

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE

APPLICATION PROCESSING AND CALCULATION

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PERMIT TO CONSTRUCT/OPERATE

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. 530097

(D168) TORTILLA CHIP SEASONING SYSTEM CONSISTING OF:

1. BAG BREAK STATION WITH INTEGRATED DUST COLLECTION SYSTEM WITH 8 FABRIC FILTERS, EACH 6" DIA. x 1'6"L, 18.4 SQ. FT. TOTAL FILTER AREA, AND A REVERSE PULSE JET CLEANING SYSTEM
2. EXHAUST SYSTEM WITH A 3-HP BLOWER

APPLICATION NO. 530098

(D169) TORTILLA CHIP SEASONING SYSTEM CONSISTING OF:

1. BAG BREAK STATION WITH INTEGRATED DUST COLLECTION SYSTEM WITH 8 FABRIC FILTERS, EACH 6" DIA. x 1'6"L, 18.4 SQ. FT. TOTAL FILTER AREA, AND A REVERSE PULSE JET CLEANING SYSTEM
2. EXHAUST SYSTEM WITH A 3-HP BLOWER

APPLICATION NO. 530102

RECLAIM/TITLE V REVISION

PERMIT CONDITIONS: (SEE SAMPLE PERMIT)

BACKGROUND:

Frito-Lay North America Inc. is a RECLAIM and Title V facility. The facility operates a snack food production facility in Rancho Cucamonga, CA. Frito-Lay is proposing to install two identical bag break stations with integrated dust collectors.

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On December 20, 2011, the facility submitted two applications for permit to construct/operate under A/N 530097 and 530098. On December 20, 2011, the facility also submitted an application for a Reclaim/Title V Revision.

PROCESS DESCRIPTION:

Frito-Lay Inc. will be adding the two seasoning dumping stations (D168,D169) to the Tostitos Chip Line (System No. 5). Whole kernel corn is cooked in boiling water, soaked for a prescribed period of time and then washed. It is then grounded into a dough-like material called masa and pumped to a set of rollers where a sheet is formed which various shapes are cut. These "chips" are baked in a natural gas-fired three pass oven before entering a natural gas fryer. After the fryer, the chips are transferred to a mechanical seasoner, which applies various seasonings. After the corn chips are seasoned, they are conveyed directly to the packaging department and bagged.

Frito-Lay is proposing to install two new seasoning systems, each of which includes a small integrated dust collection system. Chip seasoning consisting of dry roasted garlic and black bean will be added directly to the masa before being transported by the existing conveyor to two permitted deep fat fryers (D29, D31). Each of the two units will be rated at 1,200 cubic feet per minute (cfm). The filter material will be 16 oz. polypropylene bags in cages. The existing mechanical seasoners will be left unchanged.

The bag break dumping station is used to capture dusty air and allows the material to be discharged back into the conveying masa. With the grate and baffle in place, the operator will open the top of the bag, lift it up and empty contents into the bag break station, through the grate. As the seasoning enters the bag break station, a sudden drop of velocity occurs, allowing heavy particles to drop out into the hopper and continue through the conveying process. Fine or light particles will remain in the air stream and be pulled away and collected onto the filter bags. The filter media is continuously cleaned through the use of a reverse pulsejet cleaning mechanism. Released dust is discharged into collection hopper of the bag break station allowing the unit to run in continuous mode. The dust collector will also utilize a magnehelic gauge to monitor the pressure differential.

EMMISSION EVALUATION:

A/N 530097 and 530098

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

Max Throughput Total: 220 lbs/hr x 24 hrs = 5,280 lbs/day

Emission Factor: 2 lb PM/ton (District Factor), 50% PM expected to be PM10.

Assumptions

1. There is one emission point which occurs at transfer from hopper to conveyor. The auger conveyor is enclosed.
2. Although the dust collector unit claims 99.98% efficiency, 98% efficiency is used for the purpose of this calculation.

Max Hourly Emissions – Uncontrolled

220 lbs/hr x 1 ton/2000 lbs x 1 lb PM10/ton = **.11 lbs/hr (each unit)**

Max Daily Emissions – Uncontrolled

.11 lbs * 24 hrs = **2.64 lbs PM10/day (each unit)**

Max Hourly - Controlled

.11 lbs hr x (1-.98) = **.0022 lbs/hr (each unit)**

Max Daily – Controlled

2.64 lbs/day x (1-.98) = **.0528 lbs/day (each unit)**

Annual Emissions

.0528 lbs PM10/day x 26 days/month x 12 months/year = **16.47 lbs PM10/year (each unit)**

30 day average

.0528 lbs/day x 30 / 30 = **.053 lbs PM10/day (each unit)**

Integrated Dust Collector

Air Cloth Ratio

Given: Filter Area = 18.4 Total Sq. Ft.

Blower CFM = 1200 cfm

Air Cloth Ratio = 1200/18.4 = 65/8 = 8.2 across each bag

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The Air Cloth Ratio is 8.2 across each bag. The reverse pulse jet was designed intentionally with higher jet speed. For this type of design, a quick burst of air shoots through the filter in the opposite direction to knock the dust cake off the filter.

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.

Rule 402- Nuisance: Frito-Lay North America Inc. has not been issued any Notice of Violations for Nuisance. 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)
Bag break dumping station	220	0.99	.002

Rule 1155 – The dust collector in less than 100 sq. ft. total area. Equipment is exempt from rule.

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Reg XIII and Rule 2005 – New Source Review:

REG XIII -BACT: Total PM10 uncontrolled emissions from the addition of the bag break dumping station is expected to have an increase of emission of 2.46 lbs PM10/day for each unit. Therefore, BACT is triggered since uncontrolled emissions are more than 1 lb/day. The bag break station has an integrated dust collector and meets BACT requirements.

Reg XIII -Modeling: Total PM10 emissions are calculated to be .002 lbs/hr for each unit. 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 are calculated to be 0.106 lbs/day for this project. Therefore no offsets required since emissions are under 0.5 lbs/day.

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 two Permits to Construct/Operate be issued to the two bag break dumping stations as described in this evaluation.