TECHNICAL SUPPORT DOCUMENT

Air Discharge Permit ADP 23-3558
Air Discharge Permit Application CL-3217

Issued: January 11, 2023

Frito-Lay - Vancouver

SWCAA ID - 448

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ABBREVIATIONS

List of Acronyms

ADP	Air Discharge Permit
AP-42	Compilation of Emission Factors, AP-42, 5th Edition, Volume 1, Stationary Point and Area Sources – published by EPA
ASIL	Acceptable Source Impact Level
BACT	Best available control technology
CAM	Compliance Assurance Monitoring
CAS#	Chemical Abstracts Service registry number
CFR	Code of Federal Regulations
EPA	U.S. Environmental Protection Agency
EU	Emission Unit
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOV	Notice of Violation/
NSPS	New Source Performance Standard
PSD	Prevention of Significant Deterioration
RACT	Reasonably Available Control Technology
RCW	Revised Code of Washington
SCC	Source Classification Code
SDS	Safety Data Sheet
SQER	Small Quantity Emission Rate listed in WAC 173-460
Standard	Standard conditions at a temperature of 68°F (20°C) and a pressure of 29.92 in Hg (760 mm Hg)
SWCAA	Southwest Clean Air Agency
T-BACT	Best Available Control Technology for toxic air pollutants
WAC	Washington Administrative Code

List of Units and Measures

µg/m³	Micrograms per cubic meter
acfm	Actual cubic foot per minute
dscfm	Dry Standard cubic foot per minute
g/dscm	Grams per dry Standard cubic meter
gpm	Gallon per minute
gr/dscf	Grain per dry standard cubic foot
kW	Kilowatt
MMBtu	Million British thermal unit
MMcf	Million cubic feet
ppm	Parts per million
ppmv	Parts per million by volume
ppmvd	Parts per million by volume, dry
psig	Pounds per square inch, gauge
scfm	Standard cubic foot per minute
tph	Ton per hour
tpy	Tons per year

List of Chemical Symbols, Formulas, and Pollutants

CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
HAP	Hazardous air pollutant listed pursuant to Section 112 of the Federal Clean Air Act
NO_X	Nitrogen oxides
O_2	Oxygen
O_3	Ozone
PM	Particulate Matter with an aerodynamic diameter 100 µm or less
PM_{10}	PM with an aerodynamic diameter 10 µm or less
$PM_{2.5}$	PM with an aerodynamic diameter 2.5 µm or less
SO_2	Sulfur dioxide
TAP	Toxic air pollutant pursuant to Chapter 173-460 WAC
VOC	Volatile organic compound

Terms not otherwise defined have the meaning assigned to them in the referenced regulations or the dictionary definition, as appropriate.

1. FACILITY IDENTIFICATION

Applicant Name:	Frito-Lay, Inc.
Applicant Address:	4808 Fruit Valley Road, Vancouver, WA 98660
Facility Name:	Frito-Lay – Vancouver
Facility Address:	4808 Fruit Valley Road, Vancouver, WA 98660
SWCAA Identification:	448
Contact Person:	Courtney Valero, Environmental Coordinator
Primary Process:	Snack Food Manufacturing
SIC/NAICS Code:	2096: Potato Chips, Corn Chips, and Similar Snacks 311919: Other Snack Food Manufacturing
Facility Classification:	Natural Minor

2. FACILITY DESCRIPTION

The Frito-Lay, Inc. (Frito-Lay) facility in Vancouver, Washington produces a variety of snack chip products using multiple production lines. Emissions from these operations primarily consist of PM and VOC emissions from chip processing and combustion pollutants from the combustion of natural gas or propane. Potential emissions from the facility are all below Title V thresholds.

3. CURRENT PERMITTING ACTION

This permitting action is in response to Air Discharge Permit application number CL-3217 (ADP Application CL-3217) dated November 9, 2022. Frito-Lay submitted ADP Application CL-3217 requesting approval of the following:

- Removal of the emission testing requirement for the CTS/Railcar Unloading Segment 1 dust collector (Unit ID 20);
- Removal of the vertical discharge requirement for all new CTS units (Unit IDs 20-23); and
- Removal of CTS/Transfer to Process Area units (Unit ID 23) from registration as an emission unit due to insignificant emissions potential.

The current permitting action modifies the facility's current air discharge permit as proposed.

ADP 23-3558 will supersede ADP 21-3473 in its entirety.

4. PROCESS DESCRIPTION

4.a Potato Chip Production – PCA/PCB-32 (*existing*). Raw potatoes from in-plant storage are metered through to the chip lines where they are prepared, inspected, fried, seasoned, and then packaged. Each line is equipped with an 'air sweeper' that removes water and trim pieces from the potato slices prior to frying. Each 'air sweeper' exhausts uncontrolled through a dedicated stack. Fryer oil for the lines is heated indirectly with dedicated heat exchangers. Process emissions from the fryer on each line are vented to a dedicated wet scrubber prior to ambient discharge. On the PCA line, combustion emissions from the heat exchanger combine with process emissions from the fryer downstream of the wet scrubber, and exhaust through the same stack. On the PCB-32 line, combustion emissions from the heat exchanger and process emissions from the fryer are exhausted through separate stacks. There is no ambient vent for salter machinery on either production line.

4.b Corn Chip Production – TC-2/TC-3/FCC-1/FCC-2 (*existing*). Frito-Lay uses steam kettles to cook corn prior to processing in the corn chip lines. Water and corn from in-plant storage is metered into the kettles where the corn is cooked using steam from the facility's process boiler. Kettles on the TC-2 line are vented to the atmosphere uncontrolled. Emissions from the kettles on the FCC and TC-3 lines are vented to a wet scrubber. Potential emissions from the kettles are considered to be negligible. The primary purpose of the scrubber is to minimize odors. After cooking, the corn is ground and shaped/extruded into chip form. On the FCC production line, chips are fried in oil, salted, cooled, and packaged. On the TC lines, chips are oven toasted, fried in oil, seasoned, cooled, and packaged.

Fryer oil on all the corn chip lines is heated indirectly in dedicated heat exchangers. Prior to this project each fryer was direct-fired. Combustion emissions from the heat exchangers and process emissions from the fryers generally exhaust through separate stacks. Process emissions from fryers on the FCC production lines are controlled with oil/mist eliminators. Process emissions from the TC-2 and TC-3 fryers are vented to the intake of the heat exchanger for each line and then exhausted in common with combustion emissions from the heat exchanger. This configuration allows the heat exchanger to reduce fryer emissions by functioning as a thermal oxidizer.

4.c Cheetos Chip Production – FCP/BCP (*existing*). Raw materials are metered into small kettles where the materials are mixed. Mixed material is extruded using four extruders, and then either baked in an oven or fried in an oil fryer. Cooked product is seasoned, cooled, and conveyed to packaging. Oil for the fryer is heated indirectly with a dedicated heat exchanger while the oven is direct fired. Process emissions from the extruders are controlled by a roto-clone and exhausted through a dedicated stack. Process emissions from the fryer are vented through an oil/mist eliminator before exhausting to the atmosphere. The process air cooler is exhausted through a dedicated stack equipped with a course, wire-mesh particulate filter. Combustion emissions from the heat exchanger and oven are exhausted through dedicated stacks.

4.d Corn Products Line – CP1 (*existing*). The corn products line produces popcorn based snacks by heating the popcorn in a dry-heat oven and screening the resulting material in a continuous tumbler. Seasonings are added in a second tumbler, and then the product is packaged. Exhaust streams from the ovens and tumblers are vented inside the production building. The corn products line is configured with a single popcorn oven.

4.e Process Boiler (*existing*). A single Hurst boiler is used to provide process steam to the facility. The boiler operates in a "load following" mode supplying steam as needed to the various cooking processes at the facility. The boiler is equipped with an oxygen trim system that uses an excess oxygen meter and active combustion controls to maintain flue gas oxygen at a preset level. The boiler is subject to the "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units" (40CFR60, Subpart Dc).

4.f Bulk Material Transfer and Storage – Corn (*existing*). Bulk corn is received at the facility from railcars using a choke feed system and mechanically conveyed to storage silos with an enclosed bucket elevator. From storage, the corn is transferred to the facility using pneumatic transfer. Emissions from corn handling are controlled through equipment enclosure and multiple dust collectors. Each dust collector is associated with a specific portion of the transfer system.

ADP Application CL-3217. Frito-Lay has proposed changes in permit requirements for the dust collectors associated with the new corn storage and transfer equipment approved in ADP 21-3473. The proposed changes relate to exhaust stack configurations and testing requirements. ADP Application CL-3217 does not propose any physical changes to the installed storage and transfer equipment.

4.g Bulk Material Transfer and Storage – Cornmeal (*existing*). Bulk cornmeal is transferred from one process point to another using pneumatic transfer systems. Cornmeal is received in bulk and stored in silos prior to use. Emissions from the transfer systems are controlled through equipment enclosure and multiple baghouses. Each baghouse is associated with a specific portion of the transfer system.

5. EQUIPMENT/ACTIVITY IDENTIFICATION

5.a PCA / Heat Exchanger (*existing*). One natural gas/propane fired heat exchanger equipped with a North American model 4384-20 burner rated at 26.4 MMBtu/hr. Combustion emissions from the heat exchanger are exhausted through the same stack as the fryer (See Section 5.b below), but do not pass through the associated wet scrubber.

5.b PCA / Fryer (*existing*). One process fryer vented to a ZURN Dustraxtor model MWTS A-12-5 counter-current wet scrubber with in-hood demister pad. Exhaust streams from the wet scrubber discharge 43' above ground level at a rate of 5,320 acfm.

5.c PCB-32 / Heat Exchanger (*existing*). One Heat and Control model HX-11.5 natural gas/propane fired heat exchanger equipped with a North American model LE low NO_X burner with a rated heat input of 24.0 MMBtu/hr. Combustion emissions from the heat exchanger are exhausted through a dedicated stack 39' above ground level.

5.d PCB-32 / Fryer (*existing*). One process fryer vented to an Advanced Air Technology wet venturi scrubber with cyclonic mist removal. Exhaust streams from the wet scrubber discharge 43' above ground level at a rate of approximately 11,500 acfm.

5.e FCC-1 / Heat Exchanger (*existing*). One natural gas/propane fired heat exchanger that provides process heat to the FCC-1 fryer.

Mfg / Model:	Heat and Control / CHTX 3.0
Burner Make / Model:	Eclipse Winnox / WX0300
Rated Heat Input:	2.5 MMBtu/hr (process max)
Fuel:	Natural Gas / Propane
Emissions:	25 ppmv NO_X / 120 ppmv CO (nat gas @ 3% O_2)

5.f FCC-1 / Fryer (*existing*). One process fryer vented to an oil/mist eliminator for control of oil and fume.

5.g FCC-2 / Heat Exchanger (*existing*). One natural gas/propane fired heat exchanger that provides process heat to the FCC-2 fryer.

Mfg / Model:	Heat and Control / CHTX 3.0
Burner Make / Model:	Eclipse Winnox / WX0300
Rated Heat Input:	2.5 MMBtu/hr (process max)
Fuel:	Natural Gas / Propane
Emissions:	25 ppmv NO_X / 120 ppmv CO (nat gas @ 3% O_2)

5.h FCC-2 / Fryer (*existing*). One process fryer vented to an oil/mist eliminator for control of oil and fume.

5.i TC-2 / Heat Exchanger and Fryer (*existing*). One natural gas/propane fired heat exchanger that provides process heat to the TC-2 fryer. Exhaust air from the TC-2 fryer is vented into the air intake of the heat exchanger which functions as a thermal oxidizer for the associated PM and VOC emissions. Combustion in the heat exchanger provides controlled incineration conditions at a minimum of 1400˚F with a minimum residence time of 0.64 seconds.

Mfg / Model:	Kleen Heat / KHX-2.0
Burner Make / Model:	Eclipse Ratiomatic / RM0300
Rated Heat Input:	3.4 MMBtu/hr
Fuel:	Natural Gas / Propane
Emissions:	100 ppmv NO_X / 800 ppmv CO (nat gas @ 3% O_2)

There is no manufacturer's performance guarantee for the proposed installation. NO_X and CO emission data is based on emission monitoring data for the existing TC-2 heat exchanger burner. Emissions from the replacement burner are expected to be equivalent or better than the existing burner.

5.j TC-2 / Oven (*existing*). One natural gas fired process oven rated at 6.8 MMBtu/hr (heat input). Combustion emissions from the oven are exhausted through a dedicated stack.

5.k TC-3 / Heat Exchanger and Fryer (*existing*). One natural gas/propane fired heat exchanger that provides process heat to the TC-3 fryer. Exhaust air from the TC-3 fryer on this line is vented into the air intake of the heat exchanger which functions as a thermal oxidizer for the associated PM and VOC emissions. Combustion in the heat exchanger provides controlled incineration conditions at a minimum of 1400˚F with a minimum residence time of 0.64 seconds.

Mfg / Model:	Kleen Heat / KHX-2.0
Burner Make / Model:	Eclipse Ratiomatic / RM0300
Rated Heat Input:	3.4 MMBtu/hr
Fuel:	Natural Gas / Propane
Emissions:	100 ppmv NO_X / 800 ppmv CO (nat gas @ 3% O_2)

There is no manufacturer's performance guarantee for the proposed installation. NO_X and CO emission data is based on emission monitoring data for the existing TC-3 heat exchanger burner. Emissions from the replacement burner are expected to be equivalent or better than the existing burner.

5.l TC-3 / Oven #1 (*existing*). One natural gas fired process oven with a rated heat input of 6.992 MMBtu/hr. Combustion emissions from the oven are exhausted through a dedicated stack.

5.m TC-3 / Oven #2 (*existing*). One natural gas fired process oven with a rated heat input of 6.992 MMBtu/hr. Combustion emissions from the oven are exhausted through a dedicated stack.

5.n FCP / Heat Exchanger (*existing*). One natural gas/propane fired heat exchanger that provides process heat to the FCP fryer. Combustion emissions from the heat exchanger are exhausted through a dedicated stack.

Mfg / Model:	Heat and Control / CHTX 1.0
Burner Make / Model:	Eclipse Winnox / WX0200
Rated Heat Input:	1.2 MMBtu/hr (process max)
Fuel:	Natural Gas / Propane
Emissions:	30 ppmv NO_X / 150 ppmv CO (nat gas @ 3% O_2)

5.o FCP / Process Fryer (*existing*). One process fryer vented through an oil/mist eliminator for control of oil and fume.

5.p FCP / Extruders (*existing*). Four process extruders. PM emissions from extruder operation are controlled by a W-type roto-clone exhausting above roof level through a dedicated stack.

5.q BCP / Oven (*existing*). One natural gas/propane fired process oven with a rated heat input of 1.2 MMBtu/hr. Combustion emissions from the oven are exhausted uncontrolled through a dedicated stack.

5.r CP1 / Popcorn Oven (*existing*). One Cretors model 1000 popper oven equipped with an Eclipse model AH-80 low-NO_x burner. The proposed oven has a rated heat input of 1.141 MMBtu/hr and fires on either natural gas or propane.

5.s Process Boiler (*existing*). One natural gas/propane fired boiler that provides process steam to facility operations.

Mfg / Model:	Hurst / 4-X-400(s/n 5200-150-8)
Burner Make / Model:	Powerflame / LN1V168-G-L (w/flue gas recirculation)
Emissions:	30 ppmv NO_X / 150 ppmv CO (nat gas @ 3% O_2)
	45 ppmv NO_X / 150 ppmv CO (propane @ 3% O_2)
Rated Heat Input:	16.8 MMBtu/hr
Fuel:	Natural Gas / Propane
Exhaust Stack:	12" dia vertical stack at ~39' feet above ground

5.t Corn Transfer System – Railcar Unloading Segment 1 (*existing*). One dust collector controls PM emissions generated by transfer of corn from railcars to the primary receiving system. This unit is configured upstream of a vacuum blower with an inline particulate filter. Final exhaust is through a vent on the vacuum blower enclosure.

Mfg / Model:	Schenck / 19AVRC32 Style III
Rated Airflow:	1,915 acfm
Filtration Area / Media:	547 ft^2 of 8 oz/yd^2 spunbound polyester
Exhaust Configuration:	~24" round horizontal exhaust at ~10' above ground level

ADP Application CL-3217. Frito-Lay has requested removal of the emission testing and vertical exhaust requirements for this unit (ADP 21-3473, Conditions 28, 55) due to the installed configuration and minimal likely emissions. SWCAA concurs that emissions are likely to be minimal and periodic testing is not warranted.

5.u Corn Transfer System - Railcar Unloading Segment 2 (*existing*). One dust collector controls PM emissions from material transfer between the receiving system airlock and the transfer system. This unit is unpowered and works by displacement.

Mfg / Model:	Schenck / 39AVRC04 Style II
Rated Airflow:	160 acfm
Filtration Area / Media:	144 ft^2 of 8 oz/yd^2 spunbound polyester
Exhaust Configuration:	10" dia downward exhaust at 11' above ground level

ADP Application CL-3217. Frito-Lay has requested removal of the vertical exhaust requirement for this unit (ADP 21-3473, Condition 28) due to the installed configuration. SWCAA concurs that the location of the unit makes a vertical exhaust difficult. The small quantity of potential emissions will not have an undue impact on ambient air quality.

5.v Corn Transfer System – Corn Silo Vents (*existing*). One dust collector controls PM emissions generated when the corn storage silos are filled with corn. All three storage silos are vented to a common header served by this dust collector. The system is designed to fill only one silo at a time.

Mfg / Model:	Schenck / 19AVRC32 Style III
Rated Airflow:	1,915 acfm
Filtration Area / Media:	547 ft^2 of 8 oz/yd^2 spunbound polyester
Exhaust Configuration:	14"x14" horizontal exhaust at 8' above ground level

ADP Application CL-3217. Frito-Lay has requested removal of the vertical exhaust requirement for this unit (ADP 21-3473, Condition 28) due to the potential for water infiltration and location of the unit. SWCAA has reviewed the configuration of the unit and concluded that removing the vertical exhaust requirement will have minimal impact on ambient air quality.

5.w Corn Transfer System - Primary Handling (*existing*). One baghouse controls PM emissions generated by pneumatic transfer of corn to and from cleaning operations and to secondary storage.

Mfg / Model:	Air Sentry / 746
Rated Airflow:	5,000 acfm
Filtration Area / Media:	746 ft^2
Exhaust Configuration:	24" dia vertical exhaust at 12' above ground level

5.x Corn Transfer System - Corn Chip Lines (*existing*). One cartridge collector controls PM emissions generated by pneumatic transfer of corn from secondary storage to the kettle receivers on the corn chip production lines (TC2/TC3/FCC).

Mfg / Model:	MACTIFLO / 2-MTF-4
Rated Airflow:	894 acfm
Filtration Area / Media:	1,180 ft^2

5.y Cornmeal Transfer System / Railcar Receiving (Baghouse 130) (*existing*). One baghouse controls PM emissions generated by the cornmeal railcar receiving system.

Mfg / Model:	Shick Tube-Veyor / VMDE-4612-50
Rated Airflow:	625 acfm
Filtration Area / Media:	175 ft^2

5.z Cornmeal Transfer System / Storage Silos (Baghouse 205) (*existing*). One baghouse controls PM emissions generated by cornmeal transfer to the storage silos.

Mfg / Model:	Shick Tube-Veyor
Rated Airflow:	383 acfm
Filtration Area / Media:	116 ft^2

5.aa Cornmeal Transfer System / Metering Bins (Baghouse 325) (*existing*). One baghouse controls PM emissions generated by cornmeal transfer from storage to the metering bins.

Mfg / Model:	Shick Tube-Veyor
Rated Airflow:	239 acfm
Filtration Area / Media:	66 ft^2

5.ab Space Heaters (*existing*). Multiple natural gas fired space heaters with an estimated combined rated heat input of ~18.7 MMBtu/hr.

5.ac Insignificant Emission Units. The following pieces of facility equipment have been determined to have insignificant emissions, and are not registered as emission units:

(1) Air Coolers/Sweeps. Frito-Lay uses various pieces of forced draft equipment in the chip process lines for the purposes of cooling and cleaning product. These units take in ambient room air and then exhaust above roof level through dedicated stacks. These units have the potential to emit small quantities of PM, but a review of available emissions data indicates that actual emissions are negligible.

PCA / Air Sweep	One forced air process chamber that uses ambient room air to blow excess water and trimmings from process material.
PCB-32 / Air Sweep	One forced air process chamber that uses ambient room air to blow excess water and trimmings from process material.
FCC-1 / Air Cooler	One forced draft cooler using ambient room air to cool process material.
FCC-2 / Air Cooler	One forced draft cooler using ambient room air to cool process material.
TC-2 / Air Cooler	One forced draft cooler using ambient room air to cool process material.
TC-3 / Air Cooler	One forced draft cooler using ambient room air to cool process material.
FCP / Air Cooler	One forced draft cooler using ambient air to cool process material.

(2) Corn Cooking Kettles. Frito-Lay uses (9) steam heated kettles to prepare corn for use in the corn chip production lines (TC-2, TC-3, FCC-1, FCC-2). The headspace of the kettles vents uncontrolled to the ambient atmosphere, but prevailing operating conditions (i.e. low temperature, very little agitation, short cook time) produce an exhaust stream with negligible potential PM emissions.

(3) Corn Transfer System – Pneumatic Transfer to Process Area. Three dust collectors control PM emissions from the pneumatic transfer vessel at the base of each corn storage silo. Each transfer vessel is equipped with a dedicated filter. These units are unpowered and work by displacement. The transfer system is designed to move corn from only one silo at a time.

Mfg / Model:	(3) Schenck / 19RTC1 Style II
Rated Airflow:	68 acfm each
Filtration Area / Media:	16.9 ft^2 of 8 oz/yd^2 spunbound polyester
Exhaust Configuration:	4" dia vertical exhaust at 9' above ground level

ADP Application CL-3217. These dust collectors are entirely enclosed and ambient PM emissions are negligible during normal operation. Frito-Lay has requested the emission unit be removed from registration as a de minimis source.

5.ad Equipment/Activity Summary.

ID No.	Equipment/Activity	Control Measure/Equipment
1	PCA / Heat Exchanger (North American – 26.4 MMBtu/hr)	Low Sulfur Fuel
2	PCA / Fryer	Wet Counter-Current Scrubber (5,320 acfm)
3	PCB-32 / Heat Exchanger (North American – 24.0 MMBtu/hr)	Low NO_x Burner, Low Sulfur Fuel
4	PCB-32 / Fryer	Wet Venturi Scrubber (11,500 acfm)
5	FCC-1 / Heat Exchanger (Eclipse – 2.5 MMBtu/hr)	Low NO_x Burner, Low Sulfur Fuel
6	FCC-1 / Fryer	Oil/Mist Eliminator

ID No.	Equipment/Activity	Control Measure/Equipment
7	FCC-2 / Heat Exchanger (Eclipse – 2.5 MMBtu/hr)	Low NO_x Burner, Low Sulfur Fuel
8	FCC-2 / Fryer	Oil/Mist Eliminator
9	TC-2 / Heat Exchanger & Fryer (Eclipse - 3.4 MMBtu/hr)	Low Sulfur Fuel, Thermal Oxidation
10	TC-2 / Oven (6.992 MMBtu/hr)	Low Sulfur Fuel
11	TC-3 / Heat Exchanger & Fryer (Eclipse - 3.4 MMBtu/hr)	Low Sulfur Fuel, Thermal Oxidation
12	TC-3 / Oven #1 (6.992 MMBtu/hr)	Low Sulfur Fuel
13	TC-3 / Oven #2 (6.992 MMBtu/hr)	Low Sulfur Fuel
14	FCP / Heat Exchanger (Eclipse - 1.2 MMBtu/hr)	Low NO_x Burner, Low Sulfur Fuel
15	FCP / Fryer	Oil/Mist Eliminator
16	FCP / Extruders	Roto-clone
17	BCP / Oven (1.2 MMBtu/hr)	Low Sulfur Fuel
18	CP1 / Popcorn Oven (1.141 MMBtu/hr)	Low NO_x Burner, Low Sulfur Fuel
19	Process Boiler (Hurst – 16.8 MMBtu/hr)	Low NO_x Burner, Low Sulfur Fuel, Flue Gas Recirculation
20	Corn Transfer System – Railcar Unloading Segment 1	Equipment Enclosure, Dust Collector (1,915 acfm)
21	Corn Transfer System – Railcar Unloading Segment 2	Equipment Enclosure, Dust Collector (160 acfm)
22	Corn Transfer System - Corn Silo Vents	Equipment Enclosure, Dust Collector (1,915 acfm)
23	Corn Transfer System – Primary Handling	Equipment Enclosure, Baghouse (5,000 acfm)
24	Corn Transfer System – Corn Chip Lines	Equipment Enclosure, Cartridge Collector (894 acfm)
25	Cornmeal Transfer System – Railcar Receiving	Equipment Enclosure, Baghouse (625 acfm)
26	Cornmeal Transfer System – Storage Silos	Equipment Enclosure, Baghouse (383 acfm)
27	Cornmeal Transfer System – Metering Bins	Equipment Enclosure, Baghouse (239 acfm)
28	Space Heaters (combined 18.7 MMBtu/hr)	Low Sulfur Fuel

6. EMISSIONS DETERMINATION

Emissions to the ambient atmosphere from facility operations proposed in ADP Application CL-3217 consist of nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), particulate matter (PM) sulfur dioxide (SO_2), toxic air pollutants (TAPs), and hazardous air pollutants (HAPs).

Unless otherwise specified by SWCAA, actual emissions must be determined using the specified input parameter listed for each emission unit and the following hierarchy of methodologies:

(a) Continuous emissions monitoring system (CEMS) data;
(b) Source emissions test data (EPA reference method). When source emissions test data conflicts with CEMS data for the time period of a source test, source test data must be used;
(c) Source emissions test data (other test method); and
(d) Emission factors or methodology provided in this TSD.

6.a PCA Production Line (*existing*). Emissions from the PCA line consist of natural gas combustion products from the heat exchanger and process emissions from the chip fryer.

(1) Heat Exchanger Emissions. Available NO_X and CO emission data for the North American model 4384-20 burner are listed in the table below. Based on the data, NO_X and CO emission limits have been established at 90 ppmv and 30 ppmv, respectively (corrected to 3% O_2).

Pollutant	Emission Concentration	Data Source
NO_X	89 ppmv @ 3% O_2	Manufacturer
	64.3 ppmv @ 3% O_2	Emission Test – May 12-15, 2003
CO	21 ppmv @ 3% O_2	Manufacturer
	21.9 ppmv @ 3% O_2	Emission Test – May 12-15, 2003

Emission factors for NO_x and CO while firing natural gas have been calculated using EPA Method 19 methodology and the NO_x and CO emission limits identified above. Emission factors for all other pollutants while firing natural gas are taken from EPA AP-42, Section 1.4 "Natural Gas Combustion" (7/98). Potential emissions are calculated based on a rated heat input of 26.4 MMBtu/hr, 8,260 hr/yr of natural gas operation, 500 hr/yr of propane operation, and a propane heat content of 91,500 Btu/gal.

Pollutant	Fuel	Emission Factor	Emissions	
NO_X	Nat Gas	0.109 lb/MMBtu	2.88 lb/hr	11.88 tpy
	Propane	0.2077 lb/MMBtu	5.48 lb/hr	1.37 tpy
CO	Nat Gas	0.022 lb/MMBtu	0.58 lb/hr	2.40 tpy
	Propane	0.035 lb/MMBtu	0.92 lb/hr	0.23 tpy
VOC		0.0054 lb/MMBtu	0.14 lb/hr	0.62 tpy
SO_2		0.0006 lb/MMBtu	0.02 lb/hr	0.07 tpy
$PM/PM_{10}/PM_{2.5}$		0.0075 lb/MMBtu	0.20 lb/hr	0.87 tpy
Benzene		2.06E-6 lb/MMBtu	5.44E-5 lb/hr	0.5 lb/yr
Formaldehyde		7.35E-5 lb/MMBtu	1.94E-3 lb/hr	17.0 lb/yr
CO_2e	Nat Gas	117 lb/MMBtu		12,757 tpy
	Propane	136.6 lb/MMBtu		902 tpy

(2) Fryer Emissions. Emission factors for process emissions of PM and VOC from the PCA fryer are based on emission test data collected from similar process units at other Frito Lay facilities. The PM emission rate given below includes the control efficiency of the wet scrubber (80%). Potential emissions are calculated using the emission factors and maximum expected production rates. PM fractions are based on data from an emission factor study conducted by Frito-Lay.

Pollutant	Emission Rate	Potential Emissions
VOC	0.046 lb/hr	0.20 tpy
PM	5.03 lb/hr	22.03 tpy
PM_{10} (40% PM)	2.01 lb/hr	8.82 tpy
$PM_{2.5}$ (20% PM)	1.01 lb/hr	4.41 tpy

6.b PCB-32 Production Line (*existing*). Emissions from the PCB-32 line consist of combustion products from the heat exchanger and process emissions from the chip fryer.

(1) Heat Exchanger Emissions. The manufacturer of the North American model LE burner guarantees the following emission concentrations while firing on natural gas:

Pollutant	Emission Concentration	Data Source
NO_X	30 ppmv @ 3% O_2	Manufacturer
CO	50 ppmv @ 3% O_2	Manufacturer

Potential heat exchanger emissions are calculated from a rated heat input of 24.0 MMBtu/hr, 8,260 hr/yr of natural gas operation, 500 hr/yr of propane operation, and a propane heat content of 91,500 Btu/gal, and applicable emission factors. Emission factors for NO_x and CO while firing natural gas are calculated using EPA Method 19 methodology and the NO_x and CO emission concentrations identified above. Emission factors for NO_x and CO while firing propane are taken from EPA AP-42, Section 1.5 "LPG Combustion" (10/96). Emission factors for all other pollutants are taken from EPA AP-42, Section 1.4 "Natural Gas Combustion" (7/98).

Pollutant	Fuel	Emission Factor	Emissions	
NO_X	Nat Gas	0.036 lb/MMBtu	0.86 lb/hr	3.57 tpy
	Propane	0.2077 lb/MMBtu	4.98 lb/hr	1.25 tpy
CO	Nat Gas	0.037 lb/MMBtu	0.89 lb/hr	3.67 tpy
	Propane	0.035 lb/MMBtu	0.84 lb/hr	0.21 tpy
VOC		0.0054 lb/MMBtu	0.13 lb/hr	0.57 tpy
SO_2		0.0006 lb/MMBtu	0.014 lb/hr	0.06 tpy
$PM/PM_{10}/PM_{2.5}$		0.0075 lb/MMBtu	0.18 lb/hr	0.79 tpy
Benzene		2.06E-6 lb/MMBtu	4.94E-5 lb/hr	0.4 lb/yr
Formaldehyde		7.35E-5 lb/MMBtu	1.76E-3 lb/hr	15.5 lb/yr
CO_2e	Nat Gas	117 lb/MMBtu		11,597 tpy
	Propane	136.6 lb/MMBtu		820 tpy

(2) Fryer Emissions. Potential fryer emissions are calculated from 8,760 hr/yr of operation, and a production rate of 3,800 lb/hr, and applicable emission factors. The VOC emission factor is for this unit is being modified in response to ADP Application CL-1722. The original engineering review of this unit applied an emission factor of 0.02 lb/ton taken from EPA AP-42, Section 9.13.3 "Snack Chip Deep Fat Frying" (1/95). Subsequent emission testing of the fryer indicated that VOC emissions significantly exceeded this emission factor. The VOC emission factor will now be increased to reflect the available test data. The PM emission factor is based on emission test data collected from a similar process unit at another Frito Lay facility, adjusted to include the proposed control efficiency of the wet scrubber (85%), and remains unchanged. PM fractions are based on data from an emission factor study conducted by Frito-Lay.

Pollutant	Emission Factor	Emission Rate	Potential Emissions
VOC	0.33 lb/ton	0.63 lb/hr	2.75 tpy
PM	1.02 lb/ton	1.94 lb/hr	8.49 tpy
PM_{10} (40% PM)		0.78 lb/hr	3.40 tpy
$PM_{2.5}$ (20% PM)		0.39 lb/hr	1.70 tpy

6.c FCC-1 Production Line (*existing*). Emissions from the FCC-1 production line consist of combustion products from the heat exchanger and process emissions from the chip fryer.

(1) Heat Exchanger Emissions. Potential heat exchanger emissions are calculated from a maximum heat input of 2.5 MMBtu/hr, 8,260 hr/yr of natural gas operation, 500 hr/yr of propane operation, a propane heat content of 91.5 MMBtu/10^3 gal, and applicable emissions factors. Emission factors for CO are based on a maximum emission concentration of 120 ppmv @ 3% O_2 using EPA Method 19 methodology. Emission factors for NO_x are based on maximum emission concentrations of 25 ppmv (natural gas) and 30 ppmv (propane) @ 3% O_2 using EPA Method 19 methodology. All of the concentrations referenced above were taken from vendor data for the unit. Emission factors for all other pollutants from natural gas combustion are taken from EPA AP-42, Section 1.4 "Natural Gas Combustion" (7/98). Emission factors for all other pollutants from propane combustion are taken from EPA AP-42, Table 1.5 "Emission Factors for LPG Combustion" (10/96). The emission factor for SO_2 is based on a maximum propane sulfur content of 14.8 gr/100 ft^3. All PM emissions are assumed to be $PM_{2.5}$.

Pollutant	Fuel	Emission Factor	Emissions	
NO_X	Nat Gas	0.030 lb/MMBtu	0.08 lb/hr	0.31 tpy
	Propane	0.0364 lb/MMBtu	0.09 lb/hr	0.02 tpy
CO	Nat Gas	0.089 lb/MMBtu	0.22 lb/hr	0.92 tpy
	Propane	0.089 lb/MMBtu	0.22 lb/hr	0.06 tpy
VOC	Nat Gas	0.0054 lb/MMBtu	0.014 lb/hr	0.06 tpy
	Propane	0.0033 lb/MMBtu	0.008 lb/hr	0.002 tpy
SO_2	Nat Gas	0.0006 lb/MMBtu	0.002 lb/hr	0.006 tpy
	Propane	0.016 lb/MMBtu	0.04 lb/hr	0.01 tpy
$PM/PM_{10}/PM_{2.5}$	Nat Gas	0.0075 lb/MMBtu	0.02 lb/hr	0.08 tpy
	Propane	0.0044 lb/MMBtu	0.01 lb/hr	0.003 tpy
Benzene		2.06E-6 lb/MMBtu	5.15E-6 lb/hr	0.04 lb/yr
Formaldehyde		7.35E-5 lb/MMBtu	1.84E-4 lb/hr	1.5 lb/yr
CO_2e	Nat Gas	117 lb/MMBtu		1,208 tpy
	Propane	136.6 lb/MMBtu		85 tpy

(2) Fryer Emissions. Potential fryer emissions are calculated from 8,760 hr/yr of operation, approximately 4,120 tpy of process throughput, and applicable emission factors. The PM emission factor is based on emission test data collected from a similar process unit at another Frito Lay facility. The VOC emission factor is taken from EPA AP-42, Section 9.13.3 "Snack Chip Deep Fat Frying" (1/95). PM fractions are based on data from an emission factor study conducted by Frito-Lay.

Pollutant	Emission Rate	Potential Emissions
VOC	0.085 lb/ton	0.18 tpy
PM	0.64 lb/hr	2.80 tpy
PM_{10} (40% PM)	0.26 lb/hr	1.12 tpy
$PM_{2.5}$ (20% PM)	0.13 lb/hr	0.56 tpy

6.d FCC-2 Production Line (*existing*). Emissions from the FCC-2 production line consist of combustion products from the heat exchanger and process emissions from the chip fryer.

(1) Heat Exchanger Emissions. Potential heat exchanger emissions are calculated from a rated heat input of 2.5 MMBtu/hr, 8,260 hr/yr of natural gas operation, 500 hr/yr of propane operation, a propane heat content of 91.5 MMBtu/10^3 gal, and applicable emissions factors. Emission factors for CO are based on a maximum emission concentration of 120 ppmv @ 3% O_2 using EPA Method 19 methodology. Emission factors for NO_x are based on maximum emission concentrations of 25 ppmv (natural gas) and 30 ppmv (propane) @ 3% O_2 using EPA Method 19 methodology. All of the concentrations referenced above were taken from vendor data for the unit. Emission factors for all other pollutants from natural gas combustion are taken from EPA AP-42, Section 1.4 "Natural Gas Combustion" (7/98). Emission factors for all other pollutants from propane combustion are taken from EPA AP-42, Table 1.5 "Emission Factors for LPG Combustion" (10/96). The emission factor for SO_2 is based on a maximum propane sulfur content of 14.8 gr/100 ft^3. All PM emissions are assumed to be $PM_{2.5}$.

Pollutant	Fuel	Emission Factor	Emissions	
NO_X	Nat Gas	0.030 lb/MMBtu	0.08 lb/hr	0.31 tpy
	Propane	0.0364 lb/MMBtu	0.09 lb/hr	0.02 tpy
CO	Nat Gas	0.089 lb/MMBtu	0.22 lb/hr	0.92 tpy
	Propane	0.089 lb/MMBtu	0.22 lb/hr	0.06 tpy
VOC	Nat Gas	0.0054 lb/MMBtu	0.014 lb/hr	0.06 tpy
	Propane	0.0033 lb/MMBtu	0.008 lb/hr	0.002 tpy
SO_2	Nat Gas	0.0006 lb/MMBtu	0.002 lb/hr	0.006 tpy
	Propane	0.016 lb/MMBtu	0.04 lb/hr	0.01 tpy
$PM/PM_{10}/PM_{2.5}$	Nat Gas	0.0075 lb/MMBtu	0.02 lb/hr	0.08 tpy
	Propane	0.0044 lb/MMBtu	0.01 lb/hr	0.003 tpy
Benzene		2.06E-6 lb/MMBtu	5.15E-6 lb/hr	0.04 lb/yr
Formaldehyde		7.35E-5 lb/MMBtu	1.84E-4 lb/hr	1.5 lb/yr
CO_2e	Nat Gas	117 lb/MMBtu		1,208 tpy
	Propane	136.6 lb/MMBtu		85 tpy

(2) Fryer Emissions. Potential fryer emissions are calculated from 8,760 hr/yr of operation, approximately 4,120 tpy of process throughput, and applicable emission factors. The PM emission factor is based on emission test data collected from a similar process unit at another Frito Lay facility. The VOC emission factor is taken from EPA AP-42, Section 9.13.3 "Snack Chip Deep Fat Frying" (1/95). PM fractions are based on data from an emission factor study conducted by Frito-Lay.

Pollutant	Emission Rate	Potential Emissions
VOC	0.085 lb/ton	0.18 tpy
PM	0.64 lb/hr	2.80 tpy
PM_{10} (40% PM)	0.26 lb/hr	1.12 tpy
$PM_{2.5}$ (20% PM)	0.13 lb/hr	0.56 tpy

6.e TC-2 Production Line (*existing*). Emissions from the TC-2 production line consist of combustion products from the heat exchanger, combustion products from the oven, and process emissions from the chip fryer.

(1) Heat Exchanger Emissions. Potential heat exchanger emissions are calculated from a rated heat input of 3.4 MMBtu/hr, 8,260 hr/yr of natural gas operation, 500 hr/yr of propane operation, and applicable emissions factors. NO_X and CO emission factors are derived from actual monitored data. Emission factor for CO is based on a maximum emission concentration of 800 ppmv @ 3% O_2 using EPA Method 19 methodology. Emission factor for NO_x is based on maximum emission concentration of 100 ppmv @ 3% O_2 using EPA Method 19 methodology. Emission factors for all other pollutants from natural gas combustion are taken from EPA AP-42, Section 1.4

"Natural Gas Combustion" (7/98). Emission factors for all other pollutants from propane combustion are taken from EPA AP-42, Table 1.5 "Emission Factors for LPG Combustion" (10/96). The emission factor for SO_2 is based on a maximum propane sulfur content of 14.8 gr/100 ft^3. All PM emissions are assumed to be $PM_{2.5}$.

Pollutant	Fuel	Emission Factor	Emissions	
NO_X	Nat Gas	0.121 lb/MMBtu	0.41 lb/hr	1.80 tpy
	Propane	0.121 lb/MMBtu	0.41 lb/hr	0.10 tpy
CO	Nat Gas	0.591 lb/MMBtu	2.01 lb/hr	8.80 tpy
	Propane	0.591 lb/MMBtu	2.01 lb/hr	0.50 tpy
VOC	Nat Gas	0.0054 lb/MMBtu	0.02 lb/hr	0.08 tpy
	Propane	0.0033 lb/MMBtu	0.01 lb/hr	0.003 tpy
SO_2	Nat Gas	0.0006 lb/MMBtu	0.002 lb/hr	0.01 tpy
	Propane	0.016 lb/MMBtu	0.05 lb/hr	0.01 tpy
$PM/PM_{10}/PM_{2.5}$	Nat Gas	0.0075 lb/MMBtu	0.03 lb/hr	0.11 tpy
	Propane	0.0044 lb/MMBtu	0.02 lb/hr	0.004 tpy
Benzene		2.06E-6 lb/MMBtu	7.00E-6 lb/hr	0.06 lb/yr
Formaldehyde		7.35E-5 lb/MMBtu	2.50E-4 lb/hr	2.1 lb/yr
CO_2e	Nat Gas	117 lb/MMBtu		1,643 tpy
	Propane	136.6 lb/MMBtu		116 tpy

(2) Fryer Emissions. Potential fryer emissions are calculated from 8,760 hr/yr of operation, approximately 11,500 tpy of process throughput, and applicable emission factors. The PM emission factor is based on emission test data collected at the Vancouver facility in July, 1992. The VOC emission factor is taken from EPA AP-42, Section 9.13.3 "Snack Chip Deep Fat Frying" (1/95). PM fractions are based on data from an emission factor study conducted by Frito-Lay. Exhaust from the fryer is vented through the combustion chamber of the heat exchanger prior to discharge. The emission data from July, 1992 indicates that this reduces PM emissions by approximately 73%. Although not tested, it is assumed that the heat exchanger achieves a reduction in VOC emissions comparable to the PM control efficiency.

Pollutant	Emission Rate	Potential Emissions
VOC	0.023 lb/ton	0.13 tpy
PM	0.1 lb/hr	0.44 tpy
PM_{10} (40% PM)	0.04 lb/hr	0.18 tpy
$PM_{2.5}$ (20% PM)	0.02 lb/hr	0.09 tpy

(3) Oven Emissions. Potential oven emissions are calculated from a rated heat input of 6.992 MMBtu/hr, 8,760 hr/yr of potential operation, and applicable emission factors. NO_x and CO emission factors are based on emission test data collected from another Frito Lay facility. All other emission factors are taken from EPA AP-42, Section 1.4 "Natural Gas Combustion" (7/98). All PM emissions are assumed to be $PM_{2.5}$.

Pollutant	Fuel	Emission Factor	Emissions	
NO_X	Nat Gas	0.086 lb/MMBtu	0.60 lb/hr	2.63 tpy
CO		0.42 lb/MMBtu	2.94 lb/hr	12.86 tpy
VOC		0.0054 lb/MMBtu	0.04 lb/hr	0.17 tpy
SO_2		0.0006 lb/MMBtu	0.004 lb/hr	0.02 tpy
$PM/PM_{10}/PM_{2.5}$		0.0075 lb/MMBtu	0.05 lb/hr	0.23 tpy
Benzene		2.06E-6 lb/MMBtu	1.44E-5 lb/hr	0.1 lb/yr
Formaldehyde		7.35E-5 lb/MMBtu	5.14E-4 lb/hr	4.5 lb/yr
CO_2e		117 lb/MMBtu		3,583 tpy

6.f TC-3 Production Line (*existing*). Emissions from the TC-3 production line consist of combustion products from the heat exchanger, combustion products from the oven, and process emissions from the chip fryer.

(1) Heat Exchanger Emissions. Potential heat exchanger emissions are calculated from a rated heat input of 3.4 MMBtu/hr, 8,260 hr/yr of natural gas operation, 500 hr/yr of propane operation, and applicable emissions factors. NO_X and CO emission factors are derived from actual monitored data. Emission factor for CO is based on a maximum emission concentration of 800 ppmv @ 3% O_2 using EPA Method 19 methodology. Emission factor for NO_x is based on maximum emission concentration of 100 ppmv @ 3% O_2 using EPA Method 19 methodology. Emission factors for all other pollutants from natural gas combustion are taken from EPA AP-42, Section 1.4 "Natural Gas Combustion" (7/98). Emission factors for all other pollutants from propane combustion are taken from EPA AP-42, Table 1.5 "Emission Factors for LPG Combustion" (10/96). The emission factor for SO_2 is based on a maximum propane sulfur content of 14.8 gr/100 ft^3. All PM emissions are assumed to be $PM_{2.5}$.

Pollutant	Fuel	Emission Factor	Emissions	
NO_X	Nat Gas	0.121 lb/MMBtu	0.41 lb/hr	1.80 tpy
	Propane	0.121 lb/MMBtu	0.41 lb/hr	0.10 tpy
CO	Nat Gas	0.591 lb/MMBtu	2.01 lb/hr	8.80 tpy
	Propane	0.591 lb/MMBtu	2.01 lb/hr	0.50 tpy
VOC	Nat Gas	0.0054 lb/MMBtu	0.02 lb/hr	0.08 tpy
	Propane	0.0033 lb/MMBtu	0.01 lb/hr	0.003 tpy
SO_2	Nat Gas	0.0006 lb/MMBtu	0.002 lb/hr	0.01 tpy
	Propane	0.016 lb/MMBtu	0.05 lb/hr	0.01 tpy
$PM/PM_{10}/PM_{2.5}$	Nat Gas	0.0075 lb/MMBtu	0.03 lb/hr	0.11 tpy
	Propane	0.0044 lb/MMBtu	0.02 lb/hr	0.004 tpy
Benzene		2.06E-6 lb/MMBtu	7.00E-6 lb/hr	0.06 lb/yr
Formaldehyde		7.35E-5 lb/MMBtu	2.50E-4 lb/hr	2.1 lb/yr
CO_2e	Nat Gas	117 lb/MMBtu		1,643 tpy
	Propane	136.6 lb/MMBtu		116 tpy

(2) Fryer Emissions. Potential fryer emissions are calculated from 8,760 hr/yr of operation, approximately 11,500 tpy of process throughput, and applicable emission factors. The PM emission factor is based on emission test data collected at the Vancouver facility in July, 1992. The VOC emission factor is taken from EPA AP-42, Section 9.13.3 "Snack Chip Deep Fat Frying" (1/95). PM fractions are based on data from an emission factor study conducted by Frito-Lay. Exhaust from the fryer is vented through the combustion chamber of the heat exchanger prior to discharge. The emission data from July, 1992 indicates that this reduces PM emissions by approximately 73%. Although not tested, it is assumed that the heat exchanger achieves a reduction in VOC emissions comparable to the PM control efficiency.

Pollutant	Emission Rate	Potential Emissions
VOC	0.023 lb/ton	0.13 tpy
PM	0.1 lb/hr	0.44 tpy
PM_{10} (40% PM)	0.04 lb/hr	0.18 tpy
$PM_{2.5}$ (20% PM)	0.02 lb/hr	0.09 tpy

(3) Oven Emissions. Potential oven emissions are calculated from a combined heat input of 13.984 MMBtu/hr, 8,760 hr/yr of potential operation, and applicable emission factors. NO_x and CO emission factors are based on emission test data collected from another Frito Lay facility. All other emission factors are taken from EPA AP-42, Section 1.4 "Natural Gas Combustion" (7/98). All PM emissions are assumed to be $PM_{2.5}$.

Pollutant	Fuel	Emission Factor	Emissions	
NO_X	Nat Gas	0.086 lb/MMBtu	1.2 lb/hr	5.27 tpy
CO		0.42 lb/MMBtu	5.9 lb/hr	25.73 tpy
VOC		0.0054 lb/MMBtu	0.08 lb/hr	0.33 tpy
SO_2		0.0006 lb/MMBtu	0.008 lb/hr	0.04 tpy
$PM/PM_{10}/PM_{2.5}$		0.0075 lb/MMBtu	0.1 lb/hr	0.46 tpy
Benzene		2.06E-6 lb/MMBtu	2.88E-5 lb/hr	0.3 lb/yr
Formaldehyde		7.35E-5 lb/MMBtu	1.03E-3 lb/hr	9.0 lb/yr
CO_2e		117 lb/MMBtu		7,166 tpy

6.g FCP/BCP Production Line (*existing*). Emissions from the FCP/BCP production lines consist of combustion products from the heat exchanger and oven, and process emissions from the fryer and product extruders.

(1) FCP Heat Exchanger Emissions. Potential heat exchanger emissions are calculated from a rated heat input of 1.2 MMBtu/hr, 8,260 hr/yr of natural gas operation, 500 hr/yr of propane operation, and applicable emissions factors. Emission factors for CO are based on a maximum emission concentration of 150 ppmv @ 3% O_2 using EPA Method 19 methodology. Emission factors for NO_x are based on maximum emission concentration of 30 ppmv @ 3% O_2 using EPA Method 19 methodology. Emission factors for all other pollutants from natural gas combustion are taken from EPA AP-42, Section 1.4 "Natural Gas Combustion" (7/98). Emission factors for all other pollutants from propane combustion are taken from EPA AP-42, Table 1.5 "Emission Factors for LPG Combustion" (10/96). The emission factor for SO_2 is based on a maximum propane sulfur content of 14.8 gr/100 ft^3. All PM emissions are assumed to be $PM_{2.5}$.

Pollutant	Fuel	Emission Factor	Emissions	
NO_X	Nat Gas	0.036 lb/MMBtu	0.04 lb/hr	0.18 tpy
	Propane	0.0364 lb/MMBtu	0.04 lb/hr	0.01 tpy
CO	Nat Gas	0.111 lb/MMBtu	0.13 lb/hr	0.55 tpy
	Propane	0.111 lb/MMBtu	0.13 lb/hr	0.03 tpy
VOC	Nat Gas	0.0054 lb/MMBtu	0.006 lb/hr	0.03 tpy
	Propane	0.0033 lb/MMBtu	0.004 lb/hr	0.001 tpy
SO_2	Nat Gas	0.0006 lb/MMBtu	0.0007 lb/hr	0.003 tpy
	Propane	0.016 lb/MMBtu	0.02 lb/hr	0.005 tpy
$PM/PM_{10}/PM_{2.5}$	Nat Gas	0.0075 lb/MMBtu	0.009 lb/hr	0.04 tpy
	Propane	0.0044 lb/MMBtu	0.005 lb/hr	0.001 tpy
Benzene		2.06E-6 lb/MMBtu	2.47E-6 lb/hr	0.02 lb/yr
Formaldehyde		7.35E-5 lb/MMBtu	8.82E-5 lb/hr	0.7 lb/yr
CO_2e	Nat Gas	117 lb/MMBtu		580 tpy
	Propane	136.6 lb/MMBtu		41 tpy

(2) FCP Fryer Emissions. Potential fryer emissions are calculated from 8,760 hr/yr of operation, a process throughput of 2,200 lb/hr, and applicable emission factors. The VOC emission factor is taken from EPA AP-42, Table 9.13-3 "Snack Chip Deep Fat Frying" (1/95). The PM emission factor is based on emission test data collected from a similar process unit at another Frito Lay facility (Beloit). PM fractions are based on test data provided by Frito-Lay.

Pollutant	Emission Factor	Emission Rate	Potential Emissions
VOC	0.085 lb/ton	0.094 lb/hr	0.41 tpy
PM	0.134 lb/ton	0.15 lb/hr	0.64 tpy
PM_{10} (40% PM)		0.06 lb/hr	0.26 tpy
$PM_{2.5}$ (20% PM)		0.03 lb/hr	0.13 tpy

(3) Extruder/Roto-clone Emissions. Potential extruder emissions are calculated from 8,760 hr/yr of operation, a process throughput of 2,200 lb/hr, and a PM emission factor based on emission test data collected from a similar process unit at another Frito-Lay facility (Beloit). PM fractions are assumed to be similar to other process streams at the facility.

Pollutant	Emission Factor	Emission Rate	Potential Emissions
PM	0.04 lb/ton	0.044 lb/hr	0.19 tpy
PM_{10} (40% PM)		0.018 lb/hr	0.08 tpy
$PM_{2.5}$ (20% PM)		0.009 lb/hr	0.04 tpy

(4) BCP Oven Emissions. Potential oven emissions are calculated from a rated heat input of 1.2 MMBtu/hr, 8,260 hr/yr of natural gas operation, 500 hr/yr of propane operation, a propane heat content of 91.5 MMBtu/10^3 gal, and applicable emissions factors. Emission factors for natural gas combustion are taken from EPA AP-42, Section 1.4 "Natural Gas Combustion" (7/98). Emission factors for propane combustion are taken from EPA AP-42, Table 1.5 "Emission Factors for LPG Combustion" (10/96). The emission factor for SO_2 assumes a maximum propane sulfur content of 14.8 gr/100 ft^3. All PM emissions are assumed to be $PM_{2.5}$.

Pollutant	Fuel	Emission Factor	Emissions	
NO_X	Nat Gas	0.098 lb/MMBtu	0.12 lb/hr	0.49 tpy
	Propane	0.153 lb/MMBtu	0.18 lb/hr	0.05 tpy
CO	Nat Gas	0.082 lb/MMBtu	0.10 lb/hr	0.41 tpy
	Propane	0.021 lb/MMBtu	0.03 lb/hr	0.006 tpy
VOC	Nat Gas	0.0054 lb/MMBtu	0.006 lb/hr	0.03 tpy
	Propane	0.0033 lb/MMBtu	0.004 lb/hr	0.001 tpy
SO_2	Nat Gas	0.0006 lb/MMBtu	0.0007 lb/hr	0.003 tpy
	Propane	0.016 lb/MMBtu	0.02 lb/hr	0.005 tpy
$PM/PM_{10}/PM_{2.5}$	Nat Gas	0.0075 lb/MMBtu	0.009 lb/hr	0.04 tpy
	Propane	0.0044 lb/MMBtu	0.005 lb/hr	0.001 tpy
Benzene		2.06E-6 lb/MMBtu	2.47E-6 lb/hr	0.02 lb/yr
Formaldehyde		7.35E-5 lb/MMBtu	8.82E-5 lb/hr	0.7 lb/yr
CO_2e	Nat Gas	117 lb/MMBtu		580 tpy
	Propane	136.6 lb/MMBtu		41 tpy

6.h CP1 Popcorn Oven (*existing*). Potential emissions from the CP1 popcorn oven are calculated from a rated heat input of 1.141 MMBtu/hr, 8,260 hr/yr of natural gas operation, 500 hr/yr of propane operation, and applicable emission factors. Emission factors for NO_x and CO from natural gas combustion are calculated from maximum emission concentrations of 75 ppmv and 225 ppmv respectively (@ 3% O_2) using EPA Method 19 methodology. All other emission factors for natural gas combustion are taken from EPA AP-42, Section 1.4 "Natural Gas Combustion" (7/98). Emission factors for propane combustion are taken from EPA AP-42, Table 1.5 "Emission Factors for LPG Combustion" (10/96). The propane emission factor for SO_2 assumes a maximum propane sulfur content of 14.8 gr/100 ft^3. All PM emissions are assumed to be $PM_{2.5}$.

Pollutant	Fuel	Emission Factor	Emissions	
NO_X	Nat Gas	0.0911 lb/MMBtu	0.10 lb/hr	0.43 tpy
	Propane	0.153 lb/MMBtu	0.18 lb/hr	0.04 tpy
CO	Nat Gas	0.1663 lb/MMBtu	0.19 lb/hr	0.78 tpy
	Propane	0.021 lb/MMBtu	0.02 lb/hr	0.006 tpy
VOC	Nat Gas	0.0054 lb/MMBtu	0.006 lb/hr	0.03 tpy
	Propane	0.0033 lb/MMBtu	0.004 lb/hr	0.001 tpy
SO_2	Nat Gas	0.0006 lb/MMBtu	0.0007 lb/hr	0.003 tpy
	Propane	0.016 lb/MMBtu	0.02 lb/hr	0.005 tpy
$PM/PM_{10}/PM_{2.5}$	Nat Gas	0.0075 lb/MMBtu	0.009 lb/hr	0.04 tpy
	Propane	0.0044 lb/MMBtu	0.005 lb/hr	0.001 tpy
Benzene		2.06E-6 lb/MMBtu	2.35E-6 lb/hr	0.02 lb/yr
Formaldehyde		7.35E-5 lb/MMBtu	8.39E-5 lb/hr	0.7 lb/yr
CO_2e	Nat Gas	117 lb/MMBtu		551 tpy
	Propane	136.6 lb/MMBtu		39 tpy

6.i Process Boiler (*existing*). Potential emissions from boiler operation are calculated from a rated heat input of 16.8 MMBtu/hr, 8,260 hr/yr of natural gas operation, 500 hr/yr of propane operation, a propane heat content of 91.5 MMBtu/10^3 gal, and applicable emissions factors. Emission factors for CO are based on a maximum emission concentration of 50 ppmv @ 3% O_2 using EPA Method 19 methodology. Emission factors for NO_x are based on maximum emission concentrations of 30 ppmv (natural gas) and 45 ppmv (propane) @ 3% O_2 using EPA Method 19 methodology. All other emission factors for natural gas combustion are taken from EPA AP-42, Section 1.4 "Natural Gas Combustion" (7/98). All other emission factors for propane combustion are taken from EPA AP-42, Table 1.5 "Emission Factors for LPG Combustion" (10/96). The propane emission factor for SO_2 assumes a maximum propane sulfur content of 14.8 gr/100 ft^3. All PM emissions are assumed to be $PM_{2.5}$.

Pollutant	Fuel	Emission Factor	Emissions	
NO_X	Nat Gas	0.035 lb/MMBtu	0.59 lb/hr	2.43 tpy
	Propane	0.055 lb/MMBtu	0.92 lb/hr	0.23 tpy
CO	Nat Gas	0.036 lb/MMBtu	0.61 lb/hr	2.50 tpy
	Propane	0.036 lb/MMBtu	0.61 lb/hr	0.15 tpy
VOC	Nat Gas	0.0054 lb/MMBtu	0.09 lb/hr	0.37 tpy
	Propane	0.0033 lb/MMBtu	0.06 lb/hr	0.01 tpy
SO_2	Nat Gas	0.0006 lb/MMBtu	0.01 lb/hr	0.04 tpy
	Propane	0.016 lb/MMBtu	0.27 lb/hr	0.07 tpy
$PM/PM_{10}/PM_{2.5}$	Nat Gas	0.0075 lb/MMBtu	0.13 lb/hr	0.52 tpy
	Propane	0.0044 lb/MMBtu	0.07 lb/hr	0.02 tpy
Benzene		2.06E-6 lb/MMBtu	3.46E-5 lb/hr	0.3 lb/yr
Formaldehyde		7.35E-5 lb/MMBtu	1.23E-3 lb/hr	10.8 lb/yr
CO_2e	Nat Gas	117 lb/MMBtu		8,118 tpy
	Propane	136.6 lb/MMBtu		574 tpy

6.j Material Transfer Systems / Dust Collectors (*existing*). Potential emissions from facility dust collectors are calculated from maximum allowed exhaust concentration (0.005 gr/dscf), the rated flow of each unit, and 8,760 hr/yr of operation. All PM emissions are assumed to be PM_{10}. PM emissions are assumed to be 21% $PM_{2.5}$ (EPA PM Calculator Version 2.0 - SCC 30200505).

Dust Collector	Flowrate		Emissions (lb/hr)	Emissions (tpy)
Corn – Railcar Unloading Segment 1	1,915 acfm	PM/PM_{10}	0.08	0.36
		$PM_{2.5}$	0.02	0.08
Corn – Railcar Unloading Segment 2	504 acfm	PM/PM_{10}	0.02	0.10
		$PM_{2.5}$	0.005	0.02
Corn – Corn Silo Vents	1,915 acfm	PM/PM_{10}	0.08	0.36
		$PM_{2.5}$	0.02	0.08
Corn – Primary Handling	5,000 acfm	PM/PM_{10}	0.21	0.94
		$PM_{2.5}$	0.05	0.20
Corn – Corn Chip Lines	894 acfm	PM/PM_{10}	0.04	0.17
		$PM_{2.5}$	0.01	0.04
Cornmeal – Railcar Receiver	625 acfm	PM/PM_{10}	0.03	0.12
		$PM_{2.5}$	0.01	0.03
Cornmeal – Storage Silos	383 acfm	PM/PM_{10}	0.02	0.07
		$PM_{2.5}$	0.003	0.02
Cornmeal – Metering Bins	238 acfm	PM/PM_{10}	0.01	0.04
		$PM_{2.5}$	0.002	0.01
	Total:	PM/PM_{10}	0.49	2.15
		$PM_{2.5}$	0.10	0.45

6.k Space Heaters (*existing*). Potential space heater emissions are calculated from a practical maximum heat input of 9.5 MMBtu/hr, 8,760 hr/yr of operation, and emission factors from EPA AP-42, Section 1.4 "Natural Gas Combustion" (7/98). All PM emissions are assumed to be $PM_{2.5}$.

Pollutant	Fuel	Emission Factor	Emissions	
NO_X	Nat Gas	0.098 lb/MMBtu	0.93 lb/hr	4.08 tpy
CO		0.082 lb/MMBtu	0.78 lb/hr	3.41 tpy
VOC		0.0054 lb/MMBtu	0.05 lb/hr	0.22 tpy
SO_2		0.0006 lb/MMBtu	0.06 lb/hr	0.03 tpy
$PM/PM_{10}/PM_{2.5}$		0.0075 lb/MMBtu	0.07 lb/hr	0.31 tpy
Benzene		2.06E-6 lb/MMBtu	1.96E-5 lb/hr	0.2 lb/yr
Formaldehyde		7.35E-5 lb/MMBtu	6.98E-4 lb/hr	6.1 lb/yr
CO_2e		117 lb/MMBtu		4,868 tpy

6.l Emissions Summary / Facility-wide Potential to Emit. Facility-wide potential to emit as calculated in the sections above is summarized below.

Pollutant	Emissions	Project Increase
NO_X	38.17 tpy	0.00 tpy
CO	72.49 tpy	0.00 tpy
VOC	6.60 tpy	0.00 tpy
SO_2	0.61 tpy	0.00 tpy
Lead	0.00 tpy	0.00 tpy
PM	43.65 tpy	0.00 tpy
PM_{10}	20.94 tpy	0.00 tpy
$PM_{2.5}$	11.67 tpy	0.00 tpy
TAP	0.04 tpy	0.00 tpy
HAP	0.04 tpy	0.00 tpy
CO_2e	58,321	0

Pollutant	CAS Number	Category	Facility-wide Emissions (lb/yr)	Incremental Increase	WAC 173-460 SQER
Benzene	71-43-2	HAP/TAP A	1.9	0.0	20 lb/yr
Formaldehyde	50-00-0	HAP/TAP A	69.7	0.0	20 lb/yr

7. REGULATIONS AND EMISSION STANDARDS

Regulations that have been used to evaluate the acceptability of the proposed facility and establish emission limits and control requirements include, but are not limited to, the regulations, codes, or requirements listed below.

7.a Code of Federal Regulations Title 40 Part 60 (40 CFR 60) Subpart Dc "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units" applies to any steam generating unit with a heat input greater than or equal to 10 million Btu/hr, but less than or equal to 100 million Btu/hr constructed, modified, or reconstructed after June 9, 1989. The NSPS for "Small Industrial-Commercial-Institutional Steam Generating Units" (40 CFR 60, Subpart Dc) is applicable to the Hurst process boiler at this facility. Frito-Lay is in compliance with applicable requirements from that regulation. Although a number of fryer heat exchangers at the facility have rated capacities larger than Subpart Dc's applicability threshold, EPA has determined that these units do not constitute an "affected facility" for the purposes of this regulation.

7.b Revised Code of Washington (RCW) 70A.15.2040 empowers any activated air pollution control authority to prepare and develop a comprehensive plan or plans for the prevention, abatement and control of air pollution within its jurisdiction. An air pollution control authority may issue such orders as may be necessary to effectuate the purposes of the Washington Clean Air Act and enforce the same by all appropriate administrative and judicial proceedings subject to the rights of appeal as provided in Chapter 62, Laws of 1970 ex. sess.

7.c RCW 70A.15.2210 provides for the inclusion of conditions of operation as are reasonably necessary to assure the maintenance of compliance with the applicable ordinances, resolutions, rules and regulations when issuing an Air Discharge Permit for installation and establishment of an air contaminant source.

7.d WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" requires Best Available Control Technology for toxic air pollutants (T-BACT), identification and quantification of emissions of toxic air pollutants and demonstration of protection of human health and safety.

7.e WAC 173-476 "Ambient Air Quality Standards" establishes ambient air quality standards for PM_{10}, $PM_{2.5}$, lead, sulfur dioxide, nitrogen dioxide, ozone, and carbon monoxide in the ambient air, which shall not be exceeded.

7.f SWCAA 400-040 "General Standards for Maximum Emissions" requires all new and existing sources and emission units to meet certain performance standards with respect to Reasonably Available Control Technology (RACT), visible emissions, fallout, fugitive emissions, odors, emissions detrimental to persons or property, sulfur dioxide, concealment and masking, and fugitive dust.

7.g SWCAA 400-050 "Emission Standards for Combustion and Incineration Units" requires that all provisions of SWCAA 400-040 be met and that no person shall cause or permit the emission of particulate matter from any combustion or incineration unit in excess of 0.23 grams per dry cubic meter (0.1 grains per dry standard cubic foot) of exhaust gas at standard conditions.

7.h SWCAA 400-060 "Emission Standards for General Process Units" prohibits particulate matter emissions from all new and existing process units in excess of 0.1 grains per dry standard cubic foot of exhaust gas.

7.i SWCAA 400-109 "Air Discharge Permit Applications" requires that an Air Discharge Permit application be submitted for all new installations, modifications, changes, or alterations to process and emission control equipment consistent with the definition of "new source". Sources wishing to modify existing permit terms may submit an Air Discharge Permit application to request such changes. An Air Discharge Permit must be issued, or written confirmation of exempt status must be received, before beginning any actual construction, or implementing any other modification, change, or alteration of existing equipment, processes, or permits.

7.j SWCAA 400-110 "New Source Review" requires that SWCAA issue an Air Discharge Permit in response to an Air Discharge Permit application prior to establishment of the new source, emission unit, or modification.

7.k SWCAA 400-111 "Requirements for Sources in a Maintenance Plan Area" requires that no approval to construct or alter an air contaminant source shall be granted unless it is evidenced that:

(1) The equipment or technology is designed and will be installed to operate without causing a violation of the applicable emission standards;
(2) Emissions will be minimized to the extent that the new source will not exceed emission levels or other requirements provided in the maintenance plan;
(3) Best Available Control Technology will be employed for all air contaminants to be emitted by the proposed equipment;
(4) The proposed equipment will not cause any ambient air quality standard to be exceeded; and
(5) If the proposed equipment or facility will emit any toxic air pollutant regulated under WAC 173-460, the proposed equipment and control measures will meet all the requirements of that Chapter.

8. RACT/BACT/BART/LAER/PSD/CAM DETERMINATIONS

The proposed equipment and control systems incorporate Best Available Control Technology (BACT) for the types and amounts of air contaminants emitted by the processes as described below:

New BACT Determinations

8.a No new BACT Determinations were made as part of this permitting action.

Previous BACT Determinations

8.b BACT Determination – Corn Handling and Storage (*ADP 21-3473*). The proposed use of process enclosure and high efficiency particulate filtration has been determined to meet the requirements of BACT for corn handling and storage operations at this facility.

8.c BACT Determination – Heat Exchanger Burners (*ADP 17-3249*). The proposed use of low sulfur fuel (natural gas), low emission burner technology, and annual emission monitoring has been determined to meet the requirements of BACT for the types and quantities of air contaminants emitted by process heat exchangers at this facility.

Other Determinations

8.d Prevention of Significant Deterioration (PSD) Applicability Determination. The potential to emit of this facility is less than applicable PSD applicability thresholds. Likewise, this permitting action will not result in a potential increase in emissions equal to or greater than the PSD thresholds. Therefore, PSD review is not applicable to this action.

8.e Compliance Assurance Monitoring (CAM) Applicability Determination. CAM is not applicable to any emission unit at this facility because it is not a major source and is not required to obtain a Part 70 permit.

9. AMBIENT IMPACT ANALYSIS

9.a TAP Small Quantity Review. This permitting action will not change previously approved emission rates of TAP compounds from this facility.

Conclusions

9.b Modification of permit requirements, as proposed in ADP Application CL-3217, will not cause the ambient air quality requirements of Title 40 Code of Federal Regulations (CFR) Part 50 "National Primary and Secondary Ambient Air Quality Standards" to be violated.

9.c Modification of permit requirements, as proposed in ADP Application CL-3217, will not cause the requirements of WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" (as in effect 8/21/98) or WAC 173-476 "Ambient Air Quality Standards" to be violated.

9.d Modification of permit requirements, as proposed in ADP Application CL-3217, will not cause a violation of emission standards for sources as established under SWCAA General Regulations Sections 400-040 "General Standards for Maximum Emissions," 400-050 "Emission Standards for Combustion and Incineration Units," and 400-060 "Emission Standards for General Process Units."

10. DISCUSSION OF APPROVAL CONDITIONS

SWCAA has made a determination to issue ADP 23-3558 in response to ADP Application CL-3217. ADP 23-3558 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

10.a Supersession of Previous Permits. ADP 23-3558 supersedes ADP 21-3473 in its entirety.

10.b General Basis. Permit requirements for equipment affected by this permitting action incorporate the operating schemes proposed by the applicant in ADP Application CL-3217. Permit requirements established by this action are intended to implement BACT, minimize emissions, and assure compliance with applicable requirements on a continuous basis. Emission limits for approved equipment are based on the maximum potential emissions calculated in Section 6 of this Technical Support Document.

10.c Monitoring and Recordkeeping Requirements. ADP 23-3558 establishes monitoring and recordkeeping requirements sufficient to document compliance with applicable emission limits, ensure proper operation of approved equipment and provide for compliance with generally applicable requirements. Specific recordkeeping requirements have been established for control equipment parameters, fuel consumption, product throughput, hours of operation, and maintenance activities.

10.d Reporting Requirements. ADP 23-3558 establishes general reporting requirements for annual air emissions, upset conditions and excess emissions. Specific reporting requirements are established for fuel consumption, product throughput, hours of operation, monitoring results, and control equipment parameters. Opacity survey results are to be reported quarterly. Production data and emission estimates are to be reported annually.

10.e Process Heat Exchangers. Heat exchanger burners are generally low emission designs. NO_X emission limits for each burner are consistent with the emission concentrations cited by the manufacturer. Periodic emission monitoring is required to assure proper operation on an ongoing basis.

10.f Requirements for Unmodified Emission Units. Permit requirements for existing emission units not affected by ADP Application CL-3217 are carried forward unchanged from ADP 21-3473.

11. START-UP AND SHUTDOWN/ALTERNATIVE OPERATING SCENARIOS/POLLUTION PREVENTION

11.a Start-up and Shutdown Provisions. Pursuant to SWCAA 400-081 "Start-up and Shutdown", technology based emission standards and control technology determinations shall take into consideration the physical and operational ability of a source to comply with the applicable standards during start-up or shutdown. Where it is determined that a source is not capable of achieving continuous compliance with an emission standard during start-up or shutdown, SWCAA shall include appropriate emission limitations, operating parameters, or other criteria to regulate performance of the source during start-up or shutdown.

The applicant did not identify any start-up and shutdown periods during which affected equipment is not capable of achieving continuous compliance with applicable technology determinations or approval conditions. To SWCAA's knowledge, this facility can comply with all applicable standards during startup and shutdown.

11.b Alternate Operating Scenarios. SWCAA conducted a review of alternate operating scenarios applicable to equipment affected by this permitting action. The permittee did not propose or identify any applicable alternate operating scenarios. Therefore, none were included in the permit requirements.

11.c Pollution Prevention Measures. SWCAA conducted a review of possible pollution prevention measures for the facility. No pollution prevention measures were identified by either the permittee or SWCAA separate or in addition to those measures required under BACT considerations. Therefore, none were included in the permit requirements.

12. EMISSION MONITORING AND TESTING

12.a Emission Testing – Hurst Process Boiler (*existing*). Permit requirements for the Hurst boiler require periodic emission testing on a 5 year cycle for the purposes of demonstrating compliance with applicable emission limits. All emission testing is to be conducted in accordance with the provisions of ADP 23-3558, Appendix A.

12.b Emission Testing – PCA/PCB-32 Heat Exchangers (*existing*). Permit requirements for the PCA and PCB-32 production lines require periodic emission testing of the respective heat exchangers on a 5 year cycle for the purposes of demonstrating compliance with applicable emission limits. All emission testing is to be conducted in accordance with the provisions of ADP 23-3558, Appendix B.

12.c Emission Monitoring – Production Line Heat Exchangers (*existing*). Permit requirements for the PCA, PCB-32, FCC-1, FCC-2, TC-2, TC-3, and FCP production lines require annual emission monitoring of the heat exchangers for the purpose of verifying future performance and assuring compliance with applicable emission limits. All emission monitoring is to be conducted in accordance with the provisions of ADP 23-3558, Appendix C.

12.d Emission Testing – PCB-32 Wet Scrubber (*existing*). Permit requirements for the PCB-32 line require periodic emission testing of wet scrubber emissions on a 5 year cycle for the purposes of demonstrating compliance with applicable emission limits. The most recent emission test was conducted in July, 2005. All emission testing is to be conducted in accordance with the provisions of ADP 23-3558, Appendix D.

12.e Opacity Monitoring Requirements – FCC Fryers (*existing*). Permit requirements for the FCC production lines require periodic visual surveys of the fryer exhaust stacks on a tiered frequency (monthly or quarterly) for the purposes of demonstrating compliance with applicable opacity limits. All visual surveys are to be conducted in accordance with the provision of ADP 23-3558, Appendix E.

12.f Differential Pressure Monitoring – CP1 Popcorn Oven (*existing*). Permit requirements for the Cretors popcorn oven require annual monitoring of the differential pressure in the fuel gas and combustion air manifolds for the purpose of monitoring future performance and assuring proper operation. All emission monitoring is to be conducted in accordance with the provisions of ADP 23-3558, Appendix F.

12.g Emission Testing – Corn Handling Dust Collectors (*modified*). Permit requirements for the Corn Silo Vent System dust collector require periodic emission testing on a 10 year cycle for the purpose of demonstrating compliance with applicable emission limits. All emission testing is to be conducted in accordance with the provisions of ADP 23-3558, Appendix G.

ADP Application CL-3217. As requested by Frito-Lay, the testing requirement for the Railcar Unloading Segment 1 dust collector has been removed from the permit.

13. FACILITY HISTORY

13.a Previous Permitting Actions. SWCAA has previously issued the following Permits for this facility:

Permit Number	Application Number	Date	Purpose
21-3473	CL-3140	7/22/2021	Replacement of existing mechanical railcar corn unloading system with a pneumatic system. Replacement of 3 existing corn silos with 3 new silos and replacement of the pneumatic conveyance piping which transfers corn from the silos to the production area.
17-3249	CL-3013	10/19/2017	Replacement of heat exchanger burners on FCC1, FCP, TC2 and TC3 production lines. Superseded by ADP 21-3473.
05-2651R1	CL-1778	4/30/2007	Installation of Cretors 1000 popcorn oven equipped with Eclipse model AH-80 low NO_X burner (1.141 MMBtu/hr). Removal of two existing popcorn ovens. Superseded by ADP 17-3249.

Permit Number	Application Number	Date	Purpose
05-2651	CL-1722 CL-1582 CL-1556	1/31/2006	Multiple permit applications addressing modification of emission controls for the TC/FCC corn transfer system, modification of the FCC Production Lines, installation of new equipment on the FCP Line, replacement of the FCP Production Line fryer, modification of the VOC emission factor for the PCB-32 Production Line, and consolidation of outstanding permits. Supersedes ADP 04-2578R1. Superseded by ADP 05-2651R1.
04-2578R1	CL-1680	3/2/2005	Replacement of PCB line with new PCB-32 line. Supersedes ADP 04-2578. Superseded by ADP 05-2651.
04-2578	CL-1480	11/30/2004	Modifications to PCA and PCB lines. Supersedes ADPs 83-698 and 95-1842. Superseded by ADP 04-2578R1.
01-2385	CL-1514	8/30/2001	Installation of a corn meal transfer system and three supporting baghouses. Superseded by ADP 05-2651.
01-2351	CL-1365	8/8/2001	Revision of emission limits for TC-1, TC-2, TC-3, and FCC. Supersedes 95-1840R2, 91-1383, 94-1575, and 00-2295. Superseded by ADP 05-2651.
00-2295	CL-1476	8/3/2000	Approved burner upgrade for TC-2 line toaster oven. Superseded by 01-2351.
95-1840R2	CL-1320	12/3/1997	Emission factor changes to existing Permit. Supersedes 95-1840 and 95-1840R1. Superseded by 01-2351.
97-2000	CL-1291	5/29/1997	Installation of new Hurst boiler as a replacement for existing Cleaver Brooks boiler. Superseded by ADP 05-2651.
96-1954R1	CL-1295	5/29/1997	Revision to 96-1954; removal of baghouse and vent exhaust inside the building. Supersedes 96-1954. Superseded by ADP 05-2651.
Approval Letter	None	12/9/1996	Replacement of PCA pneumatic salter with mechanical salter.
96-1954	CL-1269	11/25/1996	New corn products line (CP1); two ovens; baghouse. Superseded by 96-1954R1.
95-1840R1	CL-1246	11/25/1996	Clarification of emission limits for TC-1 and FCC lines. Supersedes 95-1840. Superseded by 95-1840R2.
95-1842	CL-1187	1/29/1996	Low-NOx burner upgrades on heat exchanges of PCA and PCB lines. Amends emission limits established in 81-581 and 83-698. Superseded by ADP 04-2578.
95-1840	CL-1078 CL-1079	1/29/1996	Removal of ESPs on TC-1 and FCC lines. Superseded by ADP 95-1840R1.
94-1705	CL-1111	1/6/1995	Corn storage and transfer "Air Sentry" baghouse (replaces existing "Dusktop" baghouse in 81-581). Superseded by ADP 05-2651.
94-1575	CL-1044	4/4/1994	Additional corn soaking and corn kettle (600 lbs) appeared to be approved uncontrolled but Frito vented to existing scrubber (TC-3 expansion). Superseded by 01-2351.
Approval Letter	-	4/29/1992	Replacement of "Flow-Therm" heat exchanger on the TC-2 line with "Kleen Heat" heat exchanger. Amends ADP 91-1383. Superseded by 01-2351.
91-1385	CL-879	12/19/1991	Additional extruder on existing Cheetos line vented through existing "Rotoclone" separator control system. Superseded by ADP 05-2651.

Permit Number	Application Number	Date	Purpose
91-1384	CL-877 CL-878	12/19/1991	Installation of additional corn storage and transfer equipment (Takt-Shub transfer system) for the TC-2 line. Superseded by ADP 05-2651.
91-1383	CL-876R	12/19/1991	Installation of new tortilla corn chip line #6 (TC-2) and three cooking kettles. Amended by SWCAA Letter of Approval dated April 29, 1992. Superseded by 01-2351.
Withdrawn	CL-876	4/25/1991	Installation of new tortilla corn chip line #6 (TC-2) and three cooking kettles. Withdrawn and resubmitted as CL-876R.
Approval Letter	-	1/18/1990	Cheetos oven/dryer.
Approval Letter	-	6/25/1985	Oil mist eliminator on PCA line as an addition control to existing scrubbing system.
Approval Letter	CL-511	10/10/1983	Replacement of existing control equip. on TC-1 and FCC lines with heat exchangers and ESPs.; superseded by SWCAA 95-1840.
83-698	CL-505	6/2/1983	Installation of venturi scrubber for potato chip line PCB. Superseded by ADP 04-2578.
Approval Letter	CL-462	8/21/1981	Potato chip fryer temporary modifications of existing control equip.
81-581	CL-405	6/8/1981	PCA potato line vented to high efficiency scrubber and direct flame incinerator in series; emissions from two corn cooking kettles condensed in packed tower with fresh water scrubbing in counter-flow configurations; tortilla corn chip line controlled at two points by high efficiency scrubbers; corn storage silo, corn transfer vented through existing "Dusktop" baghouse. Superseded by ADP 94-1705 and ADP 95-1842.
77-273	CL-284	9/12/1977	Additional steam kettle; corn processing- routed through existing scrubber; removed in 1997.
76-208	CL-263	9/7/1976	Control systems on two corn chip lines controlled by cyclone and packed tower scrubbers; superseded by SWCAA letter of approval Oct. 10, 1983.
Approval Letter	CL-201 CL-202	1/13/1975	Steam kettle corn cookers control system (scrubber) FCC and TC control system (cyclone and scrubber).
Approval Letter	CL-151	11/30/1973	Installation of corn transfer cyclone equipment.
Approval Letter	CL-119R	3/19/1973	Modifications to fume incineration/scrubber system.
Approval Letter	CL-119	1/29/1973	Scrubber on potato chip line; superseded by 81-581 and 83-698.
Approval Letter	CL-82	4/13/1972	Installation of PCA, TC-1, and FCC lines with scrubber.

13.b Compliance History. A search of source records on file at SWCAA did not identify any outstanding compliance issues at this facility.

14. PUBLIC INVOLVEMENT OPPORTUNITY

14.a Public Notice for ADP Application CL-3217. Public notice for ADP Application CL-3217 was published on the SWCAA internet website for a minimum of (15) days beginning on November 23, 2022.

14.b Public/Applicant Comment for ADP Application CL-3217. SWCAA did not receive specific comments, a comment period request or any other inquiry from the public regarding this ADP application. Therefore no public comment period was provided for this permitting action.

14.c State Environmental Policy Act. The City of Vancouver was lead agency for the new corn unloading and storage project. The City of Vancouver issued a Mitigated Determination of Nonsignificance (*PRJ-167411 / LUP-81406*) for the project on July 13, 2021.