBA MI RANCHO
10115 IRON ROCK WAY ELK GROVE, CA

BACT Determination Information

District Contact: Felix Trujillo Phone No.: (916) 874 - 7357 email: ftrujillo@airquality.org

ROCs	**Standard:**	
	Technology Description:	
	Basis:	
NOx	**Standard:**	30 ppmvd @ 3% O2
	Technology Description:	Low NOx Burner
	Basis:	Achieved In Practice
SOx	**Standard:**	500 ppmvd @ 3% O2
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved In Practice
PM10	**Standard:**	Natural gas fuel or equivalent
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved In Practice
PM2.5	**Standard:**	
	Technology Description:	
	Basis:	
CO	**Standard:**	400 ppmvd @ 3% O2
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved In Practice
LEAD	**Standard:**	
	Technology Description:	
	Basis:	

Comments: T-BACT is equivalent to BACT for VOC.

The guideline is available at:
https://www.airquality.org/StationarySources/Documents/Tortilla%20Oven%20500%20F%20BACT%20292.pdf

Note that this BACT guideline is for a direct-fired Tortilla Oven, and not the Tortilla Chip Oven. However, due to operational similarities, the emission standard and technologies appears to be transferrable to Tortilla Chip Ovens.

SJVAPCD BACT clearinghouse

The current requirements in District BACT guideline 1.6.4 for snack ovens are summarized in the following table:

Pollutant	Achieved in Practice	Technologically feasible	Alternate Basic Equipment
NOx	Use of natural gas fuel		

Evaluation of an SCR system – Technologically Feasible Option

NOx can be reduced with the use of an add-on emission control device such as selective catalytic reduction (SCR) system. An SCR system utilizes injection of anhydrous ammonia, aqueous ammonia, or urea solution into the exhaust gas to reduce NOx emissions. SCR uses a catalyst consisting of base metals (such as vanadium, molybdenum, or tungsten) to promote chemical reactions that reduce NOx emissions into N2 and water.

Use of SCR system is uncommon for tortilla chip ovens. Tortilla chip ovens do not consistently exhaust within the required temperature range of a typical SCR system (450°F to 800°F). However, use of low-temperature SCR system is considered technologically feasible, as is-done for a bakery oven (refer to SJVAPCD District BACT clearinghouse BACT guideline 1.6.24). Therefore, via technology transfer, it is assumed that use of low-temperature SCR system are feasible for the tortilla chip ovens.

Survey of Federal, State and Local Rules and Regulations

The following rules and regulations were consulted to determine whether any limits apply to tortilla chip ovens at commercial snack making operation to reduce NOx emissions:

- New Source Performance Standard
- CARB (no applicable rules)
- South Coast AQMD Regulation XI Rules
- Bay Area AQMD Rules
- Sacramento Metro AQMD Rules
- San Joaquin Valley APCD Regulation IV Rules

Title 40, Chapter I, Subchapter C, Part 60 – Standards of Performance for New Stationary Sources
There is no subpart that is applicable to snack chip production facilities. Therefore, no further discussion is required. Subparts are available at: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60?toc=1

CARB (no applicable rules)
CARB's website includes rules from local air district related to stationary sources.

South Coast AQMD Regulation XI Rules
Rules in Regulation VII (http://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/regulation-xi) are reviewed.

Rule 1147 – NOx Reductions from Miscellaneous Sources (Last amended 7/7/2017)
The purpose of this rule is to reduce NOx emissions from gaseous and liquid fuel fired combustion equipment.

Per section (g)(2), this rule does not apply to charbroilers or food ovens. Therefore, this rule is not applicable to this BACT Determination.

Rule 1153.1 – Emissions of Oxides of Nitrogen from Commercial Food Ovens (Last amended 11/7/2014)
The purpose of this rule is to reduce NOx emissions from gaseous and liquid fuel-fired combustion equipment.

This rule applies to in-use ovens, dryers, smokers, and dry roaster with NOx emissions from fuel combustion and are used to prepare food or products for making beverages for human consumption. This rule is not applicable to new units.

Any person owning or operating an in-use unit (in operation prior to Nov 7, 2014) subject to this rule shall not operate the unit in a manner that exceeds 40 ppmv NOx @ 3% O_2 for units with process temperature ≤500°F, and 60 ppmv NOx @ 3% O_2 for units with process temperature >500°F. CO emissions shall not exceed 800 ppmv @ 3% O_2.

Bay Area AQMD Rules
BAAQMD rules (https://www.baaqmd.gov/rules-and-compliance/current-rules) were reviewed.

Regulation 6 Rule 2 – Commercial Cooking Equipment (12/5/07) was reviewed (https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-6-rule-2-commercial-cooking-equipment/documents/rg0602.pdf?la=en&rev=42fc0966398c43f9b585572708a5ea70). No requirements were found for tortilla chip ovens.

Sacramento Metro AQMD Rules
The AQMD regulation 4 was reviewed (https://www.airquality.org/Businesses/Rules-Regulations).

Rule 419 – NOx from Miscellaneous Combustion Units (Adopted 7/26/2018)
The purpose of this rule is to reduce NOx and CO emissions from gaseous and liquid fuel fired miscellaneous combustion units and cooking units.

This rule applies to any miscellaneous combustion unit or cooking unit with a total rated heat input capacity of 2 million Btu per hour or greater that is located at a major stationary source of NOx and to any miscellaneous combustion unit or cooking unit with a total rated heat input capacity of 5 million Btu per hour or greater that is not located at a major stationary source of NOx.

Per section 302, Table 2, cooking units, NOx shall not exceed 40 ppmv @ 3% O2 for units operating at less than 500°F process temperature and 60 ppmv @ 3% O2 for units operating at equal to or greater than 500°F. CO shall not exceed 800 ppm @ 3% O_2 for any unit.

San Joaquin Valley APCD Regulation IV Rules
Regulation IV (https://www.valleyair.org/rules/1ruleslist.htm#reg4) was reviewed.

Rule 4309 - Dryers, Dehydrators, and Ovens (12/15/05)
The purpose of this rule is to limit emissions of NOx and CO from dryers, dehydrators and ovens.

This rule applies to any dryer, dehydrator, or oven that is fired on gaseous fuel, liquid fuel or is fired on gaseous and liquid fuel sequentially, and the total heat input for the unit is 5.0 MMBtu/hr or greater.

Per section 4.1.4, the requirements of this rule are not applicable to units used to bake or fry food for human consumption.

Since the proposed oven is used to bake tortilla chip for human consumption, this unit is not subject to the requirements of this rule.

Survey of Source Tests For Tortilla Chip Ovens at Food Manufacturing Operations in the SJVAPCD:

Permits records were queried to identify snack chip ovens with active permits at snack chip manufacturing operations. Several units were identified (see **Appendix C** for a complete list). Results from latest source test report available in permits database were noted for the tested units.

Facility Name	Permit #	Equipment Description	Source test data/other relevant information
FRITO-LAY INC	S-2076-4-9	TORTILLA CHIP LINE #1 WITH CONVEYORIZED OIL FRYER, HEAT EXCHANGER, SEASONER, 6.83 MMBTU/HR **NATURAL GAS** FIRED CASA HERRERA OVEN, AND ONE AMBIENT AIR COOLER SERVED BY HIGH VELOCITY DUCT FILTER AND HEAT RECOVERY AND HOT WATER STORAGE SYSTEM SHARED WITH S-2076-5	Permitted Rate 0.1 lb-NOx/MMBtu Source Test (12/22/21) 0.0906 lb-NOx/MMBtu
FRITO-LAY INC	S-2076-5-9	TORTILLA CHIP LINE #2 WITH CONVEYORIZED OIL FRYER, HEAT EXCHANGER, SEASONER, 6.83 MMBTU/HR **NATURAL GAS** FIRED CASA HERRERA OVEN, AND ONE AMBIENT AIR COOLER SERVED BY HIGH VELOCITY DUCT FILTER AND HEAT RECOVERY AND HOT WATER STORAGE SYSTEM SHARED WITH S-2076-4	Permitted Rate 0.1 lb-NOx/MMBtu Source Test (9/30/20) 0.095 lb-NOx/MMBtu
FRITO-LAY INC	S-2076-17-8	BAKED LINE #1 INCLUDING A 9.76 MMBTU/HR **NATURAL GAS**-FIRED BAKING OVEN, 10 MMBTU/HR NATURAL GAS-FIRED PRIMARY DRYER, STEAM HEATED FRYER WITH OIL MIST ELIMINATOR AND AMBIENT AIR COOLER	Permitted Rate 0.97 lb-NOx/hr (oven) Source Test (6/5/20) 32.9 ppmvd NOx @ 3% O_2
FRITO-LAY INC	S-2076-21-16	9.56 MMBTU/HR TORTILLA CHIP LINE #3, INCLUDING: 9.56 MMBTU/HR OVEN, FRYER, SEASONER, AIR COOLER, AND ON MACHINE SEASONING (OMS) SYSTEM SERVED BY DUST COLLECTOR	Permitted Rate 0.058 lb-NOx/MMBtu (oven) Source Test (12/20/19) 0.058 lb-NOx/MMBtu (49.05 ppmvd NOx @ 3% O_2)

The following conclusions are drawn from the above table:

- Lowest NOx emission rate was 32.9 ppmv NOx @ 3% O_2 for a 9.76 MMBtu/hr natural gas-fired baking oven (S-2076-17-8) during a source test on 6/5/2020.

- All units are fired on natural gas fuel.

List of Control Options:

Based on the search of *BACT Clearinghouse Survey, Survey of Federal, State and Local Rules and Regulations and Survey of Source Tests For Tortilla Chip Ovens at Food Manufacturing Operations in the SJVAPCD,* discussed above, the following emission control options were developed:

Type of burner	Process Temperature	Achieved-in-Practice NOx Standard	Technologically Feasible NOx Standard
Ribbon Burner	>500°F	60 ppmvd @ 3% O_2 (Source: SCAQMD)	Use of low temperature SCR system Source: Technology transferred from SJVAPCD BACT guideline 1.6.24
	≤500°F	30 ppmvd @ 3% O_2 (Source: SCAQMD, SMAQMD)	
Direct-fired/Infra-red burner		30 ppmvd @ 3% O_2 (Source: SCAQMD, SMAQMD)	

Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options. As such, no further discussion is required.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. Use of low-temperature SCR System – Technologically Feasible
2. Ribbon Burner: 60 ppmvd @ 3% O_2, use of natural gas, operating at process temperature of greater than 500°F - AIP

   Ribbon Burner: 30 ppmvd @ 3% O_2, use of natural gas, operating at process temperature of less than or equal to 500°F - AIP

   Direct-fired/Infrared burner: 30 ppmvd @ 3% O2, use of natural gas - AIP

Step 4 - Cost Effectiveness Analysis

Option 1: Use of low temperature SCR System
Per R.F. MacDonald Company & Nationwide Boiler, base cost of an SCR system would be about $315,000 (average July 2020 $ value). Using inflation calculator (https://www.bls.gov/data/inflation_calculator.htm), the Dec 2022 $ value of an SCR system would be $360,829. Per guidance in District's BACT policy, using 10 years with 4% interest rate, the annualized cost would be:

$$A = (\$360{,}829)\left[\frac{(0.04)(1+0.04)^{10}}{(1+0.04)^{10}-1}\right] = \frac{\$44{,}487}{yr}$$

In determining the cost of reduction, typically the District uses the emission reduction that can be achieved from the current "industry standard". Use of low-NOx burner that can achieve 30 ppmvd @ 3% O_2 (0.036 lb/MMBtu) is assumed to be the "industry standard". SCR is presumed to achieve 2.5 ppmvd NOx @ 3% O2 (0.003 lb/MMBtu). Therefore, the reduction from the "industry standard" would be 2,457 lb-NOx/yr [(0.036-0.003 lb/MMBtu)(8.5 MMBtu/hr)(8,760 hr/yr)]. The cost of reduction ($/ton) would be:

$$= \frac{\left(\frac{\$44{,}487}{yr}\right)\left(2{,}000\frac{lb}{ton}\right)}{\left(2{,}457\frac{lb-}{yr}\right)} = \frac{\$36{,}212}{ton}$$

This project was deemed complete on February 27, 2023. Since the cost of NO_x reductions is greater than the threshold limit of $32,900/ton in place on the date this project was deemed complete; therefore, it is not cost effective to require this control at this time. Note that actual cost of NOx reduction will be much higher than the $36,212/ton if annual operating and maintenance costs are included in the analysis.

Option 2:

- Ribbon Burner: 60 ppmvd @ 3% O_2, use of natural gas, operating at process temperature of greater than 500°F

- Ribbon Burner: 60 ppmvd @ 3% O_2, use of natural gas, operating at process temperature of less than or equal to 500°F

- Direct-fired/Infrared burner: 30 ppmvd @ 3% O2, use of natural gas fuel

Since this option includes achieved-in-practice BACT standard, cost effectiveness analysis is not required.

Step 5 - Select BACT

The BACT for the proposed oven is to achieve 30 ppmv NOx @ 3% O_2. The applicant has proposed to achieve this standard. Thus, BACT requirements are satisfied.

B. BACT analysis for SOx Emissions

SOx emissions will generate from combustion of gaseous fuel in burners of snack chip ovens.

Step 1 - Identify All Possible Control Technologies

BACT Clearinghouse Survey:

The following BACT clearinghouses were consulted to determine whether any tortilla chip oven at commercial snack making operation have been required to employ emission controls to reduce SOx emissions:

- EPA RACT/BACT/LAER clearinghouse
- CARB BACT clearinghouse
- South Coast AQMD BACT clearinghouse
- Bay Area AQMD BACT clearinghouse
- Sacramento Metro AQMD BACT clearinghouse
- San Joaquin Valley APCD BACT clearinghouse

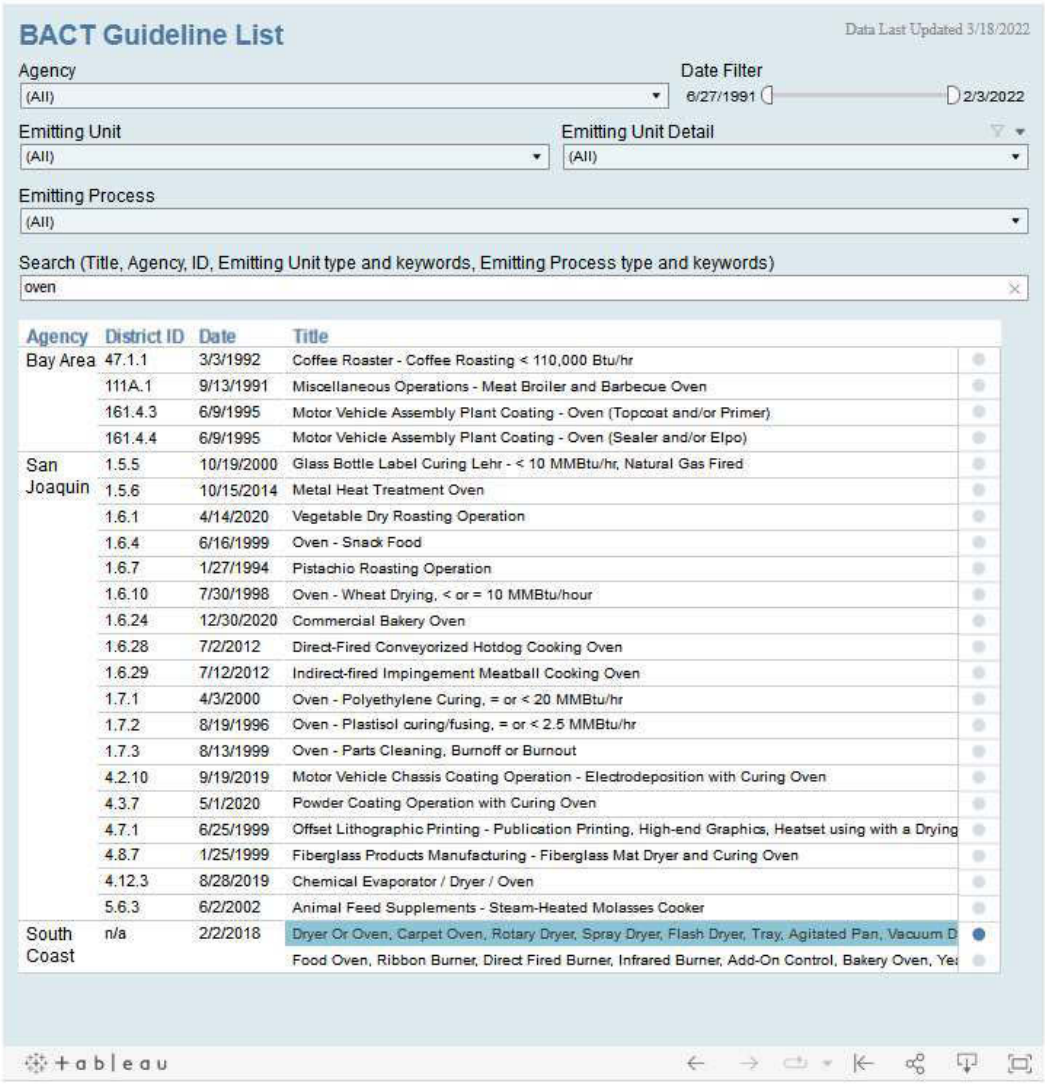
EPA RACT/BACT/LAER clearinghouse
The database was searched using the following criteria:

Permit Date: 1/1/2013 to 2/28/2023
Process Type: All Process Types
Process Name Contains: Tortilla oven, Food oven
Pollutant Name: All pollutants

No relevant results were found.

CARB BACT clearinghouse
The database (https://ww2.arb.ca.gov/our-work/programs/technology-clearinghouse/clearinghouse-tools/bact-guidelines-tool) was searched using the following criteria:

Search: oven



BACT Guideline List

Data Last Updated 3/18/2022

Agency: (All)

Date Filter: 6/27/1991 – 2/3/2022

Emitting Unit: (All)

Emitting Unit Detail: (All)

Emitting Process: (All)

Search (Title, Agency, ID, Emitting Unit type and keywords, Emitting Process type and keywords): oven

Agency	District ID	Date	Title
Bay Area	47.1.1	3/3/1992	Coffee Roaster - Coffee Roasting < 110,000 Btu/hr
	111A.1	9/13/1991	Miscellaneous Operations - Meat Broiler and Barbecue Oven
	161.4.3	6/9/1995	Motor Vehicle Assembly Plant Coating - Oven (Topcoat and/or Primer)
	161.4.4	6/9/1995	Motor Vehicle Assembly Plant Coating - Oven (Sealer and/or Elpo)
San Joaquin	1.5.5	10/19/2000	Glass Bottle Label Curing Lehr - < 10 MMBtu/hr, Natural Gas Fired
	1.5.6	10/15/2014	Metal Heat Treatment Oven
	1.6.1	4/14/2020	Vegetable Dry Roasting Operation
	1.6.4	6/16/1999	Oven - Snack Food
	1.6.7	1/27/1994	Pistachio Roasting Operation
	1.6.10	7/30/1998	Oven - Wheat Drying, < or = 10 MMBtu/hour
	1.6.24	12/30/2020	Commercial Bakery Oven
	1.6.28	7/2/2012	Direct-Fired Conveyorized Hotdog Cooking Oven
	1.6.29	7/12/2012	Indirect-fired Impingement Meatball Cooking Oven
	1.7.1	4/3/2000	Oven - Polyethylene Curing, = or < 20 MMBtu/hr
	1.7.2	8/19/1996	Oven - Plastisol curing/fusing, = or < 2.5 MMBtu/hr
	1.7.3	8/13/1999	Oven - Parts Cleaning, Burnoff or Burnout
	4.2.10	9/19/2019	Motor Vehicle Chassis Coating Operation - Electrodeposition with Curing Oven
	4.3.7	5/1/2020	Powder Coating Operation with Curing Oven
	4.7.1	6/25/1999	Offset Lithographic Printing - Publication Printing, High-end Graphics, Heatset using with a Drying
	4.8.7	1/25/1999	Fiberglass Products Manufacturing - Fiberglass Mat Dryer and Curing Oven
	4.12.3	8/28/2019	Chemical Evaporator / Dryer / Oven
	5.6.3	6/2/2002	Animal Feed Supplements - Steam-Heated Molasses Cooker
South Coast	n/a	2/2/2018	Dryer Or Oven, Carpet Oven, Rotary Dryer, Spray Dryer, Flash Dryer, Tray, Agitated Pan, Vacuum D
			Food Oven, Ribbon Burner, Direct Fired Burner, Infrared Burner, Add-On Control, Bakery Oven, Yes

+ableau

This database identifies relevant BACT guidelines in South Coast AQMD and San Joaquin Valley APCD. These guidelines reviewed and discussed under each air District's BACT clearinghouse search in the following sections.

South Coast AQMD BACT clearinghouse

The existing determinations under "Part B: Section I – SCAQMD LAER/BACT" were reviewed (http://www.aqmd.gov/home/permits/bact/guidelines/i---scaqmd-laer-bact). This section list a BACT guideline for a 5.774 MMBtu/hr tortilla chip oven was installed at Frito-Lay, Inc., at 9535 Archibald Ave in Rancho Cucamonga CA 91730 under App # 551284. The guideline does not establish any BACT standard for SOx emissions. For reference the BACT guideline is available at: http://www.aqmd.gov/docs/default-source/bact/laer-bact-determinations/aqmd-laer-bact/2-2-18_laer_fritolay_tort_chip_oven.pdf?sfvrsn=12.

The existing determinations under "Part B: Section II – Other LAER/BACT" were reviewed (http://www.aqmd.gov/home/permits/bact/guidelines/ii---other-laer-bact). No relevant BACT determination was found.

The existing determinations under "Part B: Section III – Other Technologies" were reviewed (http://www.aqmd.gov/home/permits/bact/guidelines/iii---other-technologies). No relevant BACT determination was found.

The draft LAER Part B, Section I and III Draft Proposals were also reviewed (http://www.aqmd.gov/docs/default-source/bact/proposed_updates_bact_partb_draft_2-2-18.pdf?sfvrsn=6). No relevant BACT determination was found.

The draft document includes two BACT guidelines: 1.) the BACT guideline (prepared for App # 551284) discussed above, and 2.) the BACT guideline for another 1.6 MMBtu/hr snack food oven under App # 499293/551284.

The BACT guideline for App # 499293/551284 does not establish any SOx BACT standard.

Further, the draft Major Source, Part D Draft Proposals were also reviewed (http://www.aqmd.gov/docs/default-source/bact/proposed_updates_bact_guidelines_partd_draft_2-2-18.pdf?sfvrsn=6). There is a relevant draft BACT for ovens. The final version of this guideline is as follows (http://www.aqmd.gov/docs/default-source/bact/bact-guidelines/bact-guidelines-2022/part-d---bact-guidelines-for-non-major-polluting-facilities.pdf?sfvrsn=8:

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

2-2-2018 Rev. 0

Equipment or Process: Food Oven

		Criteria Pollutants					
Subcategory[1]	**Rating/ Size**	**VOC**	**NOx**	**SOx**	**CO**	**PM10**	**Inorganic**
Ribbon Burner	> 500°F		60 ppmvd @ 3% O_2 (2-2-2018)	Natural Gas (2-2-2018)	Compliance with applicable Rules 407 or 1153.1 (2-2-2018)	Natural Gas (2-2-2018)	
	≤ 500°F		30 ppmvd @ 3% O_2 (2-2-2018)	Same as above	Same as above	Same as above	
Other Direct Fired Burner			30 ppmvd @ 3% O_2 (2-2-2018)				
Infrared Burner			30 ppmvd @ 3% O_2 (2-2-2018)				
Add-on Control for Bakery Oven processing yeast leavened products with emissions ≥ 30 lb VOC/day		Catalytic oxidizer with 95% overall control efficiency (mass basis); catalyst inlet temperature ≥ 600°F; ceramic prefilter (2-2-2018)	Compliance with Rule 1147 at the time of applicability (2-2-2018)				

[1]Indirect Fired units may be subject to Rules 1146 and 1146.1 and BACT for Process Heater.

Bay Area AQMD BACT clearinghouse
The BACT guidelines available on BAAQMD website were reviewed (http://www.baaqmd.gov/permits/permitting-manuals/bact-tbact-workbook).

No relevant BACT guideline was found.

Sacramento Metro AQMD BACT Clearinghouse
The BACT guidelines available on the AQMD website were reviewed (http://www.airquality.org/businesses/permits-registration-programs/best-available-control-technology-(bact)). The following BACT guideline was found:

SMAQMD BACT CLEARINGHOUSE

ACTIVE

CATEGORY Type: **OVEN**

BACT Category: Small Emitter BACT (PTE < 10 lb/day)

BACT Determination Number:	292	BACT Determination Date:	8/17/2021

Equipment Information

Permit Number: 26924
Equipment Description: TORTILLA OVEN
Unit Size/Rating/Capacity: Tortilla Oven ≤ 500 Deg. F
Equipment Location: BERBER FOOD MANUFACTURING DBA MI RANCHO
10115 IRON ROCK WAY ELK GROVE, CA

BACT Determination Information

District Contact: Felix Trujillo Phone No.: (916) 874 - 7357 email: ftrujillo@airquality.org

ROCs	Standard:	
	Technology Description:	
	Basis:	
NOx	Standard:	30 ppmvd @ 3% O2
	Technology Description:	Low NOx Burner
	Basis:	Achieved In Practice
SOx	Standard:	500 ppmvd @ 3% O2
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved In Practice
PM10	Standard:	Natural gas fuel or equivalent
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved In Practice
PM2.5	Standard:	
	Technology Description:	
	Basis:	
CO	Standard:	400 ppmvd @ 3% O2
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved In Practice
LEAD	Standard:	
	Technology Description:	
	Basis:	

Comments: T-BACT is equivalent to BACT for VOC.

The guideline is available at:
https://www.airquality.org/StationarySources/Documents/Tortilla%20Oven%20500%20F%20BACT%20292.pdf

Note that this BACT guideline is for a direct-fired Tortilla Oven, and not a Tortilla Chip Oven. However, the emission standard and technologies appears to be transferrable to Tortilla Chip Ovens.

Also, note that SOx standard of 500 ppmvd @ 3% O_2 (as SO2) equates to 0.844 lb-SO2/MMBtu. This value is significantly more than a typical value of 0.00285 lb-SO2/MMBtu estimated using maximum sulfur content of 1.0 gr-S/100 scf in PUC quality natural gas. Therefore, use of PUC quality gas is considered to be the achieved-in-practice standard.

SJVAPCD BACT clearinghouse
The current requirements in District BACT guideline 1.6.4 for snack ovens are summarized in the following table:

Pollutant	Achieved in Practice	Technologically feasible	Alternate Basic Equipment
SOx	Use of natural gas fuel		

Packed bed/packed-tower wet scrubbers – Technologically Feasible Option
Typically, tortilla chip ovens use of PUC quality natural gas, which generates minimal amount of SO_2 emissions.

Packed bed/packed-tower wet scrubbers can be used to reduce SO_2 emissions. These devices are recommended when exhaust contain 250 ppm to 10,000 ppmv of pollutant concentration[1]. The SO_2 exhaust concentration for natural gas combustion ovens is very low, estimated to be around 2 ppm of SO_2[2]. This SO_2 concentration is already below the estimated outlet SO_2 concentration of 5 ppmv (5 ppmv, calculated using 98% efficiency and 250 ppm typical inlet concentration) of packed bed wet scrubbers. Furthermore, none of the BACT guidelines surveyed above recommends the use of this technology.

Therefore, this add-on control technology is not considered technologically feasible at this time, and it is removed from consideration.

Survey of Federal, State and Local Rules and Regulations

The following rules and regulations were consulted to determine whether any limits apply to tortilla chip ovens at commercial snack making operation to reduce SOx emissions:

[1] https://www3.epa.gov/ttncatc1/dir1/fpack.pdf
[2] 0.00285 lb-SO2/MMBtu x 379.5 dscf/lb-mol x MMBtu/8,578 dscf x lb-mol/64 lb-SO2 x 10^6 = 2 ppmv

:

- New Source Performance Standard
- CARB (no applicable rules)
- South Coast AQMD Regulation XI Rules
- Bay Area AQMD Rules
- Sacramento Metro AQMD Rules
- San Joaquin Valley APCD Regulation IV Rules

Title 40, Chapter I, Subchapter C, Part 60 – Standards of Performance for New Stationary Sources
There is no subpart that is applicable to snack chip production facilities. Therefore, no further discussion is required. Subparts are available at: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60?toc=1

CARB (no applicable rules)
CARB's website includes rules from local air district related to stationary sources.

South Coast AQMD Regulation XI Rules
Rules in Regulation VII (http://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/regulation-xi) are reviewed.

Rule 1153.1 – Emissions of Oxides of Nitrogen from Commercial Food Ovens (Last amended 11/7/2014)
The purpose of this rule is to reduce NOx emissions from gaseous and liquid fuel-fired combustion equipment.

This rule applies to in-use ovens, dryers, smokers, and dry roaster with NOx emissions from fuel combustion and are used to prepare food or products for making beverages for human consumption. This rule is not applicable to new units.

This rule does not list any standards for SOx emissions. As such, no further discussion is necessary.

Bay Area AQMD Rules
BAAQMD rules (https://www.baaqmd.gov/rules-and-compliance/current-rules) were reviewed.

Regulation 6 Rule 2 – Commercial Cooking Equipment (12/5/07) was reviewed (https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-6-rule-2-commercial-cooking-equipment/documents/rg0602.pdf?la=en&rev=42fc0966398c43f9b585572708a5ea70). No requirement was found for snack chip ovens.

Sacramento Metro AQMD Rules
The AQMD regulation 4 was reviewed (https://www.airquality.org/Businesses/Rules-Regulations).

Rule 419 – NOx from Miscellaneous Combustion Units (Adopted 7/26/2018)
The purpose of this rule is to reduce NOx and CO emissions from gaseous and liquid fuel fired miscellaneous combustion units and cooking units.

This rule applies to any miscellaneous combustion unit or cooking unit with a total rated heat input capacity of 2 million Btu per hour or greater that is located at a major stationary source of NOx and to any miscellaneous combustion unit or cooking unit with a total rated heat input capacity of 5 million Btu per hour or greater that is not located at a major stationary source of NOx.

This rule does not list any standards for SOx emissions. As such, no further discussion is necessary.

San Joaquin Valley APCD Regulation IV Rules
Regulation IV (https://www.valleyair.org/rules/1ruleslist.htm#reg4) was reviewed.

Rule 4309 - Dryers, Dehydrators, and Ovens (12/15/05)
The purpose of this rule is to limit emissions of NOx and CO from dryers, dehydrators and ovens.

This rule applies to any dryer, dehydrator, or oven that is fired on gaseous fuel, liquid fuel or is fired on gaseous and liquid fuel sequentially, and the total heat input for the unit is 5.0 MMBtu/hr or greater.

Per section 4.1.4, the requirements of this rule are not applicable to units used to bake or fry food for human consumption.

Since the proposed oven is used to bake tortilla chip for human consumption, this unit is not subject to the requirements of this rule.

Survey of Source Tests For Tortilla Chip Ovens at Food Manufacturing Operations in the SJVAPCD:

Permit records were queried to identify snack chip ovens with active permits at snack chip manufacturing operations. Several units were identified (see **Appendix C** for complete list). These units are required to use PUC quality natural gas fuel. No units were tested for SOx emissions.

List of Control Options:

Based on the search of *BACT Clearinghouse Survey, Survey of Federal, State and Local Rules and Regulations and Survey of Source Tests For Tortilla Chip Ovens at Food Manufacturing Operations in the SJVAPCD,* discussed above, the following emission control options were developed:

Type of burner	Process Temperature	Achieved-in-Practice SOx Standard	Technologically feasible
Ribbon Burner	>500°F	Use of PUC quality natural gas (SCAQMD, SJVAPCD)	None
	≤500°F	Use of PUC quality natural gas SCAQMD, SJVAPCD, SMAQMD	None
Direct-fired/Infrared burner		Use of PUC quality natural gas SCAQMD, SJVAPCD, SMAQMD	

Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options. As such, no further discussion is required.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Pollutant	Achieved in Practice	Technologically feasible	Alternate Basic Equipment
SOx	Use of PUC quality natural gas fuel	None	None

Step 4 - Cost Effectiveness Analysis

There is no technologically feasible or alternate basic equipment listed in Step 3 above. Therefore, cost-effectiveness analysis is not required.

Step 5 - Select BACT

The BACT for tortilla chip oven is to use PUC quality natural gas fuel to reduce SOx emissions.

C. BACT analysis for PM_{10} Emissions

PM_{10} emissions will generate from combustion of natural fuel in burners of tortilla chip ovens.

Step 1 - Identify All Possible Control Technologies

BACT Clearinghouse Survey:

The following BACT clearinghouses were consulted to determine whether any tortilla chip oven at commercial snack making operation have been required to employ emission controls to reduce PM_{10} emissions:

- EPA RACT/BACT/LAER clearinghouse
- CARB BACT clearinghouse
- South Coast AQMD BACT clearinghouse
- Bay Area AQMD BACT clearinghouse
- Sacramento Metro AQMD BACT clearinghouse
- San Joaquin Valley APCD BACT clearinghouse

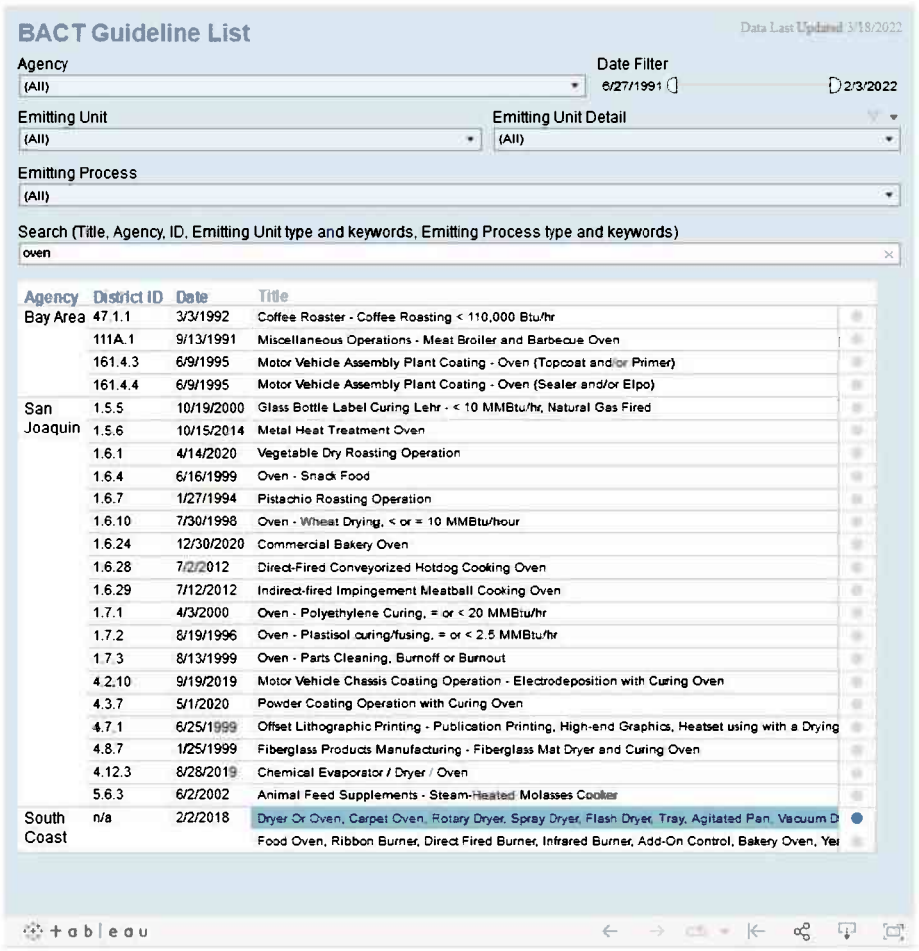
EPA RACT/BACT/LAER clearinghouse
The database was searched using the following criteria:

Permit Date: 1/1/2013 to 2/28/2023
Process Type: All Process Types
Process Name Contains: Tortilla oven, Food oven
Pollutant Name: All pollutants

No relevant results were found.

CARB BACT clearinghouse
The database (https://ww2.arb.ca.gov/our-work/programs/technology-clearinghouse/clearinghouse-tools/bact-guidelines-tool) was searched using the following criteria:

Search: oven



BACT Guideline List

Data Last Updated 3/18/2022

Agency: (All)

Date Filter: 6/27/1991 – 2/3/2022

Emitting Unit: (All)

Emitting Unit Detail: (All)

Emitting Process: (All)

Search (Title, Agency, ID, Emitting Unit type and keywords, Emitting Process type and keywords): oven

Agency	District ID	Date	Title
Bay Area	47.1.1	3/3/1992	Coffee Roaster - Coffee Roasting < 110,000 Btu/hr
	111A.1	9/13/1991	Miscellaneous Operations - Meat Broiler and Barbecue Oven
	161.4.3	6/9/1995	Motor Vehicle Assembly Plant Coating - Oven (Topcoat and/or Primer)
	161.4.4	6/9/1995	Motor Vehicle Assembly Plant Coating - Oven (Sealer and/or Elpo)
San Joaquin	1.5.5	10/19/2000	Glass Bottle Label Curing Lehr - < 10 MMBtu/hr, Natural Gas Fired
	1.5.6	10/15/2014	Metal Heat Treatment Oven
	1.6.1	4/14/2020	Vegetable Dry Roasting Operation
	1.6.4	6/16/1999	Oven - Snack Food
	1.6.7	1/27/1994	Pistachio Roasting Operation
	1.6.10	7/30/1998	Oven - Wheat Drying, < or = 10 MMBtu/hour
	1.6.24	12/30/2020	Commercial Bakery Oven
	1.6.28	7/2/2012	Direct-Fired Conveyorized Hotdog Cooking Oven
	1.6.29	7/12/2012	Indirect-fired Impingement Meatball Cooking Oven
	1.7.1	4/3/2000	Oven - Polyethylene Curing, = or < 20 MMBtu/hr
	1.7.2	8/19/1996	Oven - Plastisol curing/fusing, = or < 2.5 MMBtu/hr
	1.7.3	8/13/1999	Oven - Parts Cleaning, Burnoff or Burnout
	4.2.10	9/19/2019	Motor Vehicle Chassis Coating Operation - Electrodeposition with Curing Oven
	4.3.7	5/1/2020	Powder Coating Operation with Curing Oven
	4.7.1	6/25/1999	Offset Lithographic Printing - Publication Printing, High-end Graphics, Heatset using with a Drying
	4.8.7	1/25/1999	Fiberglass Products Manufacturing - Fiberglass Mat Dryer and Curing Oven
	4.12.3	8/28/2019	Chemical Evaporator / Dryer / Oven
	5.6.3	6/2/2002	Animal Feed Supplements - Steam-Heated Molasses Cooker
South Coast	n/a	2/2/2018	Dryer Or Oven, Carpet Oven, Rotary Dryer, Spray Dryer, Flash Dryer, Tray, Agitated Pan, Vacuum D
			Food Oven, Ribbon Burner, Direct Fired Burner, Infrared Burner, Add-On Control, Bakery Oven, Yes

tableau

This database identifies relevant BACT guidelines in South Coast AQMD and San Joaquin Valley APCD. These guidelines reviewed and discussed under each air District's BACT clearinghouse search in the following sections.

South Coast AQMD BACT clearinghouse

The existing determinations under "Part B: Section I – SCAQMD LAER/BACT" were reviewed (http://www.aqmd.gov/home/permits/bact/guidelines/i---scaqmd-laer-bact). This section list a BACT guideline for a 5.774 MMBtu/hr tortilla chip oven was installed at Frito-Lay, Inc., at 9535 Archibald Ave in Rancho Cucamonga CA 91730 under App # 551284. The guideline does not establish any BACT standard for PM10 emissions. For reference the BACT guideline is available at: http://www.aqmd.gov/docs/default-source/bact/laer-bact-determinations/aqmd-laer-bact/2-2-18_laer_fritolay_tort_chip_oven.pdf?sfvrsn=12.

The existing determinations under "Part B: Section II – Other LAER/BACT" were reviewed (http://www.aqmd.gov/home/permits/bact/guidelines/ii---other-laer-bact). No relevant BACT determination was found.

The existing determinations under "Part B: Section III – Other Technologies" were reviewed (http://www.aqmd.gov/home/permits/bact/guidelines/iii---other-technologies). No relevant BACT determination was found.

The draft LAER Part B, Section I and III Draft Proposals were also reviewed (http://www.aqmd.gov/docs/default-source/bact/proposed_updates_bact_partb_draft_2-2-18.pdf?sfvrsn=6). No relevant BACT determination was found.

The draft document includes two BACT guidelines: 1.) the BACT guideline (prepared for App # 551284) discussed above, and 2.) the BACT guideline for another 1.6 MMBtu/hr snack food oven under App # 499293/551284.

The BACT guideline for App # 499293/551284 does not establish any PM_{10} BACT standard.

Further, the draft Major Source, Part D Draft Proposals were also reviewed (http://www.aqmd.gov/docs/default-source/bact/proposed_updates_bact_guidelines_partd_draft_2-2-18.pdf?sfvrsn=6). There is a relevant draft BACT for ovens. The final version of this guideline is as follows (http://www.aqmd.gov/docs/default-source/bact/bact-guidelines/bact-guidelines-2022/part-d---bact-guidelines-for-non-major-polluting-facilities.pdf?sfvrsn=8:

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

2-2-2018 Rev. 0

Equipment or Process: Food Oven

		Criteria Pollutants					
Subcategory[1]	**Rating/ Size**	**VOC**	**NOx**	**SOx**	**CO**	**PM10**	**Inorganic**
Ribbon Burner	> 500°F		60 ppmvd @ 3% O_2 (2-2-2018)	Natural Gas (2-2-2018)	Compliance with applicable Rules 407 or 1153.1 (2-2-2018)	Natural Gas (2-2-2018)	
	≤ 500°F		30 ppmvd @ 3% O_2 (2-2-2018)	Same as above	Same as above	Same as above	
Other Direct Fired Burner			30 ppmvd @ 3% O_2 (2-2-2018)				
Infrared Burner			30 ppmvd @ 3% O_2 (2-2-2018)				
Add-on Control for Bakery Oven processing yeast leavened products with emissions ≥ 30 lb VOC/day		Catalytic oxidizer with 95% overall control efficiency (mass basis); catalyst inlet temperature ≥ 600°F; ceramic prefilter (2-2-2018)	Compliance with Rule 1147 at the time of applicability (2-2-2018)				

[1]Indirect Fired units may be subject to Rules 1146 and 1146.1 and BACT for Process Heater.

Bay Area AQMD BACT clearinghouse

The BACT guidelines available on BAAQMD website were reviewed (http://www.baaqmd.gov/permits/permitting-manuals/bact-tbact-workbook).

No relevant BACT guideline was found.

Sacramento Metro AQMD BACT Clearinghouse

The BACT guidelines available on the AQMD website were reviewed (http://www.airquality.org/businesses/permits-registration-programs/best-available-control-technology-(bact)). The following BACT guideline was found:

SMAQMD BACT CLEARINGHOUSE

ACTIVE

CATEGORY Type: **OVEN**

BACT Category: Small Emitter BACT (PTE < 10 lb/day)

BACT Determination Number:	292	BACT Determination Date:	8/17/2021

Equipment Information

Permit Number: 26924
Equipment Description: TORTILLA OVEN
Unit Size/Rating/Capacity: Tortilla Oven ≤ 500 Deg. F
Equipment Location: BERBER FOOD MANUFACTURING DBA MI RANCHO
10115 IRON ROCK WAY ELK GROVE, CA

BACT Determination Information

District Contact: Felix Trujillo Phone No.: (916) 874 - 7357 email: ftrujillo@airquality.org

ROCs	Standard:	
	Technology Description:	
	Basis:	
NOx	Standard:	30 ppmvd @ 3% O2
	Technology Description:	Low NOx Burner
	Basis:	Achieved in Practice
SOx	Standard:	500 ppmvd @ 3% O2
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved in Practice
PM10	Standard:	Natural gas fuel or equivalent
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved in Practice
PM2.5	Standard:	
	Technology Description:	
	Basis:	
CO	Standard:	400 ppmvd @ 3% O2
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved in Practice
LEAD	Standard:	
	Technology Description:	
	Basis:	

Comments: T-BACT is equivalent to BACT for VOC.

The guideline is available at:
https://www.airquality.org/StationarySources/Documents/Tortilla%20Oven%20500%20F%20BACT%20292.pdf

Note that this BACT guideline is for a direct-fired Tortilla Oven, and not the Tortilla Chip Oven. However, the emission standard and technologies appears to be transferrable to Tortilla Chip Ovens.

Use of PUC quality gas is an achieved-in-practice standard to reduce PM10 emissions.

SJVAPCD BACT clearinghouse
The current requirements in District BACT guideline 1.6.4 for snack ovens are summarized in the following table:

Pollutant	Achieved in Practice	Technologically feasible	Alternate Basic Equipment
PM_{10}	Use of PUC quality natural gas fuel		

Baghouse – Technologically Feasible Option
In general, a baghouse can used to reduce PM_{10} emissions. Use of baghouse is recommended for exhaust streams with PM_{10} inlet grain loading of 0.5-10 gr/ft^3 of air flow.

PM_{10} grain loading concentration noted above (0.5 -10 gr/ft^3) is an order of magnitude above the estimated 0.05 gr/ft^3 exhaust PM_{10} concentrations generated by a typical tortilla chip oven using natural gas fuel. Furthermore, none of the BACT guideline surveyed above recommend the use of this technology.

Therefore, further evaluation of this add-on control technology is not recommended.

Survey of Federal, State and Local Rules and Regulations

The following rules and regulations were consulted to determine whether any limits apply to tortilla chip ovens at commercial snack making operation to reduce PM_{10} emissions:

- New Source Performance Standard
- CARB (no applicable rules)
- South Coast AQMD Regulation XI Rules
- Bay Area AQMD Rules
- Sacramento Metro AQMD Rules
- San Joaquin Valley APCD Regulation IV Rules

Title 40, Chapter I, Subchapter C, Part 60 – Standards of Performance for New Stationary Sources
There is no subpart that is applicable to snack chip production facilities. Therefore, no further discussion is required. Subparts are available at: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60?toc=1

CARB (no applicable rules)
CARB's website includes rules from local air district related to stationary sources.

South Coast AQMD Regulation XI Rules
Rules in Regulation VII (http://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/regulation-xi) are reviewed.

Rule 1153.1 – Emissions of Oxides of Nitrogen from Commercial Food Ovens (Last amended 11/7/2014)
The purpose of this rule is to reduce NOx emissions from gaseous and liquid fuel-fired combustion equipment.

This rule applies to in-use ovens, dryers, smokers, and dry roaster with NOx emissions from fuel combustion and are used to prepare food or products for making beverages for human consumption. This rule is not applicable to new units.

This rule does not list any standards for PM_{10} emissions. As such, no further discussion is necessary.

Bay Area AQMD Rules
BAAQMD rules (https://www.baaqmd.gov/rules-and-compliance/current-rules) were reviewed.

Regulation 6 Rule 2 – Commercial Cooking Equipment (12/5/07) was reviewed (https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-6-rule-2-commercial-cooking-equipment/documents/rg0602.pdf?la=en&rev=42fc0966398c43f9b585572708a5ea70). No requirement was found for snack chip ovens.

Sacramento Metro AQMD Rules
The AQMD regulation 4 was reviewed (https://www.airquality.org/Businesses/Rules-Regulations).

Rule 419 – NOx from Miscellaneous Combustion Units (Adopted 7/26/2018)
The purpose of this rule is to reduce NOx and CO emissions from gaseous and liquid fuel fired miscellaneous combustion units and cooking units.

This rule applies to any miscellaneous combustion unit or cooking unit with a total rated heat input capacity of 2 million Btu per hour or greater that is located at a major stationary source of NOx and to any miscellaneous combustion unit or cooking unit with a total rated heat input capacity of 5 million Btu per hour or greater that is not located at a major stationary source of NOx.

This rule does not list any standards for PM_{10} emissions. As such, no further discussion is necessary.

San Joaquin Valley APCD Regulation IV Rules
Regulation IV (https://www.valleyair.org/rules/1ruleslist.htm#reg4) was reviewed.

Rule 4309 - Dryers, Dehydrators, and Ovens (12/15/05)
The purpose of this rule is to limit emissions of NOx and CO from dryers, dehydrators and ovens.

This rule applies to any dryer, dehydrator, or oven that is fired on gaseous fuel, liquid fuel or is fired on gaseous and liquid fuel sequentially, and the total heat input for the unit is 5.0 MMBtu/hr or greater.

Per section 4.1.4, the requirements of this rule are not applicable to units used to bake or fry food for human consumption.

Since the proposed oven is used to bake tortilla chip for human consumption, this unit is not subject to the requirements of this rule.

Survey of Source Tests For Tortilla Chip Ovens at Food Manufacturing Operations in the SJVAPCD:

Permit records were queried to identify snack chip ovens with active permits at snack chip manufacturing operations. Several units were identified (see **Appendix C** for complete list). These units are required to use PUC quality natural gas fuel. No units were tested for PM_{10} emissions.

List of Control Options:

Based on the search of *BACT Clearinghouse Survey, Survey of Federal, State and Local Rules and Regulations and Survey of Source Tests For Tortilla Chip Ovens at Food Manufacturing Operations in the SJVAPCD,* discussed above, the following emission control options were developed:

Type of burner	Process Temperature	Achieved-in-Practice PM10 Standard	Technologically Feasible
Ribbon Burner	>500°F	Use of PUC quality natural gas (Source: SCAQMD, SJVAPCD)	None
	≤500°F	Use of PUC quality natural gas (Source; SCAQMD, SJVAPCD, SMAQMD)	None
Direct-fired/Infra-red burner		Use of PUC quality natural gas (Source: SCAQMD, SJVAPCD, SMAQMD	

Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options. As such, no further discussion is required.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Pollutant	Achieved in Practice	Technologically feasible	Alternate Basic Equipment
PM_{10}	Use of PUC quality natural gas fuel	None	None

Step 4 - Cost Effectiveness Analysis

There is no technologically feasible or alternate basic equipment listed in Step 3 above. Therefore, cost-effectiveness analysis is not required.

Step 5 - Select BACT

The BACT for the proposed tortilla chip oven is to use PUC quality natural gas fuel to reduce PM_{10} emissions.

D. BACT analysis for CO Emissions

CO emissions will generate from combustion of natural gas in oven burner(s).

Step 1 - Identify All Possible Control Technologies

BACT Clearinghouse Survey:

The following BACT clearinghouses were consulted to determine whether any tortilla chip oven at commercial snack making operation have been required to employ emission controls to reduce CO emissions:

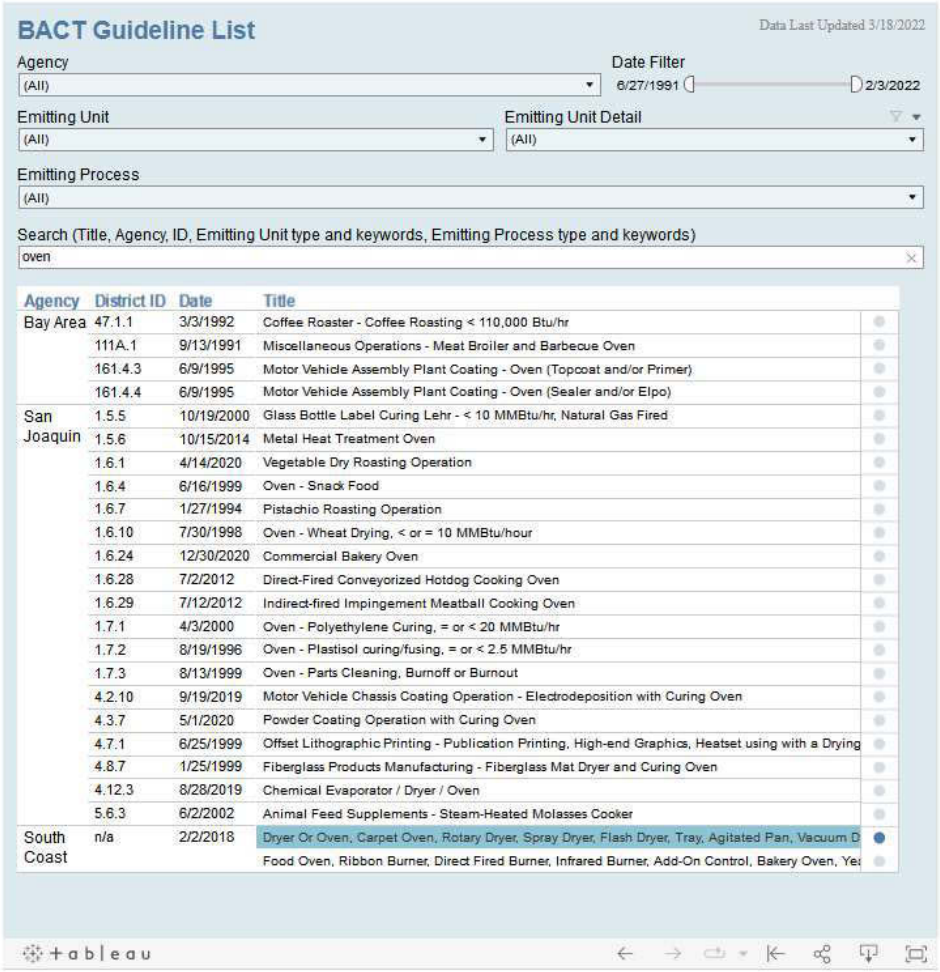
- EPA RACT/BACT/LAER clearinghouse
- CARB BACT clearinghouse
- South Coast AQMD BACT clearinghouse
- Bay Area AQMD BACT clearinghouse
- Sacramento Metro AQMD BACT clearinghouse
- San Joaquin Valley APCD BACT clearinghouse

EPA RACT/BACT/LAER clearinghouse
The database was searched using the following criteria:

Permit Date: 1/1/2013 to 2/28/2023
Process Type: All Process Types
Process Name Contains: Tortilla oven, Food oven
Pollutant Name: All pollutants

No relevant results were found.

CARB BACT clearinghouse
The database (https://ww2.arb.ca.gov/our-work/programs/technology-clearinghouse/clearinghouse-tools/bact-guidelines-tool) was searched using the following criteria: oven



BACT Guideline List

Data Last Updated 3/18/2022

Agency: (All)

Date Filter: 6/27/1991 – 2/3/2022

Emitting Unit: (All)

Emitting Unit Detail: (All)

Emitting Process: (All)

Search (Title, Agency, ID, Emitting Unit type and keywords, Emitting Process type and keywords): oven

Agency	District ID	Date	Title
Bay Area	47.1.1	3/3/1992	Coffee Roaster - Coffee Roasting < 110,000 Btu/hr
	111A.1	9/13/1991	Miscellaneous Operations - Meat Broiler and Barbecue Oven
	161.4.3	6/9/1995	Motor Vehicle Assembly Plant Coating - Oven (Topcoat and/or Primer)
	161.4.4	6/9/1995	Motor Vehicle Assembly Plant Coating - Oven (Sealer and/or Elpo)
San Joaquin	1.5.5	10/19/2000	Glass Bottle Label Curing Lehr - < 10 MMBtu/hr, Natural Gas Fired
	1.5.6	10/15/2014	Metal Heat Treatment Oven
	1.6.1	4/14/2020	Vegetable Dry Roasting Operation
	1.6.4	6/16/1999	Oven - Snack Food
	1.6.7	1/27/1994	Pistachio Roasting Operation
	1.6.10	7/30/1998	Oven - Wheat Drying, < or = 10 MMBtu/hour
	1.6.24	12/30/2020	Commercial Bakery Oven
	1.6.28	7/2/2012	Direct-Fired Conveyorized Hotdog Cooking Oven
	1.6.29	7/12/2012	Indirect-fired Impingement Meatball Cooking Oven
	1.7.1	4/3/2000	Oven - Polyethylene Curing, = or < 20 MMBtu/hr
	1.7.2	8/19/1996	Oven - Plastisol curing/fusing, = or < 2.5 MMBtu/hr
	1.7.3	8/13/1999	Oven - Parts Cleaning, Burnoff or Burnout
	4.2.10	9/19/2019	Motor Vehicle Chassis Coating Operation - Electrodeposition with Curing Oven
	4.3.7	5/1/2020	Powder Coating Operation with Curing Oven
	4.7.1	6/25/1999	Offset Lithographic Printing - Publication Printing, High-end Graphics, Heatset using with a Drying
	4.8.7	1/25/1999	Fiberglass Products Manufacturing - Fiberglass Mat Dryer and Curing Oven
	4.12.3	8/28/2019	Chemical Evaporator / Dryer / Oven
	5.6.3	6/2/2002	Animal Feed Supplements - Steam-Heated Molasses Cooker
South Coast	n/a	2/2/2018	Dryer Or Oven, Carpet Oven, Rotary Dryer, Spray Dryer, Flash Dryer, Tray, Agitated Pan, Vacuum D
			Food Oven, Ribbon Burner, Direct Fired Burner, Infrared Burner, Add-On Control, Bakery Oven, Ye

This database identifies relevant BACT guidelines in South Coast AQMD and San Joaquin Valley APCD. These guidelines will be reviewed and discussed under each air District's BACT clearinghouse sections below.

South Coast AQMD BACT clearinghouse

The existing determinations under "Part B: Section I – SCAQMD LAER/BACT" were reviewed (http://www.aqmd.gov/home/permits/bact/guidelines/i---scaqmd-laer-bact). This section has one relevant BACT guideline for a tortilla chip oven, which is discussed below:

A 5.774 MMBtu/hr tortilla chip oven was installed at Frito-Lay, Inc., at 9535 Archibald Ave in Rancho Cucamonga CA 91730 under App # 551284. The oven startup date was March 17, 2014. This oven is used to dry and bake tortilla chips. The oven is equipped with infra-red burners to dry masa and ribbon burners to bake masa into tortilla chips prior to cooking dried chips in a deep fat oil fryer. This oven was source tested on January 13, 2015; NOx results were 43 ppmvd NOx @ 3% O_2, and 36 ppmv CO at stack conditions. The oven average temperature was 357°F during the test. The guideline mentions that source test prior to the January 13, 2015 test determined 53.7 ppmv NOx @ 3% O_2. The BACT guideline established for this unit set NOx standard at 54 ppmvd NOx @ 3% O_2, averaged over 1 hour. For reference the BACT guideline is available at: http://www.aqmd.gov/docs/default-source/bact/laer-bact-determinations/aqmd-laer-bact/2-2-18_laer_fritolay_tort_chip_oven.pdf?sfvrsn=12. The BACT guideline also cites that an identical unit D-86 at this site was also tested; the test results were 22.9 ppmvd NOx @ 3% O_2 and 85 ppmv CO at stack conditions.

The existing determinations under "Part B: Section II – Other LAER/BACT" were reviewed (http://www.aqmd.gov/home/permits/bact/guidelines/ii---other-laer-bact). No relevant BACT determination was found.

The existing determinations under "Part B: Section III – Other Technologies" were reviewed (http://www.aqmd.gov/home/permits/bact/guidelines/iii---other-technologies). No relevant BACT determination was found.

The draft LAER Part B, Section I and III Draft Proposals were also reviewed (http://www.aqmd.gov/docs/default-source/bact/proposed_updates_bact_partb_draft_2-2-18.pdf?sfvrsn=6). No relevant BACT determination was found.

The draft document includes two BACT guidelines:

1.) the BACT guideline (prepared for App # 551284) is discussed above, and

2.) the BACT guideline for another 1.6 MMBtu/hr snack food oven under App # 499293/551284 was identified. This requirements in the guidelines are discussed below:

The BACT guideline covers (item 2 above) a 1.6 MMBtu/hr natural gas fired food oven used, which is used to bake corn meal cheese puffs. The oven start-up date was April 15, 2008. The oven is equipped with Maxon's Cyclomax burner system. This oven was tested for NOx and CO emissions on April 29, 2009. The results were 20 ppmv NOx @ 3% O_2 (0.024 lb-NOx/MMBtu) and 58 ppmv CO @ 3% O_2 (0.043 lb-CO/MMBtu). The oven was operating at 298°F during the test. This oven's NOx and CO emissions are less than the tortilla chip oven as this oven was operated at lower temperature, and is equipped with Maxon's cyclomax burners (cabinet burners) typically located outside the oven as opposed to infrared or ribbon style burners inside the oven typically used in tortilla chip ovens. SCAQMD considered the results of this oven in establishing BACT standard of 30 ppmvd @ 3% O2 (0.036 lb-NOx/MMBtu) in 2018 (see below).

Further, the draft Major Source, Part D Draft Proposals were also reviewed (http://www.aqmd.gov/docs/default-source/bact/proposed_updates_bact_guidelines_partd_draft_2-2-18.pdf?sfvrsn=6). There is a relevant draft BACT for ovens. The final version of this guideline is as follows (http://www.aqmd.gov/docs/default-source/bact/bact-guidelines/bact-guidelines-2022/part-d---bact-guidelines-for-non-major-polluting-facilities.pdf?sfvrsn=8:

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

2-2-2018 Rev. 0

Equipment or Process: Food Oven

		Criteria Pollutants					
Subcategory[1]	**Rating/ Size**	**VOC**	**NOx**	**SOx**	**CO**	**PM10**	**Inorganic**
Ribbon Burner	> 500°F		60 ppmvd @ 3% O_2 (2-2-2018)	Natural Gas (2-2-2018)	Compliance with applicable Rules 407 or 1153.1 (2-2-2018)	Natural Gas (2-2-2018)	
	≤ 500°F		30 ppmvd @ 3% O_2 (2-2-2018)	Same as above	Same as above	Same as above	
Other Direct Fired Burner			30 ppmvd @ 3% O_2 (2-2-2018)				
Infrared Burner			30 ppmvd @ 3% O_2 (2-2-2018)				
Add-on Control for Bakery Oven processing yeast leavened products with emissions ≥ 30 lb VOC/day		Catalytic oxidizer with 95% overall control efficiency (mass basis); catalyst inlet temperature ≥ 600°F; ceramic prefilter (2-2-2018)	Compliance with Rule 1147 at the time of applicability (2-2-2018)				

[1]Indirect Fired units may be subject to Rules 1146 and 1146.1 and BACT for Process Heater.

Bay Area AQMD BACT clearinghouse

The BACT guidelines available on BAAQMD website were reviewed (http://www.baaqmd.gov/permits/permitting-manuals/bact-tbact-workbook).

No relevant BACT guideline was found.

Sacramento Metro AQMD BACT Clearinghouse

The BACT guidelines available on the AQMD website were reviewed (http://www.airquality.org/businesses/permits-registration-programs/best-available-control-technology-(bact)). The following BACT guideline was found:

SMAQMD BACT CLEARINGHOUSE

ACTIVE

CATEGORY Type: **OVEN**

BACT Category: Small Emitter BACT (PTE < 10 lb/day)

BACT Determination Number:	292	BACT Determination Date:	8/17/2021

Equipment Information

Permit Number: 26924
Equipment Description: TORTILLA OVEN
Unit Size/Rating/Capacity: Tortilla Oven ≤ 500 Deg. F
Equipment Location: BERBER FOOD MANUFACTURING DBA MI RANCHO
10115 IRON ROCK WAY ELK GROVE, CA

BACT Determination Information

District Contact: Felix Trujillo Phone No.: (916) 874 - 7357 email: ftrujillo@airquality.org

ROCs	Standard:	
	Technology Description:	
	Basis:	
NOx	Standard:	30 ppmvd @ 3% O2
	Technology Description:	Low NOx Burner
	Basis:	Achieved In Practice
SOx	Standard:	500 ppmvd @ 3% O2
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved In Practice
PM10	Standard:	Natural gas fuel or equivalent
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved In Practice
PM2.5	Standard:	
	Technology Description:	
	Basis:	
CO	Standard:	400 ppmvd @ 3% O2
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved In Practice
LEAD	Standard:	
	Technology Description:	
	Basis:	

Comments: T-BACT is equivalent to BACT for VOC.

The guideline is available at:
https://www.airquality.org/StationarySources/Documents/Tortilla%20Oven%20500%20F%20BACT%20292.pdf

Note that this BACT guideline is for a direct-fired Tortilla Oven, and not the Tortilla Chip Oven. However, the emission standard and technologies appears to be transferrable to Tortilla Chip Ovens.

SJVAPCD BACT clearinghouse
The current requirements in District BACT guideline 1.6.4 for snack ovens are summarized in the following table:

Pollutant	Achieved in Practice	Technologically feasible	Alternate Basic Equipment
CO	Use of PUC quality natural gas fuel		

Oxidation Catalyst – Technologically Feasible Option
In general, an oxidation catalyst can used to reduce CO or VOC. Oxidation catalyst must operate around 800°F to effectively reduce VOC or CO emissions.

Exhaust temperature of tortilla chip oven generally around 350-400°F. Therefore, this emission control cannot be used unless the process stream is heated to raise the temperature. This practice would result in an increase in collateral NOx, CO and other pollutants. Furthermore, none of the BACT guideline surveyed above recommend the use of this technology. Therefore, further evaluation of this add-on control technology is not recommended.

Survey of Federal, State and Local Rules and Regulations

The following rules and regulations were consulted to determine whether any limits apply to tortilla chip ovens at commercial snack making operation to reduce CO emissions:

- New Source Performance Standard
- CARB (no applicable rules)
- South Coast AQMD Regulation XI Rules
- Bay Area AQMD Rules
- Sacramento Metro AQMD Rules
- San Joaquin Valley APCD Regulation IV Rules

Title 40, Chapter I, Subchapter C, Part 60 – Standards of Performance for New Stationary Sources
There is no subpart that is applicable to snack chip production facilities. Therefore, no further discussion is required. Subparts are available at: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60?toc=1

CARB (no applicable rules)
CARB's website includes rules from local air district related to stationary sources.

South Coast AQMD Regulation XI Rules
Rules in Regulation VII (http://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/regulation-xi) are reviewed.

Rule 1147 – NOx Reductions from Miscellaneous Sources (Last amended 7/7/2017)
The purpose of this rule is to reduce NOx emissions from gaseous and liquid fuel fired combustion equipment.

Per section (g)(2), this rule does not apply to charbroilers or food ovens. Therefore, this rule is not applicable to this BACT Determination.

Rule 1153.1 – Emissions of Oxides of Nitrogen from Commercial Food Ovens (Last amended 11/7/2014)
The purpose of this rule is to reduce NOx emissions from gaseous and liquid fuel-fired combustion equipment.

This rule applies to in-use ovens, dryers, smokers, and dry roaster with NOx emissions from fuel combustion and are used to prepare food or products for making beverages for human consumption. This rule is not applicable to new units.

Any person owning or operating an in-use unit (in operation prior to Nov 7, 2014) subject to this rule shall not operate the unit in a manner that exceeds 40 ppmv NOx @ 3% O_2 for units with process temperature ≤500°F, and 60 ppmv NOx @ 3% O_2 for units with process temperature >500°F. CO emissions shall not exceed 800 ppmv @ 3% O_2.

Bay Area AQMD Rules
BAAQMD rules (https://www.baaqmd.gov/rules-and-compliance/current-rules) were reviewed.

Regulation 6 Rule 2 – Commercial Cooking Equipment (12/5/07) was reviewed (https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-6-rule-2-commercial-cooking-

equipment/documents/rg0602.pdf?la=en&rev=42fc0966398c43f9b585572708a5ea70). No requirement were found for snack chip ovens.

Sacramento Metro AQMD Rules
The AQMD regulation 4 was reviewed (https://www.airquality.org/Businesses/Rules-Regulations).

Rule 419 – NOx from Miscellaneous Combustion Units (Adopted 7/26/2018)
The purpose of this rule is to reduce NOx and CO emissions from gaseous and liquid fuel fired miscellaneous combustion units and cooking units.

This rule applies to any miscellaneous combustion unit or cooking unit with a total rated heat input capacity of 2 million Btu per hour or greater that is located at a major stationary source of NOx and to any miscellaneous combustion unit or cooking unit with a total rated heat input capacity of 5 million Btu per hour or greater that is not located at a major stationary source of NOx.

Per section 302, Table 2, cooking units, NOx shall not exceed 40 ppmv @ 3% O2 for units operating at less than 500°F process temperature and 60 ppmv @ 3% O2 for units operating at equal to or greater than 500°F. CO shall not exceed 800 ppm @ 3% O_2 for any unit.

San Joaquin Valley APCD Regulation IV Rules
Regulation IV (https://www.valleyair.org/rules/1ruleslist.htm#reg4) was reviewed.

Rule 4309 - Dryers, Dehydrators, and Ovens (12/15/05)
The purpose of this rule is to limit emissions of NOx and CO from dryers, dehydrators and ovens.

This rule applies to any dryer, dehydrator, or oven that is fired on gaseous fuel, liquid fuel or is fired on gaseous and liquid fuel sequentially, and the total heat input for the unit is 5.0 MMBtu/hr or greater.

Per section 4.1.4, the requirements of this rule are not applicable to units used to bake or fry food for human consumption.

Since the proposed oven is used to bake tortilla chip for human consumption, this unit is not subject to the requirements of this rule.

Survey of Source Tests For Tortilla Chip Ovens at Food Manufacturing Operations in the SJVAPCD:

Permits records were queried to identify snack chip ovens with active permits at snack chip manufacturing operations. Several units were identified (see

Appendix C for a complete list). Results from latest source test report available in permits database were noted for the tested units.

Facility Name	Permit #	Equipment Description	Source test data/other relevant information
FRITO-LAY INC	S-2076-4-9	TORTILLA CHIP LINE #1 WITH CONVEYORIZED OIL FRYER, HEAT EXCHANGER, SEASONER, 6.83 MMBTU/HR NATURAL GAS FIRED CASA HERRERA OVEN, AND ONE AMBIENT AIR COOLER SERVED BY HIGH VELOCITY DUCT FILTER AND HEAT RECOVERY AND HOT WATER STORAGE SYSTEM SHARED WITH S-2076-5	Permitted Rate 223 ppmv CO @ 15% O2 (0.497 lb/MMBtu) Source Test (12/22/21) 216.35 ppmv CO @ 15% O2 (0.482 lb-CO/MMBtu)
FRITO-LAY INC	S-2076-5-9	TORTILLA CHIP LINE #2 WITH CONVEYORIZED OIL FRYER, HEAT EXCHANGER, SEASONER, 6.83 MMBTU/HR NATURAL GAS FIRED CASA HERRERA OVEN, AND ONE AMBIENT AIR COOLER SERVED BY HIGH VELOCITY DUCT FILTER AND HEAT RECOVERY AND HOT WATER STORAGE SYSTEM SHARED WITH S-2076-4	Permitted Rate 223 ppmv CO @ 15% O2 (0.497 lb/MMBtu) Source Test (9/30/20) 202.2 ppmv CO @ 15% O2 (0.451 lb-CO/MMBtu)
FRITO-LAY INC	S-2076-17-8	BAKED LINE #1 INCLUDING A 9.76 MMBTU/HR NATURAL GAS-FIRED BAKING OVEN, 10 MMBTU/HR NATURAL GAS-FIRED PRIMARY DRYER, STEAM HEATED FRYER WITH OIL MIST ELIMINATOR AND AMBIENT AIR COOLER	Source Test (6/5/20) 1,173 ppmvd CO @ 3% O_2
FRITO-LAY INC	S-2076-21-16	9.56 MMBTU/HR TORTILLA CHIP LINE #3, INCLUDING: 9.56 MMBTU/HR OVEN, FRYER, SEASONER, AIR COOLER, AND ON MACHINE SEASONING (OMS) SYSTEM SERVED BY DUST COLLECTOR	Permitted Rate 0.292lb-CO/MMBtu (oven) Source Test (12/20/19) 0.2512 lb-CO/MMBtu (342.8 ppmvd @ 3% O2)

The following conclusions were drawn from the above table:

- Lowest CO emission rate was 342.8 ppmv @ 3% O_2 for a 9.56 MMBtu/hr natural gas-fired baking oven (S-2076-21-16) during a source test on 12/20/2019

- All units are fired on natural gas fuel.

List of Control Options:

Based on the search of *BACT Clearinghouse Survey, Survey of Federal, State and Local Rules and Regulations and Survey of Source Tests For Tortilla Chip*

Ovens at Food Manufacturing Operations in the SJVAPCD, discussed above, the following emission control options were developed:

Type of burner	Process Temperature	Achieved-in-Practice CO Standard	Technologically Feasible CO Standard
Any	Any	400 ppmvd @ 3% O_2 and use of PUC quality natural gas* (SMAQMD, source test under SJVAPCD permit S-2076-21-16)	None

Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options. As such, no further discussion is required.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Pollutant	Achieved in Practice	Technologically feasible	Alternate Basic Equipment
CO	400 ppmvd @ 3% O_2 and use of PUC quality natural gas	None	None

Step 4 - Cost Effectiveness Analysis

There is no technologically feasible or alternate basic equipment listed in Step 3 above. Therefore, cost-effectiveness analysis is not required.

Step 5 - Select BACT

The BACT for the proposed tortilla chip oven is to achieve 400 ppmvd CO @ 3% O2 and use PUC quality natural gas fuel to reduce CO emissions.

E. BACT analysis for VOC Emissions

VOC emissions will generate from combustion of gaseous fuel in burners of snack chip ovens.

Step 1 - Identify All Possible Control Technologies

BACT Clearinghouse Survey:

The following BACT clearinghouses were consulted to determine whether any tortilla chip oven at commercial snack making operation have been required to employ emission controls to reduce VOC emissions:

- EPA RACT/BACT/LAER clearinghouse
- CARB BACT clearinghouse
- South Coast AQMD BACT clearinghouse
- Bay Area AQMD BACT clearinghouse
- Sacramento Metro AQMD BACT clearinghouse
- San Joaquin Valley APCD BACT clearinghouse

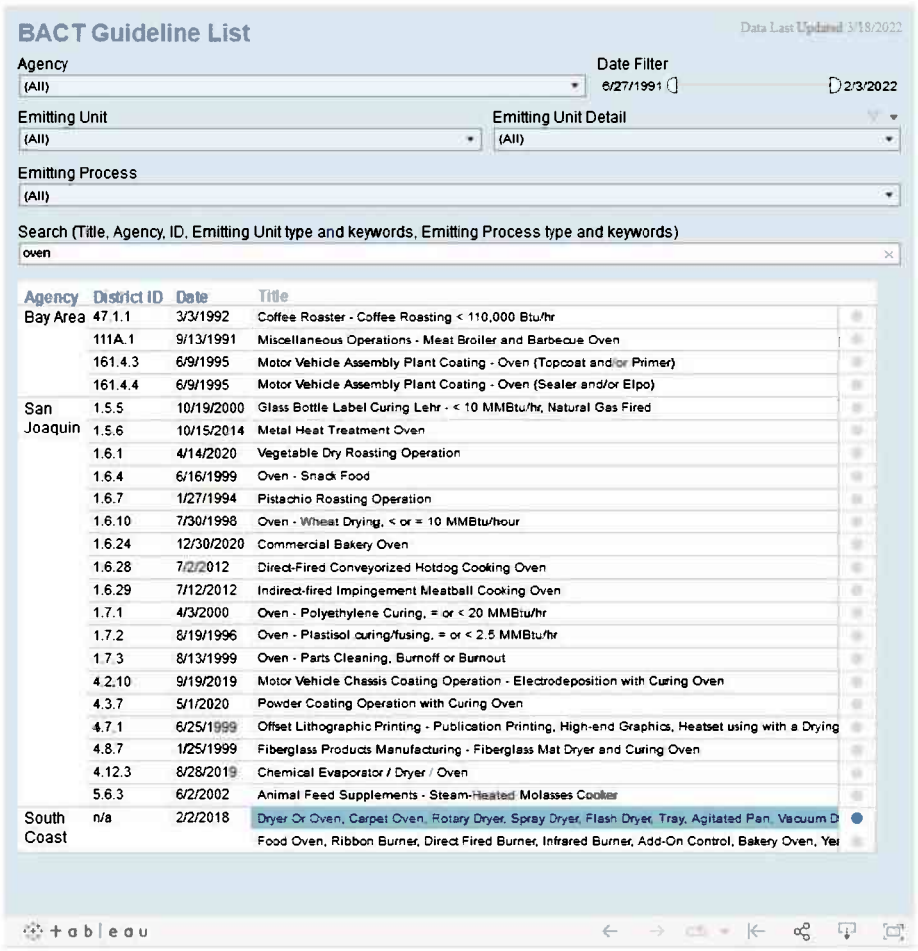
EPA RACT/BACT/LAER clearinghouse
The database was searched using the following criteria:

Permit Date: 1/1/2013 to 2/28/2023
Process Type: All Process Types
Process Name Contains: Tortilla oven, Food oven
Pollutant Name: All pollutants

No relevant results were found.

CARB BACT clearinghouse
The database (https://ww2.arb.ca.gov/our-work/programs/technology-clearinghouse/clearinghouse-tools/bact-guidelines-tool) was searched using the following criteria:

Search: oven



BACT Guideline List

Data Last Updated 3/18/2022

Agency: (All)

Date Filter: 6/27/1991 – 2/3/2022

Emitting Unit: (All)

Emitting Unit Detail: (All)

Emitting Process: (All)

Search (Title, Agency, ID, Emitting Unit type and keywords, Emitting Process type and keywords): oven

Agency	District ID	Date	Title
Bay Area	47.1.1	3/3/1992	Coffee Roaster - Coffee Roasting < 110,000 Btu/hr
	111A.1	9/13/1991	Miscellaneous Operations - Meat Broiler and Barbecue Oven
	161.4.3	6/9/1995	Motor Vehicle Assembly Plant Coating - Oven (Topcoat and/or Primer)
	161.4.4	6/9/1995	Motor Vehicle Assembly Plant Coating - Oven (Sealer and/or Elpo)
San Joaquin	1.5.5	10/19/2000	Glass Bottle Label Curing Lehr - < 10 MMBtu/hr, Natural Gas Fired
	1.5.6	10/15/2014	Metal Heat Treatment Oven
	1.6.1	4/14/2020	Vegetable Dry Roasting Operation
	1.6.4	6/16/1999	Oven - Snack Food
	1.6.7	1/27/1994	Pistachio Roasting Operation
	1.6.10	7/30/1998	Oven - Wheat Drying, < or = 10 MMBtu/hour
	1.6.24	12/30/2020	Commercial Bakery Oven
	1.6.28	7/2/2012	Direct-Fired Conveyorized Hotdog Cooking Oven
	1.6.29	7/12/2012	Indirect-fired Impingement Meatball Cooking Oven
	1.7.1	4/3/2000	Oven - Polyethylene Curing, = or < 20 MMBtu/hr
	1.7.2	8/19/1996	Oven - Plastisol curing/fusing, = or < 2.5 MMBtu/hr
	1.7.3	8/13/1999	Oven - Parts Cleaning, Burnoff or Burnout
	4.2.10	9/19/2019	Motor Vehicle Chassis Coating Operation - Electrodeposition with Curing Oven
	4.3.7	5/1/2020	Powder Coating Operation with Curing Oven
	4.7.1	6/25/1999	Offset Lithographic Printing - Publication Printing, High-end Graphics, Heatset using with a Drying
	4.8.7	1/25/1999	Fiberglass Products Manufacturing - Fiberglass Mat Dryer and Curing Oven
	4.12.3	8/28/2019	Chemical Evaporator / Dryer / Oven
	5.6.3	6/2/2002	Animal Feed Supplements - Steam-Heated Molasses Cooker
South Coast	n/a	2/2/2018	Dryer Or Oven, Carpet Oven, Rotary Dryer, Spray Dryer, Flash Dryer, Tray, Agitated Pan, Vacuum D
			Food Oven, Ribbon Burner, Direct Fired Burner, Infrared Burner, Add-On Control, Bakery Oven, Yes

tableau

This database identifies relevant BACT guidelines in South Coast AQMD and San Joaquin Valley APCD. These guidelines reviewed and discussed under each air district's BACT clearinghouse search in the following sections.

South Coast AQMD BACT clearinghouse

The existing determinations under "Part B: Section I – SCAQMD LAER/BACT" were reviewed (http://www.aqmd.gov/home/permits/bact/guidelines/i---scaqmd-laer-bact). This section list a BACT guideline for a 5.774 MMBtu/hr tortilla chip oven was installed at Frito-Lay, Inc., at 9535 Archibald Ave in Rancho Cucamonga CA 91730 under App # 551284. The guideline does not establish any BACT standard for VOC emissions. For reference the BACT guideline is available at: http://www.aqmd.gov/docs/default-source/bact/laer-bact-determinations/aqmd-laer-bact/2-2-18_laer_fritolay_tort_chip_oven.pdf?sfvrsn=12.

The existing determinations under "Part B: Section II – Other LAER/BACT" were reviewed (http://www.aqmd.gov/home/permits/bact/guidelines/ii---other-laer-bact). No relevant BACT determination was found.

The existing determinations under "Part B: Section III – Other Technologies" were reviewed (http://www.aqmd.gov/home/permits/bact/guidelines/iii---other-technologies). No relevant BACT determination was found.

The draft LAER Part B, Section I and III Draft Proposals were also reviewed (http://www.aqmd.gov/docs/default-source/bact/proposed_updates_bact_partb_draft_2-2-18.pdf?sfvrsn=6). No relevant BACT determination was found.

The draft document includes two BACT guidelines: 1.) the BACT guideline (prepared for App # 551284) discussed above, and 2.) the BACT guideline for another 1.6 MMBtu/hr snack food oven under App # 499293/551284.

The BACT guideline for App # 499293/551284 does not establish any VOC BACT standard.

Further, the draft Major Source, Part D Draft Proposals were also reviewed (http://www.aqmd.gov/docs/default-source/bact/proposed_updates_bact_guidelines_partd_draft_2-2-18.pdf?sfvrsn=6). There is a relevant draft BACT for ovens. The final version of this guideline is as follows (http://www.aqmd.gov/docs/default-source/bact/bact-guidelines/bact-guidelines-2022/part-d---bact-guidelines-for-non-major-polluting-facilities.pdf?sfvrsn=8:

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

2-2-2018 Rev. 0

Equipment or Process: Food Oven

		Criteria Pollutants					
Subcategory[1]	**Rating/ Size**	**VOC**	**NOx**	**SOx**	**CO**	**PM10**	**Inorganic**
Ribbon Burner	> 500°F		60 ppmvd @ 3% O_2 (2-2-2018)	Natural Gas (2-2-2018)	Compliance with applicable Rules 407 or 1153.1 (2-2-2018)	Natural Gas (2-2-2018)	
	≤ 500°F		30 ppmvd @ 3% O_2 (2-2-2018)	Same as above	Same as above	Same as above	
Other Direct Fired Burner			30 ppmvd @ 3% O_2 (2-2-2018)				
Infrared Burner			30 ppmvd @ 3% O_2 (2-2-2018)				
Add-on Control for Bakery Oven processing yeast leavened products with emissions ≥ 30 lb VOC/day		Catalytic oxidizer with 95% overall control efficiency (mass basis); catalyst inlet temperature ≥ 600°F; ceramic prefilter (2-2-2018)	Compliance with Rule 1147 at the time of applicability (2-2-2018)				

[1]Indirect Fired units may be subject to Rules 1146 and 1146.1 and BACT for Process Heater.

Bay Area AQMD BACT clearinghouse

The BACT guidelines available on BAAQMD website were reviewed (http://www.baaqmd.gov/permits/permitting-manuals/bact-tbact-workbook).

No relevant BACT guideline was found.

Sacramento Metro AQMD BACT Clearinghouse

The BACT guidelines available on the AQMD website were reviewed (http://www.airquality.org/businesses/permits-registration-programs/best-available-control-technology-(bact)). The following BACT guideline was found:

SMAQMD BACT CLEARINGHOUSE

ACTIVE

CATEGORY Type: **OVEN**

BACT Category: Small Emitter BACT (PTE < 10 lb/day)

BACT Determination Number:	292	BACT Determination Date:	8/17/2021

Equipment Information

Permit Number: 26924
Equipment Description: TORTILLA OVEN
Unit Size/Rating/Capacity: Tortilla Oven ≤ 500 Deg. F
Equipment Location: BERBER FOOD MANUFACTURING DBA MI RANCHO
10115 IRON ROCK WAY ELK GROVE, CA

BACT Determination Information

District Contact: Felix Trujillo Phone No.: (916) 874 - 7357 email: ftrujillo@airquality.org

ROCs	Standard:	
	Technology Description:	
	Basis:	
NOx	Standard:	30 ppmvd @ 3% O2
	Technology Description:	Low NOx Burner
	Basis:	Achieved in Practice
SOx	Standard:	500 ppmvd @ 3% O2
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved in Practice
PM10	Standard:	Natural gas fuel or equivalent
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved in Practice
PM2.5	Standard:	
	Technology Description:	
	Basis:	
CO	Standard:	400 ppmvd @ 3% O2
	Technology Description:	Natural gas fuel or equivalent
	Basis:	Achieved in Practice
LEAD	Standard:	
	Technology Description:	
	Basis:	

Comments: T-BACT is equivalent to BACT for VOC.

The guideline is available at:
https://www.airquality.org/StationarySources/Documents/Tortilla%20Oven%20500%20F%20BACT%20292.pdf

Note that this BACT guideline is for a direct-fired Tortilla Oven, and not the Tortilla Chip Oven. However, the emission standard and technologies appears to be transferrable to Tortilla Chip Ovens.

SJVAPCD BACT clearinghouse
The current requirements in District BACT guideline 1.6.4 for snack ovens are summarized in the following table:

Pollutant	Achieved in Practice	Technologically feasible	Alternate Basic Equipment
VOC	Use of PUC quality natural gas fuel		

Oxidation Catalyst – Technologically Feasible Option
In general, an oxidation catalyst can used to reduce CO or VOC. Oxidation catalyst must operate around 800°F to effectively reduce VOC or CO emissions.

Exhaust temperature of tortilla chip oven generally around 350-400°F. Therefore, this emission control cannot be used unless the process stream is heated to raise the temperature. This practice would result in an increase in collateral NOx, CO and other pollutants. Furthermore, none of the BACT guideline surveyed above recommend the use of this technology. Therefore, further evaluation of this add-on control technology is not recommended.

Survey of Federal, State and Local Rules and Regulations

The following rules and regulations were consulted to determine whether any limits apply to seasoner at commercial snack making operation to reduce PM10 emissions:

- New Source Performance Standard
- CARB (no applicable rules)
- South Coast AQMD Regulation XI Rules
- Bay Area AQMD Rules
- Sacramento Metro AQMD Rules
- San Joaquin Valley APCD Regulation IV Rules

Title 40, Chapter I, Subchapter C, Part 60 – Standards of Performance for New Stationary Sources
There is no subpart that is applicable to snack chip production facilities. Therefore, no further discussion is required. Subparts are available at: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60?toc=1

CARB (no applicable rules)
CARB's website includes rules from local air district related to stationary sources.

South Coast AQMD Regulation XI Rules
Rules in Regulation VII (http://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/regulation-xi) are reviewed.

Rule 1153.1 – Emissions of Oxides of Nitrogen from Commercial Food Ovens (Last amended 11/7/2014)
The purpose of this rule is to reduce NOx emissions from gaseous and liquid fuel-fired combustion equipment.

This rule applies to in-use ovens, dryers, smokers, and dry roaster with NOx emissions from fuel combustion and are used to prepare food or products for making beverages for human consumption. This rule is not applicable to new units.

This rule does not list any standards for VOC emissions. As such, no further discussion is necessary.

Bay Area AQMD Rules
BAAQMD rules (https://www.baaqmd.gov/rules-and-compliance/current-rules) were reviewed.

Regulation 6 Rule 2 – Commercial Cooking Equipment (12/5/07) was reviewed (https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-6-rule-2-commercial-cooking-equipment/documents/rg0602.pdf?la=en&rev=42fc0966398c43f9b585572708a5ea70). No requirement was found for snack chip ovens.

Sacramento Metro AQMD Rules
The AQMD regulation 4 was reviewed (https://www.airquality.org/Businesses/Rules-Regulations).

Rule 419 – NOx from Miscellaneous Combustion Units (Adopted 7/26/2018)
The purpose of this rule is to reduce NOx and CO emissions from gaseous and liquid fuel fired miscellaneous combustion units and cooking units.

This rule applies to any miscellaneous combustion unit or cooking unit with a total rated heat input capacity of 2 million Btu per hour or greater that is located at a major stationary source of NOx and to any miscellaneous combustion unit or cooking unit with a total rated heat input capacity of 5 million Btu per hour or greater that is not located at a major stationary source of NOx.

This rule does not list any standards for VOC emissions. As such, no further discussion is necessary.
San Joaquin Valley APCD Regulation IV Rules
Regulation IV (https://www.valleyair.org/rules/1ruleslist.htm#reg4) was reviewed.

Rule 4309 - Dryers, Dehydrators, and Ovens (12/15/05)
The purpose of this rule is to limit emissions of NOx and CO from dryers, dehydrators and ovens.

This rule applies to any dryer, dehydrator, or oven that is fired on gaseous fuel, liquid fuel or is fired on gaseous and liquid fuel sequentially, and the total heat input for the unit is 5.0 MMBtu/hr or greater.

Per section 4.1.4, the requirements of this rule are not applicable to units used to bake or fry food for human consumption.

Since the proposed oven is used to bake tortilla chip for human consumption, this unit is not subject to the requirements of this rule.

Survey of Source Tests For Tortilla Chip Ovens at Food Manufacturing Operations in the SJVAPCD:

Permits records were queried to identify snack chip ovens with active permits at snack chip manufacturing operations. Several units were identified (see **Appendix C** for complete list). These units are required to use PUC quality natural gas fuel. No units were tested for VOC emissions.

List of Control Options:

Based on the search of *BACT Clearinghouse Survey, Survey of Federal, State and Local Rules and Regulations and Survey of Source Tests For Tortilla Chip Ovens at Food Manufacturing Operations in the SJVAPCD,* discussed above, the following emission control options were developed:

Type of burner	Process Temperature	Achieved-in-Practice PM10 Standard	Technologically Feasible
Ribbon Burner	>500°F	Use of PUC quality natural gas (Source: SCAQMD, SJVAPCD)	None
	≤500°F	Use of PUC quality natural gas (Source; SCAQMD, SJVAPCD, SMAQMD)	None
Direct-fired/Infra-red burner		Use of PUC quality natural gas (Source: SCAQMD, SJVAPCD, SMAQMD	

Step 2 - Eliminate Technologically Infeasible Options

There are no technologically infeasible options. As such, no further discussion is required.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Pollutant	Achieved in Practice	Technologically feasible	Alternate Basic Equipment
VOC	Use of PUC quality natural gas fuel	None	None

Step 4 - Cost Effectiveness Analysis

There is no technologically feasible or alternate basic equipment listed in Step 3 above. Therefore, cost-effectiveness analysis is not required.

Step 5 - Select BACT

The BACT for the proposed tortilla chip oven is to use PUC quality natural gas fuel to reduce VOC emissions.

IV. Recommendation

Upon approval, the attached guideline is recommended to be adopted into District's BACT Clearinghouse.

Appendices

A: Draft BACT Guideline
B: Existing BACT Guideline 1.6.4
C: Ovens in Permits Database

Appendix A
Draft BACT Guideline

San Joaquin Valley
Unified Air Pollution Control District
Best Available Control Technology (BACT) Guideline 1.6.4*

Emissions Unit: Tortilla Chip Oven **Industry Type:** Food Manufacturing

Equipment Rating: All **Last Update:** March 13, 2023

Pollutant	Achieved-in-Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
NOx	30 ppmvd @ 3% O2 (0.036 lb/MMBtu) with use of low-NOx burner system and using natural gas as primary fuel, or equivalent controls	Low temperature selective catalytic reduction (SCR) to achieve 2.5 ppmvd NOx @ 3% O2 (0.003 lb/MMBtu) and use of PUC quality natural gas fuel, or equivalent controls	
SOx	Use of PUC quality natural gas		
PM_{10}	Use of PUC quality natural gas		
CO	400 ppmvd @ 3% O_2 and use of PUC quality natural gas		
VOC	Use of PUC quality natural gas		

*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 B
Existing BACT Guideline 1.6.4

Best Available Control Technology (BACT) Guideline 1.6.4 C

Emissions Unit:	Tortilla Chip Oven	**Equipment Rating:**	6.9 MMBtu/hr
Facility:	Recot, Inc	**References:**	ATC #: S-2076-13-4; -14-4 Project #: 990138
Location:	Bakersfield	**Date of Determination:**	6/16/1999

Pollutant	BACT
CO	Natural gas fuel
NOx	Natural gas fuel
PM10	BACT NOT TRIGGERED
SOx	BACT NOT TRIGGERED
VOC	BACT NOT TRIGGERED

BACT Status	Comment
Achieved in Practice	
The following technologically feasible options were not cost effective	Selective Catalytic Reduction (NOX), Oxidation Catalyst (CO)

Appendix C
Ovens in Permits Database

Ovens in Permits Database

sFacilityName	sFacilityDescription	sRegion	FacilityID	PermitNum	odificat	sStatus	memEquipment	Permit Limits (lb/MMBtu, unless otherwise noted)					Fuel Type	Test Date	Latest Source Test Data (lb/MMBtu, unless otherwise noted)				
								NOx	SOx	PM10	CO	VOC			NOx	SOx	PM10	CO	VOC
GRUMA CORPORATION	FOOD PREPARATIONS	C	845	1	2	A	ONE 1.642 MMBTU/HR TECHNOMAIZ MODEL CEOT-600 SERIAL NUMBER 05-94-123 CORN TORTILLA OVEN WITH 28 NATURAL GAS-FIRED BURNERS (OVEN #4)	0.1	0.00285	0.0076	0.084	0.0055	Natural gas	--	None	None	None	None	None
GRUMA CORPORATION	FOOD PREPARATIONS	C	845	6	2	A	ONE 2.9 MMBTU/HR TECHNOMAIZ MODEL LFCO-6000 SERIAL NUMBER 07-93-185 CORN TORTILLA OVEN WITH 28 NATURAL GAS-FIRED BURNERS (OVEN #5)	0.1	0.00285	0.0076	0.084	0.0055	Natural gas	--	None	None	None	None	None
GRUMA CORPORATION	FOOD PREPARATIONS	C	845	8	2	A	ONE 1.868 MMBTU/HR TECHNOMAIZ MODEL T-600 SERIAL NUMBER 08-92-108 CORN TORTILLA OVEN WITH 28 NATURAL GAS-FIRED BURNERS (OVEN #2)	0.1	0.00285	0.0076	0.084	0.0055	Natural gas	--	None	None	None	None	None
GRUMA CORPORATION	FOOD PREPARATIONS	C	845	9	2	A	ONE 1.868 MMBTU/HR TECHNOMAIZ MODEL CFO T-600 SERIAL NUMBER 08-92-109 CORN TORTILLA OVEN WITH 28 NATURAL GAS-FIRED BURNERS (OVEN #1)	0.1	0.00285	0.0076	0.084	0.0055	Natural gas	--	None	None	None	None	None
GRUMA CORPORATION	FOOD PREPARATIONS	C	845	10	2	A	ONE 1.868 MMBTU/HR TECHNOMAIZ MODEL CFO T-600 SERIAL NUMBER 08-92-110 CORN TORTILLA OVEN WITH 28 NATURAL GAS-FIRED BURNERS (OVEN #3)	0.1	0.00285	0.0076	0.084	0.0055	Natural gas	--	None	None	None	None	None
GRUMA CORPORATION	FOOD PREPARATIONS	C	845	11	1	A	1.2 MMBTU/HR TECHNOMAIZ, C.A. MODEL FO-34200, S/N 08-92-085, FLOUR TORTILLA OVEN #1	0.1	0.00285	0.0076	0.084	0.0055	Natural gas	--	None	None	None	None	None
GRUMA CORPORATION	FOOD PREPARATIONS	C	845	12	1	A	1.2 MMBTU/HR TECHNOMAIZ, C.A. MODEL FO-34200, S/N 08-92-086, FLOUR TORTILLA OVEN #2	0.1	0.00285	0.0076	0.084	0.0055	Natural gas	--	None	None	None	None	None
GRUMA CORPORATION	FOOD PREPARATIONS	C	845	13	1	A	1.2 MMBTU/HR TECHNOMAIZ, C.A. MODEL FO-34200, S/N 08-92-087, FLOUR TORTILLA OVEN #3	0.1	0.00285	0.0076	0.084	0.0055	Natural gas	--	None	None	None	None	None
GRUMA CORPORATION	FOOD PREPARATIONS	C	845	14	1	A	1.2 MMBTU/HR TECHNOMAIZ, C.A. MODEL FO-34200, S/N 08-92-089, FLOUR TORTILLA OVEN #4	0.1	0.00285	0.0076	0.084	0.0055	Natural gas	--	None	None	None	None	None
GRUMA CORPORATION	FOOD PREPARATIONS	C	845	15	1	A	1.2 MMBTU/HR TECHNOMAIZ, C.A. MODEL FO-34200, S/N 08-92-088, FLOUR TORTILLA OVEN #5	0.1	0.00285	0.0076	0.084	0.0055	Natural gas	--	None	None	None	None	None
GRUMA CORPORATION	FOOD PREPARATIONS	C	845	16	1	A	1.2 MMBTU/HR TECHNOMAIZ, C.A. MODEL FO-34200, S/N 09-93-302, FLOUR TORTILLA OVEN #6	0.1	0.00285	0.0076	0.084	0.0055	Natural gas	--	None	None	None	None	None
GRUMA CORPORATION	FOOD PREPARATIONS	C	845	17	1	A	1.2 MMBTU/HR TECHNOMAIZ, C.A. MODEL FO-34200, S/N 06-93-171, FLOUR TORTILLA OVEN #7	0.1	0.00285	0.0076	0.084	0.0055	Natural gas	--	None	None	None	None	None
GRUMA CORPORATION	FOOD PREPARATIONS	C	845	18	0	A	ONE 0.9 MMBTU/HR TECHNOMAIZ, C.A. MODEL LFC 84124 NATURAL GAS-FIRED FLOUR TORTILLA OVEN	2.2 lb/day		NA	0.5 lb/day	0.5 lb/day	NG/LPG	--	None	None	None	None	None
GRUMA CORPORATION	FOOD PREPARATIONS	C	845	19	0	A	1.642 MMBTU/HR TECNOMIAZ MODEL T-600 NATURAL GAS FIRED CORN TORTILLA OVEN	0.0656	0.0029	0.0076	0.084	0.0055	Natural gas	--	None	None	None	None	None
RUIZ FOOD PRODUCTS INC	FOOD PREPARATIONS	S	1325	24	0	A	3.0 MMBTU/HR LAWRENCE MODEL GTO1620 NATURAL GAS-FIRED FLOUR TORTILLA OVEN (LINE #4)	0.1	0.75gr-S/100scf	0.0076	400 ppm @ 15% O2	0.0055	natural gas	--	None	None	None	None	None
RUIZ FOOD PRODUCTS INC	FOOD PREPARATIONS	S	1325	32	0	A	3.8 MMBTU/HR JC FORD COMPANY NATURAL GAS-FIRED TORTILLA OVEN	27.2 ppmvd @ 15% O2 (0.1	NA	0.0076	0.897	0.0055	natural gas	--	None	None	None	None	None
RUIZ FOOD PRODUCTS INC	FOOD PREPARATIONS	S	1325	37	0	A	2.5 MMBTU/HR J.C. FORD MODEL FTO-0514-56 SN FTO-100607 NATURAL GAS-FIRED TORTILLA OVEN	0.1	0.00285	0.0076	0.5381	0.0055	natural gas	--	None	None	None	None	None
RUIZ FOOD PRODUCTS INC	FOOD PREPARATIONS	S	1325	40	0	A	2.5 MMBTU/HR J.C. FORD MODEL FTO-0514-56 NATURAL GAS-FIRED TORTILLA OVEN (LINE #2)	0.1	0.00285	0.0076	0.5381	0.0055	natural gas	--	None	None	None	None	None
RUIZ FOOD PRODUCTS INC	FOOD PREPARATIONS	S	1325	42	0	A	1.5 MMBTU/HR NATURAL GAS FIRED RUIZ FOOD EQUIPMENT TORTILLA OVEN (#LA5)	0.1	NA	NA	0.5381	0.0055	natural gas	--	None	None	None	None	None
RUIZ FOOD PRODUCTS INC	FOOD PREPARATIONS	S	1325	43	0	A	1.8 MMBTU/HR NATURAL GAS-FIRED RUIZ FOOD EQUIPMENT MODEL RFO48-144 TORTILLA OVEN (LA#6)	0.1	NA	0.0076	0.084	0.0055	natural gas	--	None	None	None	None	None
FRITO-LAY INC	POTATO CHIP AND SNACKFOOD MANUFACTURER	N	1919	1	10	A	UTC 1 (TORTILLA CHIP) CONSISTING OF TWO PERMIT EXEMPT PRE-COOKERS (STEAM-HEATED), TWO 3.2 MMBTU/HR (EACH) OVENS (DIRECT-FIRED), ONE COOKER (STEAM-HEATED), ONE MECHANICAL SEASONER AND A HEAT & CONTROL AMBIENT AIR COOLER SERVED BY A HIGH VELOCITY AIR FILTER. THE WET SCRUBBER SERVES THE SEASONER AND IS SHARED WITH PERMIT UNIT N-1919-2.	0.1	0.0029	0.012	0.47	0.0053	natural gas	--	None	None	None	None	None
FRITO-LAY INC	POTATO CHIP AND SNACKFOOD MANUFACTURER	N	1919	1	10	A	UTC 1 (TORTILLA CHIP) CONSISTING OF TWO PERMIT EXEMPT PRE-COOKERS (STEAM-HEATED), TWO 3.2 MMBTU/HR (EACH) OVENS (DIRECT-FIRED), ONE COOKER (STEAM-HEATED), ONE MECHANICAL SEASONER AND A HEAT & CONTROL AMBIENT AIR COOLER SERVED BY A HIGH VELOCITY AIR FILTER. THE WET SCRUBBER SERVES THE SEASONER AND IS SHARED WITH PERMIT UNIT N-1919-2.	14 lb/1,000 gal	0.45 lb/1,000 gal	0.4 lb/1,000 gal	42.535 lb/1,000 gal	0.47 lb/1,000 gal	propane fuel	--	None	None	None	None	None
FRITO-LAY INC	POTATO CHIP AND SNACKFOOD MANUFACTURER	N	1919	2	11	A	UTC 2 (TORTILLA CHIP) CONSISTING OF TWO STEAM-HEATED PRE-COOKER, TWO 5.58 MMBTU/HR (EACH) CASA HERRERA MODEL MACH IV XWXL OVENS (DIRECT-FIRED, INDUCED DRAFT), ONE STEAM-HEATED COOKER AND A MECHANICAL SEASONER. WET SCRUBBER SERVES THE SEASONER AND IS SHARED WITH PERMIT UNIT N-1919-1.	0.1	0.0029	0.012	0.47	0.0053	natural gas	--	None	None	None	None	None
FRITO-LAY INC	POTATO CHIP AND SNACKFOOD MANUFACTURER	N	1919	2	11	A	UTC 2 (TORTILLA CHIP) CONSISTING OF TWO STEAM-HEATED PRE-COOKER, TWO 5.58 MMBTU/HR (EACH) CASA HERRERA MODEL MACH IV XWXL OVENS (DIRECT-FIRED, INDUCED DRAFT), ONE STEAM-HEATED COOKER AND A MECHANICAL SEASONER. WET SCRUBBER SERVES THE SEASONER AND IS SHARED WITH PERMIT UNIT N-1919-1.	14 lb/1,000 gal	0.45 lb/1,000 gal	0.4 lb/1,000 gal	42.535 lb/1,000 gal	0.47 lb/1,000 gal	propane fuel	--	None	None	None	None	None

Ovens in Permits Database

sFacilityName	sFacilityDescription	sRegion	FacilityID	PermitNum	Modificat	sStatus	memEquipment	Permit Limits (lb/MMBtu, unless otherwise noted)					Fuel Type	Test Date	Latest Source Test Data (lb/MMBtu, unless otherwise noted)				
								NOx	SOx	PM10	CO	VOC			NOx	SOx	PM10	CO	VOC
WARNOCK FOOD PRODUCTS INC.	FOOD PROCESSING	C	1994	1	2	A	4.0 MMBTU/HR TORTILLA CHIP PROCESSING LINE #1 CONSISTING OF ONE 4.0 MMBTU/HR JC FORD MODEL TO3018-50 NATURAL GAS-FIRED OVEN AND A FRYER SERVED BY A PERMIT EXEMPT PROCESS HEATER (NATURAL GAS-FIRED, 5.0 MMBTU/HR OR LESS)	0.1	0.00285	0.0076	0.1976	0.0055	tural gas, oven emissi	--	None	None	None	None	None
WARNOCK FOOD PRODUCTS INC.	FOOD PROCESSING	C	1994	2	1	A	TACO SHELL/TOSTADA PROCESSING LINE CONSISTING OF ONE 0.61 MMBTU/HR NATURAL GAS- FIRED OVEN, AND ONE PERMIT EXEMPT ELECTRIC FRYER	0.1	--	--	--	--	natural gas	--	None	None	None	None	None
WARNOCK FOOD PRODUCTS INC.	FOOD PROCESSING	C	1994	4	0	A	TORTILLA BOWL PRODUCTION LINE (SMALL BOWL LINE), INCLUDING ONE 0.65 MMBTU/HR CASA HERRERA MODEL DCO 8108968 NATURAL GAS-FIRED OVEN, AND A PERMIT EXEMPT ELECTRIC FRYER	0.1	--	--	--	--	natural gas	--	None	None	None	None	None
WARNOCK FOOD PRODUCTS INC.	FOOD PROCESSING	C	1994	5	0	A	TORTILLA BOWL PRODUCTION LINE (LARGE BOWL LINE), INCLUDING ONE 0.65 MMBTU/HR CASA HERRERA MODEL DCO 8108971 NATURAL GAS-FIRED OVEN, AND A PERMIT EXEMPT ELECTRIC FRYER	0.1	--	--	--	--	natural gas	--	None	None	None	None	None
WARNOCK FOOD PRODUCTS INC.	FOOD PROCESSING	C	1994	7	2	A	TOSTADA BOWL PRODUCTION LINE (RECTANGULAR BOWL LINE) CONSISTING OF ONE 0.83 MMBTU/HR CASA HERRERA MODEL DCO-150 NATURAL GAS FIRED OVEN AND PERMIT EXEMPT ELECTRIC FRYER	0.1	0.00285	0.0076	0.29	0.0055	natural gas	--	None	None	None	None	None
WARNOCK FOOD PRODUCTS INC.	FOOD PROCESSING	C	1994	10	0	A	TORTILLA CHIP PRODUCTION LINE #2 CONSISTING OF ONE 1.4 MMBTU/HR CASA HERRERA MODEL TCO-168 NATURAL GAS FIRED OVEN #1, ONE 1.5 MMBTU/HR CASA HERRERA MODEL TCO-168 NATURAL GAS FIRED OVEN #2, ONE FRYER, AND ONE PERMIT EXEMPT FRYER/HEAT EXCHANGER (NATURAL GAS-FIRED, 5.0 MMBTU/HR OR LESS)	0.1	0.00285	0.0076	0.1976	0.0055	natural gas	--	None	None	None	None	None
WARNOCK FOOD PRODUCTS INC.	FOOD PROCESSING	C	1994	12	0	A	EXTRUSION LINE CONSISTING OF ONE 2.4 MMBTU/HR NATURAL GAS-FIRED OVEN WITH AN ECLIPSE BURNER, ASSOCIATED EQUIPMENT, AND THE FOLLOWING PERMIT EXEMPT EQUIPMENT: EXTRUDER(S) AND ONE FRYER (NATURAL GAS-FIRED, 5 MMBTU/HR OR LESS)	0.1	0.00285	0.0076	0.29	0.0055	natural gas	--	None	None	None	None	None
WARNOCK FOOD PRODUCTS INC.	FOOD PROCESSING	C	1994	13	0	A	CHIP PRODUCTION LINE 3 CONSISTING OF ONE 4.1 MMBTU/HR CASA HERRERA MACH IV NATURAL GAS-FIRED OVEN, ONE FRYER HEATED BY A PERMIT EXEMPT PROCESS HEATER AND ASSOCIATED EQUIPMENT	0.1	0.00285	0.0076	0.29	0.0055	natural gas	--	None	None	None	None	None
FRITO-LAY INC	SNACK FOODS MANUFACTURING	S	2076	4	9	A	TORTILLA CHIP LINE #1 WITH CONVEYORIZED OIL FRYER, HEAT EXCHANGER, SEASONER, 6.83 MMBTU/HR NATURAL GAS FIRED CASA HERRERA OVEN, AND ONE AMBIENT AIR COOLER SERVED BY HIGH VELOCITY DUCT FILTER AND HEAT RECOVERY AND HOT WATER STORAGE SYSTEM SHARED WITH S-2076-5	0.1	0.00285	0.0076	223 ppmv @ 15% O2	0.0055	natural gas	12/22/2021	0.0906	None	None	216.35 ppmv @ 15% O2	None
FRITO-LAY INC	SNACK FOODS MANUFACTURING	S	2076	5	9	A	TORTILLA CHIP LINE #2 WITH CONVEYORIZED OIL FRYER, HEAT EXCHANGER, SEASONER, 6.83 MMBTU/HR NATURAL GAS FIRED CASA HERRERA OVEN, AND ONE AMBIENT AIR COOLER SERVED BY HIGH VELOCITY DUCT FILTER AND HEAT RECOVERY AND HOT WATER STORAGE SYSTEM SHARED WITH S-2076-4	0.1	0.00285	0.0076	223 ppmv @ 15% O2	0.0055	natural gas	9/30/2021	0.095	None	None	202.2 ppmv @ 15% O2	None
FRITO-LAY INC	SNACK FOODS MANUFACTURING	S	2076	17	8	A	BAKED LINE #1 INCLUDING A 9.76 MMBTU/HR NATURAL GAS-FIRED BAKING OVEN, 10 MMBTU/HR NATURAL GAS-FIRED PRIMARY DRYER, STEAM HEATED FRYER WITH OIL MIST ELIMINATOR AND AMBIENT AIR COOLER	0.97 lb/hr	0.03 lb/hr	0.12 lb/hr	2.84 lb/hr	0.05 lb/hr	natural gas	6/5/2020	32.9 ppmvd @ 3% O2, 0.1 lb/hr	None	None	1,173 ppmvd @ 3% O2, 2.15 lb/hr	None
FRITO-LAY INC	SNACK FOODS MANUFACTURING	S	2076	18	6	A	BAKED LINE #2 INCLUDING 20.0 MMBTU/HR NATURAL GAS-FIRED BAKING OVEN AND 6.0 MMBTU/HR NATURAL GAS-FIRED FINISHING DRYER	2.80 lb/hr	0.02 lb/hr	0.28 lb/hr	3.00 lb/hr	0.06 lb/hr	natural gas	4/19/2018	oven 1: 96.67 ppmvd @ 3% O2 (0.65 lb/hr) ovrn 2: 86.43 ppmvd @ 3% O2 (0.21 lb/hr)	None	None	oven 1: 18.01 ppmvd @ 3% O2 (0.07 lb/hr) oven 2: 37.67 ppmvd @ 3% O2 (0.06 lb/hr)	None
FRITO-LAY INC	SNACK FOODS MANUFACTURING	S	2076	19	15	A	PRETZEL LINE #2 INCLUDING 7.3 MMBTU/HR NATURAL GAS-FIRED BAKING OVEN, 4.0 MMBTU/HR NATURAL GAS-FIRED COATER/DRYING OVEN VENTED TO CYCLONE AND BAGHOUSE, 1.25 MMBTU/HR NATURAL GAS-FIRED FINISHING OVEN, 5370 CFM AMBIENT AIR COOLER, AND DUST COLLECTION SYSTEM	0.730 lb/hr	0.007 lb/hr	0.088 lb/hr	10.00 lb/hr	0.037 lb/hr	natural gas	3/3/2021	Baking oven, stack 1: 0.89 ppm @ 3% O2 Baking oven, stack 2: 5.35 ppm @ 3% O2 Baking oven, stack 3: 61.35 ppm @ 3% O2 Baking oven, stack 4: 74.36 ppm@ 3% O2 Baking oven, stack 5: 83.27 ppm @ 3% O2	None	None	Baking oven, stack 1: 14 ppm @ 3% O2 Baking oven, stack 2: 87 ppm @ 3% O2 Baking oven, stack 3: 1,069 ppm @ 3% O2 Baking oven, stack 4: 1,528 ppm@ 3% O2 Baking oven, stack 5: 83.27 ppm @ 3% O2	None
FRITO-LAY INC	SNACK FOODS MANUFACTURING	S	2076	20	11	A	PRETZEL LINE #1 INCLUDING 7.3 MMBTU/HR NATURAL GAS-FIRED BAKING OVEN AND DUST COLLECTION SYSTEM	0.730 lb/hr	0.007 lb/hr	0.088 lb/hr	10.00 lb/hr	0.037 lb/hr	natural gas	9/2/2020	Baking oven, stack 1: 0.01 ppm @ 3% O2 Baking oven, stack 2: 3.15 ppm @ 3% O2 Baking oven, stack 3: 56.60 ppm @ 3% O2 Baking oven, stack 4: 63.25 ppm@ 3% O2 Baking oven, stack 5: 1.12 ppm @ 3% O2	None	None	Baking oven, stack 1: 25 ppm @ 3% O2 Baking oven, stack 2: 201 ppm @ 3% O2 Baking oven, stack 3: 3,047 ppm @ 3% O2 Baking oven, stack 4: 803 ppm@ 3% O2 Baking oven, stack 5: 60 ppm @ 3% O2	None
FRITO-LAY INC	SNACK FOODS MANUFACTURING	S	2076	21	16	A	9.56 MMBTU/HR TORTILLA CHIP LINE #3, INCLUDING: 9.56 MMBTU/HR OVEN, FRYER, SEASONER, AIR COOLER, AND ON MACHINE SEASONING (OMS) SYSTEM SERVED BY DUST COLLECTOR	0.058	NA	0.012	0.292	0.005	natural gas	12/202019	0.058 (49.05 ppmv @ 3% O2)	None	None	0.2512 (342.8 ppmv @ 3% O2)	None
FRITO-LAY INC	SNACK FOODS MANUFACTURING	S	2076	21	16	A	9.56 MMBTU/HR TORTILLA CHIP LINE #3, INCLUDING: 9.56 MMBTU/HR OVEN, FRYER, SEASONER, AIR COOLER, AND ON MACHINE SEASONING (OMS) SYSTEM SERVED BY DUST COLLECTOR	0.151	NA	0.012	0.021	0.005	propane fuel	--	None	None	None	None	None
LA TAPATIA TORTILLERIA INC	FOOD MANUFACTURING	C	3252	1	0	A	1.5 MMBTU/HR CASA HERRERA MODEL DCO-180 NATURAL GAS-FIRED OVEN FEEDING A COOLER CONVEYOR (CORN DEPT, UNIT #1 WEST)	0.095	NA	NA	0.038	NA	natural gas	--	None	None	None	None	None
LA TAPATIA TORTILLERIA INC	FOOD MANUFACTURING	C	3252	2	0	A	1.5 MMBTU/HR CASA HERRERA MODEL DCO-180 NATURAL GAS-FIRED OVEN FEEDING A COOLER CONVEYOR (CORN DEPT, UNIT #2 MIDDLE)	0.095	NA	NA	0.038	NA	natural gas	--	None	None	None	None	None

Ovens in Permits Database

sFacilityName	sFacilityDescription	sRegion	FacilityID	PermitNum	odificat	sStatus	memEquipment	Permit Limits (lb/MMBtu, unless otherwise noted)					Fuel Type	Test Date	Latest Source Test Data (lb/MMBtu, unless otherwise noted)				
								NOx	SOx	PM10	CO	VOC			NOx	SOx	PM10	CO	VOC
LA TAPATIA TORTILLERIA INC	FOOD MANUFACTURING	C	3252	3	1	A	4.5 MMBTU/HR J. C. FORD MODEL TO-0318-6 NATURAL GAS-FIRED TORTILLA OVEN FEEDING A COOLER CONVEYOR (CORN DEPT, UNIT #3 EAST)	0.1	0.00285	0.0076	0.2956	0.0055	natural gas	--	None	None	None	None	None
LA TAPATIA TORTILLERIA INC	FOOD MANUFACTURING	C	3252	4	0	A	1.0 MMBTU/HR LAWRENCE EQUIPMENT NATURAL GAS-FIRED OVEN FEEDING A COOLER CONVEYOR (FLOUR DEPT, UNIT #1 WEST)	0.095	NA	NA	0.038	NA	natural gas	--	None	None	None	None	None
LA TAPATIA TORTILLERIA INC	FOOD MANUFACTURING	C	3252	10	0	A	3.1 MMBTU/HR CASA HERRERA MODEL TCO-150 NATURAL GAS-FIRED OVEN IN SERIES WITH A CHIP COOLER AND A CONVEYORIZED OIL FRYER WITH VENTILATION HOOD AND OIL MIST ELIMINATOR, HEAT EXCHANGER, FEEDING SEASONING AND PACKAGING EQUIPMENT	0.102	0.0029	0.0075	0.207	0.005	natural gas	--	None	None	None	None	None
LA TAPATIA TORTILLERIA INC	FOOD MANUFACTURING	C	3252	11	0	A	TORTILLA CHIP PRODUCTION LINE CONSISTING OF ONE 2.7 MMBTU/HR CASA HERRERA MODEL 3216-01 MACH IV (SN 00256) NATURAL GAS-FIRED OVEN AND ONE HEAT AND CONTROL INC. HOT OIL FRYER WITH A PERMIT EXEMPT BURNER (LESS THAN 5.0 MMBTU/HR) SERVED BY A HOOD VENTED TO A HEAT AND CONTROL INC. MODEL OME OIL MIST ELIMINATION SYSTEM	0.1	0.00285	0.0076	0.2956	0.0055	natural gas	--	None	None	None	None	None
LA TAPATIA TORTILLERIA INC	FOOD MANUFACTURING	C	3252	19	0	A	1.5 MMBTU/HR FLOUR TORTILLA PROCESSING LINE CONSISTING OF A JC FORD MODEL TE-1445 NATURAL GAS-FIRED BAKE OVEN	0.1	0.00285	0.0076	0.08	0.0055	natural gas	--	None	None	None	None	None
RUIZ FOOD PRODUCTS INC	FOOD PREPARATIONS	S	6494	6	0	A	2.57 MMBTU/HR CASA HERRERA MODEL #ODYSSEY 168/40 SERIAL #1111599 FLOUR TORTILLA OVEN	0.1	1.0 gr/100 scf	0.0076	0.3	0.0055	natural gas	--	None	None	None	None	None
RUIZ FOOD PRODUCTS INC	FOOD PREPARATIONS	S	6494	7	0	A	1.2 MMBTU/HR NATURAL GAS FIRED LAWRENCE EQUIPMENT MODEL #OF03812-11 SERIAL #F0421 FLOUR TORTILLA OVEN	0.1	1.0 gr/100 scf	0.0076	0.3	0.0055	natural gas	--	None	None	None	None	None
ARANDAS TORTILLA CO INC	FOOD MANUFACTURING OPERATION	N	8179	3	0	A	CORN TORTILLA AND CORN TORTILLA CHIP MAKING OPERATION: ONE 2.0 MMBTU/HR RIGO'S SHEET METAL MODEL 09/439/CTO20340 NATURAL GAS-FIRED OVEN; ONE 2.5 MMBTU/HR RIGO'S SHEET METAL MODEL 06/221/CTO20470 NATURAL GAS-FIRED OVEN; TWO STEAM-OPERATED CORN COOKING TANKS; A GRINDER; A MASA FEEDER; A ROLLER SYSTEM; STOCKER COUNTER AND ASSOCIATED CONVEYING SYSTEMS	0.1	0.00285	0.0076	0.084	0.0055	natural gas	--	None	None	None	None	None
ARANDAS TORTILLA CO INC	FOOD MANUFACTURING OPERATION	N	8179	4	1	A	CORN TORTILLA CHIP MAKING OPERATION: ONE 1.5 MMBTU/HR RIGO'S EQUIPMENT MFG MODEL 16-1215-CT 0224210 NATURAL GAS-FIRED TORTILLA CHIP OVEN; ONE 1.99 MMBTU/HR INDIRECT NATURAL GAS-FIRED PRO-ENGINEERING MFG CO. FRYER BURNER (PERMIT-EXEMPT) AND ASSOCIATED FRYING OPERATION; ONE 1.5 MMBTU/HR INDIRECT NATURAL GAS-FIRED PRO-ENGINEERING MFG CO. F-5100 FRYER BURNER EQUIPPED WITH ECLIPSE PRJ101038344 (S/N 10801813/50-0008-1) LOW NOX BURNER (PERMIT-EXEMPT) AND ASSOCIATED FRYING OPERATION; TWO STEAM-OPERATED CORN COOKING TANKS; A GRINDER; A MASA FEEDER; A ROLLER SYSTEM; A STOCKER COUNTER; AND ASSOCIATED CONVEYING SYSTEMS. EACH FRYER IS SERVED BY ITS OWN OIL MIST ELIMINATOR SYSTEM	0.1	0.00285	0.0076	0.2	0.0055	tural gas, oven emissi	--	None	None	None	None	None
ARANDAS TORTILLA CO INC	FOOD MANUFACTURING OPERATION	N	8179	5	0	A	2.2 MMBTU/HR CORN TORTILLA PROCESSING LINE CONSISTING OF A SUPERIOR FOOD MACHINERY INCORPORATED MODEL 4C020-CB12P NATURAL GAS-FIRED BAKE OVEN	0.1	0.00285	0.0076	0.2	0.0054	natural gas	--	None	None	None	None	None
DEL CASTILLO FOODS INC	TORTILLA MANUFACTURING OPERATION	N	8235	2	0	A	WHEAT FLOUR TORTILLA MAKING OPERATION: ONE 2.0 MMBTU/HR CASA HERRERA NATURAL GAS-FIRED OVEN; PERMIT-EXEMPT UNITS: A MIXER, PROOFER, STAMPER/PRESSES AND ASSOCIATED CONVEYING SYSTEMS	0.1	0.00285	0.0076	0.084	0.0055	natural gas	--	None	None	None	None	None
DEL CASTILLO FOODS INC	TORTILLA MANUFACTURING OPERATION	N	8235	3	0	A	CORN TORTILLA MAKING OPERATION (LINE 1): ONE 0.955 MMBTU/HR MACHINE MASTERS, INC. OVEN; PERMIT EXEMPT UNITS: STOCKER COUNTER AND ASSOCIATED CONVEYING SYSTEMS	0.1	0.00285	0.0076	0.084	0.0055	natural gas	--	None	None	None	None	None
DEL CASTILLO FOODS INC	TORTILLA MANUFACTURING OPERATION	N	8235	4	0	A	CORN TORTILLA MAKING OPERATION (LINE 2) : FOUR CORN KERNEL COOKING CONTAINERS EACH EQUIPPED WITH A DIRECT-FIRED 0.124 MMBTU/HR BURNER SYSTEM; ONE 0.955 MMBTU/HR MACHINE MASTERS, INC. OVEN; PERMIT EXEMPT UNITS: GRINDER, A MASA FEEDER, STOCKER COUNTER AND ASSOCIATED CONVEYING SYSTEMS.	0.1	0.00285	0.0076	0.084	0.0055	natural gas	--	None	None	None	None	None
WARNOCK FOOD PRODUCTS, INC.	FOOD PROCESSING	C	8438	1	0	A	FOOD PRODUCTS FRYING LINE CONSISTING OF ONE OVEN WITH A 2.4 MMBTU/HR NATURAL GAS-FIRED BURNER AND ONE FRYER SERVED BY A OIL MIST ELIMINATOR AND A PERMIT EXEMPT OIL HEATER (NATURAL GAS FIRED, 5 MMBTU/HR OR LESS)	0.1	0.00285	0.0076	0.2956	0.0055	natural gas	--	None	None	None	None	None
ARANDAS TORTILLA COMPANY	FOOD MANUFACTURING OPERATION	N	9424	1	0	A	1.0 MMBTU/HR NATURAL GAS FIRED, CHIP MASTERS, MODEL CMTO10361003 TORTILLA OVEN	0.1	0.00285	0.0076	0.2	0.0055	natural gas	--	None	None	None	None	None
ARANDAS TORTILLA COMPANY	FOOD MANUFACTURING OPERATION	N	9424	2	0	A	1.0 MMBTU/HR NATURAL GAS FIRED, CASA HERRERA, MODEL FTO168/120/105/36 TORTILLA OVEN	0.1	0.00285	0.0076	0.2	0.0055	natural gas	--	None	None	None	None	None
ARANDAS TORTILLA COMPANY	FOOD MANUFACTURING OPERATION	N	9424	3	0	A	1.2 MMBTU/HR NATURAL GAS FIRED, CASA HERRERA OVEN, MODEL MF TORTILLA OVEN	0.1	0.00285	0.0076	0.2	0.0055	natural gas	--	None	None	None	None	None

Appendix D
HRA & AAQA Summary

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

To:	Jag Kahlon – Permit Services
From:	Will Worthley – Technical Services
Date:	May 16, 2023
Facility Name:	FRITO-LAY INC
Location:	600 GARNER RD , MODESTO
Application #(s):	N-1919-20-1, -22-1
Project #:	N-1230113

1. Summary

1.1 Risk Management Review (RMR)

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
20-1	0.01	0.00	0.00	2.39E-09	No	Yes
22-1	N/A[1]	N/A[1]	N/A[1]	N/A[1]	No	Yes
Project Totals	0.01	0.00	0.00	2.39E-09		
Facility Totals	>1	0.00	0.00	4.61E-09		

Notes:
1. Maximum Cancer Risk, acute and chronic hazard indices were not calculated for Unit 22 since all emissions are considered food grade.

1.2 Ambient Air Quality Analysis (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
PM10				Pass[3]	Pass[3]
PM2.5				Pass[4]	Pass[4]

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 below 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.

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

Unit # 20-1 & 22-1

1. The steam-operated fry, ambient air cooler, and oven 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.

2. Project Description

Technical Services received a revised request to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for the following:

- Unit -20-1: DORITO TORTILLA CHIP PROCESS LINE CONSISTS OF A SCHENCK (OR EQUIVALENT MAKE AND MODEL) CORN CLEANER SERVED BY A CYCLONE VENTED TO A DUST COLLECTION SYSTEM, FOUR KETTLES (STEAM-HEATED) FOR CORN WASH, SOAK AND COOK SYSTEM, A HEAT & CONTROL MODEL DTC-4500 (OR EQUIVALENT MAKE AND MODEL)VEGETABLE OIL FRYER (STEAM HEATED) WITH OIL MIST ELIMINATOR, AN IET COMBUSTION LLC MODEL 10D-400-S-F (OR EQUIVALENT MAKE AND MODEL) 8.5 MMBTU/HR OVEN WITH LOW-NOX BURNER, A HEAT & CONTROL MODEL AAC-7212 (OR EQUIVALENT MAKE AND MODEL)AMBIENT AIR COOLER SERVED BY HIGH VELOCITY FILTRATION SYSTEM, AND A SEASONING SYSTEM VENTED TO A TRI-MER 28-H (OR EQUIVALENT MAKE AND MODEL) WATER SCRUBBER
- Unit -22-1: ONION FRIED SNACK (OFS) MANUFACTURING LINE CONSIST OF THREE SHICK ESTEVE (OR EQUIVALENT MAKE AND MODEL) BAG DUMP STATIONS EACH VENTED TO ITS OWN SHICK ESTEVE IQC (OR EQUIVALENT MAKE AND MODEL) FILTER SYSTEM, THREE USE BINS EACH VENTED TO ITS OWN SHICK ESTEVE IQC (OR EQUIVALENT MAKE AND MODEL) FILTER SYSTEM, ONE HOPPER VENTED TO SHICK ESTEVE IQC (OR EQUIVALENT MAKE AND MODEL), ONE BLENDER VENTED TO A SHICK ESTEVE MQC (OR EQUIVALENT MAKE AND MODEL), TEN EXTRUDERS, A STEAM-OPERATED CLOSED-TOP VEGETABLE OIL FRYER VENTED THROUGH AN OIL MIST ELIMINATOR (OME), A HEAT & CONTROL (OR EQUIVALENT MAKE AND MODEL) AMBIENT AIR COOLER SERVED BY HIGH VELOCITY FILTRATION SYSTEM, AND A SEASONING SYSTEM CONSISTING OF A DUMP STATION AND TUMBLER VENTED TO A TRI-MER 10-H (OR EQUIVALENT MAKE AND MODEL) ORIFICE WATER SCRUBBER, AND A PERMIT-EXEMPT ELECTRIC OVEN FOR HEATING EXTRUDER DIES

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 than 1.0. If a preliminary analysis demonstrates that either the units', 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 a 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 units that exceed a cancer risk of one in a million, Toxic Best Available Control Technology (TBACT) must be implemented.

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

- Natural gas usage rates for the proposed operation were provided by the Permit Engineer. These usage rates were speciated into toxic air contaminants using emission factors derived from the table, "Natural Gas Fired External Combustion Equipment", in the 2001 report, Ventura County Air Pollution Control District AB 2588 Combustion Emission Factors.

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 2013-2017 from Modesto (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**
20	1	NG Usage for Oven	MMscf	0.01	74.46
20	2	NG Usage for Frying	MMscf	0.003	23.65

Point Source Parameters						
Unit ID	**Unit Description**	**Release Height (m)**	**Temp. (°K)**	**Exit Velocity (m/sec)**	**Stack Diameter (m)**	**Vertical/ Horizontal/ Capped**
20	NG Usage for Oven	17.68	422	3.85	0.71	Vertical
20	NG Usage for Frying	17.07	394	7.59	0.61	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	Modesto-14th Street	Stanislaus	Modesto	2021
NOx	Turlock	Stanislaus		2021
NOx	Turlock	Stanislaus	Turlock	2021
PM10	Modesto-14th Street	Stanislaus	Modesto	2021
PM2.5	Modesto-14th Street	Stanislaus	Modesto	2021
SOx	Fresno - Garland	Fresno	Fresno	2021

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**
20	1 Cleaning	0.00	0.00	0.00	0.02	0.00
20	2 Frying	0.00	0.00	0.00	0.11	0.03
20	3 Oven	0.31	0.02	2.55	0.06	0.06
20	4 Cooler	0.00	0.00	0.00	0.32	0.01
20	5 Seasoner	0.00	0.00	0.00	0.01	0.00
22	1 Fryer	0.00	0.00	0.00	0.01	0.01
22	2 Cooler	0.00	0.00	0.00	0.32	0.01
22	3 Seasoner	0.00	0.00	0.00	0.14	0.00
22	4 Blend/Hopper	0.00	0.00	0.00	0.00	0.00
22	5 Dump Station	0.00	0.00	0.00	0.01	0.01
22	6 Use Bin	0.00	0.00	0.00	0.01	0.01

Emission Rates (lbs/year)						
Unit ID	**Process**	**NOx**	**SOx**	**CO**	**PM10**	**PM2.5**
20	1 Cleaning	000	000	000	6.3	6.3
20	2 Frying	000	000	000	283.8	283.8
20	3 Oven	2,681	212	22,338	547.8	547.8
20	4 Cooler	000	000	000	56.7	56.9
20	5 Seasoner	000	000	000	10.2	10.2
22	1 Fryer	000	000	000	65.7	65.7
22	2 Cooler	000	000	000	57.34	57.34
22	3 Seasoner	000	000	000	168.7	168.7
22	4 Blend/Hopper	000	000	000	10	10
22	5 Dump Station	000	000	000	68	68
22	6 Use Bin	000	000	000	68	68

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 2013-2017 from Modesto (rural dispersion coefficient selected) were used for the analysis:

The following parameters were used for the review:

Area Source Parameters					
Unit ID	**Unit Description**	**Release Height (m)**	**X-Length (m)**	**Y -Length (m)**	**Area (m^2)**
22	Use Bin	13.72	28.24	20.58	581.18
22	Seasoning	13.72	34.36	41.59	1429.03
22	Hopper/Blender	13.72	12.98	36.17	469.49
22	Dump Station	13.72	14.25	35.74	509.30

Point Source Parameters						
Unit ID	**Unit Description**	**Release Height (m)**	**Temp. (°K)**	**Exit Velocity (m/sec)**	**Stack Diameter (m)**	**Vertical/ Horizontal/ Capped**
20	Seasoning	2.74	316	31.70	0.25	Vertical
20	Oven	17.68	422	3.85	0.71	Vertical
20	Fryer	17.07	394	7.59	0.61	Vertical
20	Cooling	16.46	339	22.38	0.79	Vertical
20	Cleaning	15.85	0	11.14	0.51	Vertical
22	Cooler	17.68	380	5.18	0.46	Vertical
22	Fryer	16.15	322	15.46	0.61	Vertical

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

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

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

E. AAQA results

Appendix E
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

N-1919-20-1:

Quarterly NEC [QNEC]			
Pollutant	**PE2 (lb/qtr)**	**PE1 (lb/qtr)**	**QNEC (lb/qtr)**
NO_X	670.25	0	670.25
SO_X	53.0	0	53.0
PM_{10}	1,129.0	0	1,129.0
CO	5,584.5	0	5,584.5
VOC	632.75	0	632.75

N-1919-22-1:

Quarterly NEC [QNEC]			
Pollutant	**PE2 (lb/qtr)**	**PE1 (lb/qtr)**	**QNEC (lb/qtr)**
NO_X	0	0	0
SO_X	0	0	0
PM_{10}	1,095.25	0	1,095.25
CO	0	0	0
VOC	1,003.75	0	1,003.75

Appendix F
Compliance Certification

Frito-Lay

August 28, 2020

Mr. Nick Peirce
Manager, Northern Region
San Joaquin Valley Air Pollution Control District
4800 Enterprise Way
Modesto, CA 95356

Subject: **Compliance Certification**
Frito-Lay, Inc.
600 Garner Road, Modesto, California
SJVAPCD Facility ID N-1919

Dear Mr. Peirce,

In accordance with Rule 2201, Section 4.15, "Additional Requirements for New Major Sources and Federal Major Modifications," Frito-Lay, Inc. (Frito-Lay) is providing this compliance statement related to its proposed project to install new corn and cornmeal transfer equipment, and new snack food production lines at the above referenced facility.

All major stationary sources in California owned or operated by Frito-Lay, Inc., or by any entity controlling, controlled by, or under common control with Frito-Lay, and which are subject to emission limitations, are in compliance or on a schedule for compliance with all applicable emission limitations and standards. These sources include the following facilities:

Facility	Facility ID	City of Operation	Regional Air District
Frito-Lay, Modesto	N-1919	Modesto	San Joaquin Valley Air Pollution Control District
Frito-Lay, Kern	S-2076	Bakersfield	San Joaquin Valley Air Pollution Control District
Frito-Lay, Rancho Cucamonga	346	Rancho Cucamonga	South Coast Air Quality Management District

Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Should you or your staff have any questions concerning this certification, please do not hesitate to contact me (858.775.4347 or Kristie.Wdowiak@pepsico.com) or our consultant, Scott Weaver of Ramboll (213.943.6360 or msweaver@ramboll.com).

Best regards,

Kristie Wdowiak

Kristie Wdowiak
Regional Vice President
Frito-Lay, Inc. Southwest Supply Chain

Enclosures

Cc: Cedric Robinson, Frito-Lay (Plano, TX)
Alexander Kabbaj, Frito-Lay (Plano, TX)
Scott Weaver, Ramboll US Corporation (Los Angeles, CA)

San Joaquin Valley Air Pollution Control District

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

I. TYPE OF PERMIT ACTION (Check appropriate box)

☐ ADMINISTRATIVE AMENDMENT ☐ MINOR MODIFICATION ☒ SIGNIFICANT MODIFICATION

COMPANY NAME: Frito-Lay, Inc.	FACILITY ID: N-1919
1. Type of Organization: ☒ Corporation ☐ Sole Ownership ☐ Government ☐ Partnership ☐ Utility	
2. Owner's Name: Frito-Lay, Inc.	
3. Agent to the Owner:	

II. COMPLIANCE CERTIFICATION (Read each statement carefully and initial **applicable** circles for confirmation):

(X) Based on information and belief formed after reasonable inquiry, the equipment identified in this application will continue to comply with the applicable federal requirement(s).

(X) Based on information and belief formed after reasonable inquiry, the equipment identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.

(X) Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.

(X) Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true, accurate, and complete.

( ) For minor modifications, this application meets the criteria for use of minor permit modification procedures pursuant to District Rule 2520.

I declare, under penalty of perjury under the laws of the state of California, that the forgoing is correct and true:

Kristie Wdowiak
Signature of Responsible Official

1/12/2023
Date

Kristie Wdowiak
Name of Responsible Official (please print)

Region Vice President, Southwest Supply Chain
Title of Responsible Official (please print)

Appendix G
ERC Surplus Analysis

San Joaquin Valley Air Pollution Control District
Surplus ERC Analysis

Facility Name:	Frito-Lay, Inc.	**Date:**	June 21, 2023
Mailing Address:	28801 Highway 58 Bakersfield, CA 93314	**Engineer:**	Jag Kahlon
		Lead Engineer:	James Harader
Contact Person:	M. Scott Weaver, Consultant		
Telephone:	(626) 720-2015		
ERC Certificate(s) #:	S-3765-2		
Project #:	N-1230113		

I. Proposal

Frito-Lay, Inc. (N-1919) has proposed to use of the following Emission Reduction Credit (ERC) certificate(s) to meet the federal offset requirements of District project N-1230113.

Proposed ERC Certificate(s)	
Certificate #	**Criteria Pollutant**
S-3765-2	NOx

The purpose of this analysis is to ensure that the emission reductions on this ERC certificate are surplus of all applicable Federal requirements; therefore, this analysis establishes the surplus value of the ERC certificate as of the date of this analysis. The current face value and surplus value of the ERC certificate evaluated in this analysis is summarized in the following table

Criteria Pollutant Summary: NOx

ERC Certificate S-3765-2				
Pollutant	1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
Current Value	7,432	7,619	7,790	7,789
Surplus Value	7,432	7,619	7,790	7,789

II. Individual ERC Certificate Analysis

ERC Certificate S-3765-2

A. ERC Background

Criteria Pollutant: NOx

ERC Certificate S-3765-2 is a certificate that was split out from parent ERC Certificate S-47-2. Original ERC Certificate S-47-2 was issued to Frito-Lay, Inc. on December 16, 1992 under project S-920416. The ERCs were generated from the shutdown of a carbon black manufacturing facility, facility ID S-1637, Continental Carbon Corporation (CCC), that was purchased by Frito-Lay, Inc. The CCC facility was comprised of two reactors units and associated carbon collection process units with bagfilters. Each reactor unit had two main bagfilters, oil preheater, firebox stack and exhaust bagfilter stacks. These stacks were tested for NOx emissions and results were used in determining the actual reductions.

The reactor units at the CCC facility used an oil furnace process for producing carbon black. Per EPA's AP-42, section 6.1.1.1 (1/95), in the oil furnace process, an aromatic liquid hydrocarbon feed stock is heated and injected continuously into the combustion zone of a natural gas-fired furnace, where the hydrocarbon feedstock decomposes to form carbon black. Primary quench water cools the gases to 500°C (1000°F) to stop the cracking. The exhaust gases entraining the carbon particles are further cooled to about 230°C(450°F) by passing them through heat exchangers and direct water sprays. The black carbon is then separated from the gas stream, usually by fabric filters. A cyclone for primary collection and particle agglomeration may precede the filter. A single collection system often serves several manifolded furnaces.

The following table summarizes the values of the original parent certificate and the current value of the subject certificate proposed to be utilized as a part of the current District analysis:

ERC Certificate S-3765-2				
Pollutant	1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
Original Value of Parent Certificate S-47-2	18,702	18,910	19,118	19,118
Current Value of ERC Certificate S-3765-2	7,432	7,619	7,790	7,789

B. Applicable Rules and Regulations at Time of Original Banking Project

Based on the application review for the original ERC banking project, the following rules and regulations were evaluated to determine the surplus value of actual emission reductions of NOx generated by the reduction project.

1. District Rules

Rule 2301 - Emission Reduction Credit Banking (12/17/92)
The application review for the original ERC banking project demonstrated that the ERC credit complied with the Kern County APCD Rule 230.1 – Emission Reduction Credit Banking (3/11/92). Kern County APCD Rule 230.1 requirements are similar to the requirements in section 4.1.2 of Rule 2301. Therefore, emission reductions have complied with the requirements of this rule.

Rule 4301 Fuel Burning Equipment (12/17/92)
Section 3.1 defines 'fuel burning equipment' as any furnace, boiler, apparatus, stack and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer.

As explained in the section II.A above, in the oil furnace process of producing carbon, an aromatic liquid hydrocarbon feedstock is heated and injected continuously in the combustion zone of a natural gas-fired furnace. This process does not meet the 'fuel burning equipment' definition above as the heat from natural gas is 'directly' transferred to the oil to break carbon and hydrogen in the fuel. Therefore, the reactors are not subject to the limits in this rule.

Rule 4305 Boilers, Steam Generators, and Process Heaters – Phase 2 (8/21/03)
Rule 4306 Boilers, Steam Generators, and Process Heaters – Phase 3 (12/17/20)
Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters (12/17/20)
Rule 4351 Boilers, Steam Generators, and Process Heaters – Phase 1 (8/21/03)
These rules defines 'process heater' as any combustion equipment fired with liquid and/or gaseous fuel and which transfers heat from combustion gases to water or process streams. This definition excludes: kilns or ovens used for drying, baking, cooking, calcining, or vitrifying; and unfired waste heat recovery heaters used to recover sensible heat from the exhaust of combustion equipment.

As explained in the section II.A above, in the oil furnace process of producing carbon, an aromatic liquid hydrocarbon feedstock is heated and injected continuously into the combustion zone of a natural gas-fired furnace. This process does not meet the 'process heater' definition above as the carbon black producing units are chemical reactors that separate carbon and hydrogen bonds in a temperature controlled heating environment in order to recover the carbon as a solid material.

Further, for the purposes of Rules 4305, 4306, 4320, and 4351, process heaters are units that combust fuel for the purpose of transferring heat indirectly to water flowing through the convection tubes (such as in boilers units) or other process streams where the combustion gasses do not come into direct contact with the material that is being heated. The process streams, that is, water or other media, never comes in direct contact with the heat generated from fuel combustion. In this process, the products of combustion come into direct contact with the process stream.

Since carbon black reactors do not meet 'process heater' definition, these reactors are not subject to the limits in these rules.

2. Federal Rules and Regulations

There were no applicable federal rules or regulations identified that applied at the time of this original ERC banking action; therefore, no further discussion is required.

C. New or Modified Rule and Regulations Applicable to the Original Banking Project

All District and federal rules and regulations that have been adopted or amended since the date the original banking project was finalized will be evaluated below:

1. District Rules:

As noted in section II.B above, the District rules that were adopted or amended since the ERC banking under project S-920416 are not applicable to the carbon black reactor units. Consequently, these rules do not alter the amount of original NOx emission reductions. Therefore, the original NOx emission reductions are surplus of District Rule requirements.

2. Federal Rules and Regulations:

<u>40 CFR Part 63 Subpart MMMMMM- National Emission Standards for Hazardous Air Pollutants for Carbon Black Production Area Sources</u>
This subpart is applicable to a carbon black production facility that is area source of hazardous air pollutant emissions.

Section 63.11402 requires the owner or operator to meet all the requirements in section 63.1103(f) of subpart YY.

<u>40 CFR Part 63 Subpart YY—National Emission Standards for Hazardous Air Pollutants for Source Categories: Generic Maximum Achievable Control Technology Standards</u>
Section 63.1103(f) requires that a carbon black production main unit filter process vent with HAP concentration of equal to greater than 260 ppmv by volume must reduce emissions of HAP by using a flare meeting the requirements of subpart SS of this part; or reduce emissions of total HAP by 98 weight percent or to a concentration of 20 ppmv, whichever is less stringent, by venting emissions through a closed vent system to any

combination of control devices meeting the requirements of section 63,982(a)(2).

This subpart does not have any requirements for NOx emissions. Therefore, the emission reductions are surplus of this subpart.

D. Surplus at Time of Use Adjustments to ERC Quantities

As demonstrated in the section above, the emissions reductions from permit units in the original banking project continue to be surplus of all applicable District and Federal Rules and Regulations. Therefore, no discounting to the ERC values are necessary for surplus at time of use considerations.

E. Surplus Value of ERC Certificate

The emissions continue to be Surplus of all District and Federal Rules and Regulations; therefore, no adjustments to the ERC values are necessary.

ERC Certificate S-3765-2 – Criteria Pollutant NOx					
		1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
(A)	Current ERC Quantity	7,432	7,619	7,790	7,789
(B)	Percent Discount	**0.0%**	**0.0%**	**0.0%**	**0.0%**
(C) = (A) x [1 – (B)]	**Surplus Value**	7,432	7,619	7,790	7,789

Appendix H
ERC Withdrawal Calculations

ERC Withdrawal Calculations

NOx:

NO_x	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
ERC S-3765-2	7,432	7,619	7,790	7,789
Offsets Required (Includes distance offset ratio)	1,005	1,005	1,006	1,006
Amount Remaining	6,427	6,614	6,784	6,783
Credits reissued under ERC S-YYYY-2	6,427	6,614	6,784	6,783

PM10:

N-1919-18 through '-21
ERC withdrawal as noted under project N-1203844 is as follows:

Except for ERC certificate N-890-4, all other ERCs were banked 15 miles or more away from the Frito-Lay's Modesto plant (N-1919).

ERC certificate N-890-4 was banked at facility N-2217 Signature Fruit Company, LLC, at 736 Mariposa Rd, Modesto. This facility is within 15 miles of the Frito-Lay's Modesto plant (N-1919). Further, Frito-Lay's Modesto plant (N-1919) is not a Major Source for PM10 emissions. Therefore, distance offset ratio of 1.2 will be applied to a portion of PM10 emissions increase such that 61 pounds of credits are expended.

PM_{10}	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
ERC C-1068-4	69	70	67	63
ERC C-1069-4	286	280	268	259
ERC C-1136-4	0	0	0	699
ERC N-888-4	0	0	2,339	0
ERC N-890-4	61	0	0	0
ERC S-3437-4	210	288	195	174
ERC S-3418-4	5,000	5,000	5,000	5,000
Total ERCs (A)	**5,626**	**5,638**	**7,869**	**6,195**
Offsets Required (distance offset ratio 1.2 to 1)	61	0	0	0
Offsets Required (distance offset ratio 1.5 to 1)	3,138	3,200	3,200	3,200
Total Offsets (B)	**3,199**	**3,200**	**3,200**	**3,200**
Amount Remaining (A - B)	2,427	2,438	4,669	2,995
Credits reissued under ERC N-YYYY-4	2,427	2,438	4,669	2,995

N-1919-22-1

The applicant has proposed to use ERCs in certificate S-5255-4. These ERCs were banked more than 15 miles away from the Frito-Lay's Modesto plant (N-1919).

PM_{10}	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
(A) ERC S-5255-4	1,862	1,800	1,800	1,800
(B) Offsets Required* *(Includes Distance offset ratio 1.5 to 1)	1,643	1,643	1,643	1,643
Amount Remaining (A - B)	219	157	157	157
Credits reissued under ERC S-YYYY-4	219	157	157	157

VOC:

ERCs in certificate S-3411-1 were banked more than 15 miles away from the Frito-Lay's Modesto plant (N-1919).

VOC	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
(A) ERC S-3411-1	4,018	6,573	9,128	9,128
(B) Offsets Required* *(Includes Distance offset ratio 1.5 to 1)	355	355	356	356
Amount Remaining (A-B)	3,663	6,218	8,772	8,772
Credits reissued under ERC S-YYYY-1	3,663	6,218	8,772	8,772

And/Or,

ERCs in certificate S-3426-1 were banked more than 15 miles away from the Frito-Lay's Modesto plant (N-1919).

VOC	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
(A) ERC S-3411-1	380	474	377	337
(B) Re-adjustment per section 4.13.8 of Rule 2201	--	--	-19	+19
(C) ERC after re-adjustment	380	474	358	356
(D) Offsets Required* *(Includes Distance offset ratio 1.5 to 1)	355	355	356	356
Amount Remaining (C-D)	25	119	2	0
Credits reissued under ERC S-YYYY-1	25	119	2	0