

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE

APPLICATION PROCESSING AND CALCULATION

Page 1 of 7

Date: 08/19/09

A/P: See Page 1

PROCESSED BY: MS

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**PERMIT TO OPERATE &
PERMIT TO CONSTRUCT/OPERATE EVALUATION**

Applicant name: Frito-Lay North America, Inc. (FACILITY ID# 346)

Mailing address: 9535 Archibald Ave.
Rancho Cucamonga, CA 91730

Equipment Location: 9535 Archibald Ave.
Rancho Cucamonga, CA 91730

EQUIPMENT DESCRIPTIONS:

Application No. 494156

CORN MEAL BLENDING AND EXTRUDING SYSTEM CONSISTING OF:

1. SCREEN (D151), AZO, MODEL NO. E650, 2 HP
2. WEIGH HOPPER (D121)
3. RECEIVING HOPPER (D122)
4. VERTICAL BLENDER (D128), 700 LBS CAPACITY, WITH A 3 HP MOTOR
5. BUCKET ELEVATOR (D134)
6. 2 TORPEDO HOPPERS (D157, D158)
7. 2 EXTRUDERS (D140, D141)

Application No. 494158

CORN MEAL BLENDING AND EXTRUDING SYSTEM CONSISTING OF:

1. RECEIVING HOPPER (D123)
2. VERTICAL BLENDER (D129), 700 LBS CAPACITY, WITH A 3 HP MOTOR
3. BUCKET ELEVATOR (D135)

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE

APPLICATION PROCESSING AND CALCULATION

Page 2 of 7
Date: 08/19/09
A/P: See Page 1
PROCESSED BY: MS
CHECKED BY:

4. 2 TORPEDO HOPPERS (D159, D160)
5. 2 EXTRUDERS (D142, D143)

Application No. 494159

CORN MEAL BLENDING AND EXTRUDING SYSTEM CONSISTING OF:

1. RECEIVING HOPPER (D124)
2. VERTICAL BLENDER (D130), 700 LBS CAPACITY, WITH A 3 HP MOTOR
3. BUCKET ELEVATOR (D136)
4. 2 TORPEDO HOPPERS (D161, D162)
5. 2 EXTRUDERS (D144, D145)

Application No. 494160

CORN MEAL BLENDING AND EXTRUDING SYSTEM CONSISTING OF:

1. RECEIVING HOPPER (D125)
2. VERTICAL BLENDER (D131), 700 LBS CAPACITY, WITH A 3 HP MOTOR
3. BUCKET ELEVATOR (D137)
4. 2 TORPEDO HOPPERS (D163, D164)
5. 2 EXTRUDERS (D146, D147)

Application No. 494161

CORN MEAL BLENDING AND EXTRUDING SYSTEM CONSISTING OF:

1. RECEIVING HOPPER (D126)
2. VERTICAL BLENDER (D132), 700 LBS CAPACITY, WITH A 3 HP MOTOR
3. BUCKET ELEVATOR (D138)

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE

APPLICATION PROCESSING AND CALCULATION

Page 3 of 7

Date: 08/19/09

A/P: See Page 1

PROCESSED BY: MS

CHECKED BY:

4. TORPEDO HOPPER (D165)
5. EXTRUDER (D148)

Application No. 494163

CORN MEAL BLENDING AND EXTRUDING SYSTEM CONSISTING OF:

1. RECEIVING HOPPER (D127)
2. VERTICAL BLENDER (D133), 700 LBS CAPACITY, WITH A 3 HP MOTOR
3. BUCKET ELEVATOR (D139)
4. TORPEDO HOPPER (D166)
5. EXTRUDER (D149)
6. PNEUMATIC CONVEYOR (D150)

PERMIT CONDITIONS: (SEE SAMPLE PERMIT)

BACKGROUND:

Frito-Lay North America Inc. is a RECLAIM and Title V facility. In the past, the facility processed their "3D's" snack product through one unpermitted snack handling line. The snack line consisted of one receiving hopper, one blender, one large extruder and a deep fat fryer (D68). The snack handling line eventually was removed when the snack line switched from making "3D's" snacks to making ring shaped corn meal snacks called "funyuns."

The snack handling line which was removed was replaced with four unpermitted snack handling lines. Each of the four snack lines consist of one receiving hopper, one blender, two extruders, two torpedo hoppers, and two bucket elevators. The material is fed into fryer (D68) by a single pneumatic conveyor. Also, an unpermitted weigh hopper was installed to measure material going into the four snack lines. The facility continues to operate without permits for the four snack lines.

The facility plans to install two new snack lines. Each snack line will consist of one receiving hopper, one blender, one extruder, one torpedo hopper, and one bucket elevator. The two new snack lines will share the same conveyor as the existing four

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE

APPLICATION PROCESSING AND CALCULATION

Page 4 of 7

Date: 08/19/09

A/P: See Page 1

PROCESSED BY: MS

CHECKED BY:

snack lines. Also, a new screen will be added before the material is sent to the weigh hopper. On December 23, 2008, Frito-Lay submitted a total of six applications for snack handling lines. Four of the applications were submitted for four snack lines operating without a permit and two of the applications were submitted for two new snack lines. Associated equipment such as the weigh hopper, the screen, and the pneumatic conveyor will be connected to all six snack lines therefore will be included under the six applications submitted. The system will generate an increase in PM10 emissions. (See Calculations)

PROCESS DESCRIPTION:

The Extruded Snack Line (Funyuns) line consists of bulk storage of yellow corn meal which is the raw material. The cornmeal (raw material) is sent to an enclosed screen to filter the corn meal. The corn meal is sent to the weigh hopper. From the weigh hopper, the corn meal is sent to one of the receiving hoppers. The corn meal is then transferred to one of the vertical blenders. Following the blenders, the corn meal is sent to one of the torpedo hoppers via one of the bucket elevators. The corn meal drops into the extruder machine which creates the ring sized snack chips. The extruded snack chips are then sent to the fryer (D68) by pneumatic conveyor. At the point in which the snack chips enter the fryer, the raw corn meal has not yet been seasoned. No ingredients are added until after the snack chips leave the fryer. (See Process Flow Chart Schematic – Boosted OFS Onion Fried Snacks)

EMMISSION EVALUATION:

TOTAL EMISSIONS - FOOD PROCESSING (EXTRUDED SNACK LINE)

Extruded Snack Line Process

Associated Equipment - Fryer Extruded Snack Line

Average Operating Schedule: 24 hrs/day, 6 days/wk, 52 wks/yr

Maximum Operating Schedule: 24 hrs/day, 7 days/wk, 52 wks/yr

Max Throughput per Extruder: 260 lbs/hr

Max Throughput Total: 260 lbs/hr x 10 extruders = 2600 lbs/hr (raw cornmeal less water)

Emission Factor (Animal Feed Mills, Grain Receiving): .0025 lb PM10/ton (AP-42 9.9.1 Grain Elevators and Processes)

Assumptions

1. All transfer points and/or processes generate emissions at rates similar to that of the Animal Feed Mills, Grain Receiving emission factor of .0025 lb PM10/ton.
2. Moisture Content of 13.5% to 16.5% are presumed to reduce PM emissions although are not incorporated into calculations.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE

APPLICATION PROCESSING AND CALCULATION

Page 5 of 7

Date: 08/19/09

A/P: See Page 1

PROCESSED BY: MS

CHECKED BY:

(From Bulk Storage) → **Transfer to Screen** → Screen, Enclosed (no emission expected) → **Transfer to Weigh Hopper** → **Transfer to Receiving Hoppers** → **Transfer to Vertical Blenders** → Blending Process (no emission expected due to wet material) → Transfer to Bucket Elevators (no emission expected) → Transfer to Torpedo Hoppers (no emission expected) → Extruding Process (no emission expected) → Transfer to Pneumatic Conveyor (no emission expected)

TOTAL OF 4 TRANSFER POINTS (STATED IN BOLD ABOVE)

Emission factor = $0.0025 + 0.0025 + 0.0025 + 0.0025 = 0.01$ lb PM10/ton

Max Hourly Emissions

Uncontrolled Emissions = Controlled Emissions = 0.01 lb PM10/ton x 2600 lbs/hr x 1 ton/2000 lbs = **.013 lbs/hr**

Max Daily Emissions

$.013$ lbs * 24 hrs = **.312 lbs PM10/day**

Annual Emissions

$.312$ lbs PM10/day x 26 days/month x 12 months/year = **97.34 lbs PM10/year**

30 day average

97.34 lbs/month / 12 / 30 = **.27 lbs PM10/day**

RULES EVALUATION:

Rule 212 - Standard for Approving Permits

Paragraph 212(c)(1) Requires a public notice for all new or modified permit units that may emit air contaminants located within 1,000 feet from the outer boundary of a school. According to the website geodistance.com the nearest school, Rancho Cucamonga Middle School, is approximately 4,805 feet from the property line. A 30-Day Public Notice is not required under this paragraph.

Paragraph 212(c) (2) The equipment will not result in on-site emission increasing exceeding the daily maximum emissions as specified in the table in Rule 212(g). Therefore, a 30-day public notice period will not be required under this paragraph.

Paragraph 212(c)(3) Public notice will not be required under this paragraph. See Rule 1401 evaluation section.

Rule 401- Visible Emission: No visible emission is expected if the equipment is well maintained and properly operated. Therefore, compliance is expected.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE

APPLICATION PROCESSING AND CALCULATION

Page 6 of 7

Date: 08/19/09

A/P: See Page 1

PROCESSED BY: MS

CHECKED BY:

Rule 402- Nuisance: Frito-Lay North America Inc. has not been issued any Notice of Violations. In addition, in the last 10 years there are no complaints in the District Compliance CLASS data base. Compliance with this rule is expected.

Rule 405 – Calculated PM emissions are well below the rule limit. Compliance with this rule expected.

Equipment	Process Rate (lb/hr)	Rule Limits (lbs/hr)	Actual Emissions (lb/hr)
Screen, Weigh Hopper, Receiving Hoppers, Blenders, Bucket Elevators, Torpedo Hoppers, Extruders, Pneumatic Conveyor	2,600	4.3	.013

Reg XIII and Rule 2005 – New Source Review:

REG XIII -BACT: Total PM10 emissions from the extruded snack line consisting of the screen, weigh hopper, receiving hoppers, vertical blenders, bucket elevators, torpedo hoppers, extruders and pneumatic conveyor are calculated to be 0.27 lbs/day. Therefore, BACT is not triggered since emissions are less than 1 lb/day. Equipment does not have controls.

Reg XIII -Modeling: Total PM10 emissions from the extruded snack line consisting of the screen, weigh hopper, receiving hoppers, vertical blenders, bucket elevators, torpedo hoppers, extruders and pneumatic conveyor are calculated to be .013 lbs/hr. These emissions are below the rule limits (specified in Table A-1). Therefore, no further screening analysis is required.

Reg XIII -Offsets: Total PM10 emissions from the extruded snack line consisting of the screen, weigh hopper, receiving hoppers, vertical blenders, bucket elevators, torpedo hoppers, extruders and pneumatic conveyor are calculated to be 0.27 lbs/day. Therefore no offsets required since emissions are under 0.5 lbs/day. It is important to note that that the fryer (D68) associated with this equipment was issued a Permit to Construct during the moratorium period. The fryer emissions exceed 0.5 lbs/day for VOC and PM10. Those emissions are not considered as part of the “project emission” for purposes of the permit moratorium. In addition, the fryer is subject to a new source test at the maximum throughput due to the modification of this snack line.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE

APPLICATION PROCESSING AND CALCULATION

Page 7 of 7

Date: 08/19/09

A/P: See Page 1

PROCESSED BY: MS

CHECKED BY:

Rule 2005: The modifications to the current permits do not result in a change of NOx or SOx. Compliance is expected.

Rule 1401- New Source Review of Toxic Air Contaminants: Not applicable

Reg XXX - Title V Permits: Applications for De minimis Significant Permit Revisions require EPA 45-day review.

CONCLUSIONS AND RECOMMENDATIONS:

Based on the evaluation contained herein, the subject equipment is expected to comply with all of the District's rules and regulations; therefore, I recommend Permits to Operate and Permits to Construct/Operate be issued to 6 snack lines consisting of a total of 1 screen, 1 weigh hopper, 6 receiving hoppers, 6 vertical blenders, 6 bucket elevators, 10 torpedo hoppers, 10 extruders and 1 pneumatic conveyor (A/N 494156, 494158, 494159, 494160, 494161, and 494163).